## Fall Semester, 2006
- **September 1, Friday**
  - Advising Day
- **September 4, Monday**
  - Labor Day Recess
- **September 5, Tuesday**
  - Classes Begin at 8:00 a.m.
- **November 22, Wednesday**
  - Thanksgiving Recess Begins at Noon
- **November 27, Monday**
  - Classes Resume
- **December 11-15**
  - Final Examination Week
- **December 16, Saturday**
  - Semester ends—Commencement

## Fall Semester, 2007
- **August 31, Friday**
  - Advising Day
- **September 3, Monday**
  - Labor Day Recess
- **September 4, Tuesday**
  - Classes Begin at 8:00 a.m.
- **November 21, Wednesday**
  - Thanksgiving Recess Begins at Noon
- **November 26, Monday**
  - Classes Resume
- **December 10-14**
  - Final Examination Week
- **December 15, Saturday**
  - Semester ends—Commencement

## Spring Semester, 2007
- **January 5, Friday**
  - Advising Day
- **January 8, Monday**
  - Classes Begin at 8 a.m.
- **January 15, Monday**
  - MLK Day Recess, Convocation and Activities
- **March 2, Friday**
  - Spirit Day
- **March 5, Monday**
  - Semester Recess
- **March 12, Monday**
  - Classes Resume
- **April 23-27**
  - Final Examination Week
- **April 28, Saturday**
  - Semester ends—Commencement

## Spring Semester, 2008
- **January 4, Friday**
  - Advising Day
- **January 7, Monday**
  - Classes Begin at 8 a.m.
- **January 21, Monday**
  - MLK Day Recess, Convocation and Activities
- **February 29, Friday**
  - Spirit Day
- **March 3, Monday**
  - Semester Recess
- **March 10, Monday**
  - Classes Resume
- **April 21-25**
  - Final Examination Week
- **April 26, Saturday**
  - Semester ends—Commencement

## Summer I, 2007
- **May 7, Monday**
  - Classes Begin
- **May 28, Monday**
  - Memorial Day Recess
- **June 27, Wednesday**
  - Session Ends
- **June 30, Saturday**
  - Commencement

## Summer I, 2008
- **May 5, Monday**
  - Classes Begin
- **May 26, Monday**
  - Memorial Day Recess
- **June 25, Wednesday**
  - Session Ends
- **June 28, Saturday**
  - Commencement

## Summer II, 2007
- **June 28, Thursday**
  - Classes Begin
- **July 4, Wednesday**
  - Independence Day Recess

## Summer II, 2008
- **June 26, Thursday**
  - Classes Begin
- **July 4, Friday**
  - Independence Day Recess

## Spring Semester, 2009
- **January 2, Friday**
  - Advising Day
- **January 5, Monday**
  - Classes Begin at 8 a.m.
- **January 19, Monday**
  - MLK Day Recess, Convocation and Activities
- **February 27, Friday**
  - Spirit Day
- **March 2, Monday**
  - Semester Recess
- **March 9, Monday**
  - Classes Resume
- **April 20-24**
  - Final Examination Week
- **April 25, Saturday**
  - Semester ends—Commencement

## Summer I, 2009
- **May 4, Monday**
  - Classes Begin
- **May 25, Monday**
  - Memorial Day Recess
- **June 24, Wednesday**
  - Session Ends
- **June 27, Saturday**
  - Commencement

## Summer II, 2009
- **June 25, Thursday**
  - Classes Begin
- **July 3, Friday**
  - Independence Day Recess
August 17, Friday  
Session Ends—No Commencement Exercises

August 15, Friday  
Session Ends—No Commencement Exercises

Independence Day Recess

August 14, Friday  
Session Ends—No Commencement Exercises

NOTE: This Academic Calendar is Subject to Change Without Notice.
University Overview

Founded in 1903, Western Michigan University is a state-assisted, co-educational institution located in Kalamazoo, midway between Chicago and Detroit. Three major highways, Amtrak, commercial airlines, and numerous bus routes connect the city with the rest of the nation. The population of Kalamazoo is 81,000. Kalamazoo County has a population of 283,000.

Mission

Western Michigan University is a student-centered research university, building intellectual inquiry, investigation, and discovery into all undergraduate, graduate, and professional programs. The University provides leadership in teaching, research, learning, and public service. Nationally recognized and internationally engaged, the University:

- Forges a responsive and ethical academic community
- Develops a foundation for achievement in pluralistic societies
- Incorporates participation from diverse individuals in decision-making
- Contributes to technological and economic development
- Engenders an awareness and appreciation of the arts

Goals

Western Michigan University's mission is characterized by its pursuit of the following institutional goals:

- To foster a safe, civil, and healthy University community
- To provide access to academic programs at reasonable cost and in multiple settings
- To increase diversity within the student body, faculty, and staff through institutional practices and programs
- To recognize excellence in the teaching, research, learning, creative work, scholarship, and service contributions of students, faculty, and staff
- To conduct ongoing assessment activities and engage in continuous improvement initiatives within the University
- To establish life-long relationships between alumni and the University
- To advance responsible environmental stewardship
- To support community and regional partnerships that elevate civic, cultural, social, and economic life.

Approved by Western Michigan University's Board of Trustees, December 7, 2001
Admission Policies

Western Michigan University admits students whose educational backgrounds indicate a high probability for success in college work.

Whether students apply online, mail the application, or have a one-on-one onsite admission, the major factors considered in the admission decision are grade point average, ACT/SAT scores (optional writing test recommended), college prep courses taken, and trend of grades. Additionally, other variables, such as letters of recommendation, the optional essay, and extra-curricular activities are reviewed.

WMU strongly recommends that applicants follow a college preparatory curriculum that would include minimally: four years of English; three years of mathematics, including intermediate algebra; three years of social sciences; two years of natural sciences; and two years of foreign language, especially for those students pursuing a major in the College of Arts and Sciences.

Offers of admission made to students still in high school are provisional pending graduation from high school and the University's review of final senior year grades. Poor performance may result in a change of admission status or withdrawal of the admission offer.

In reviewing applications from prospective transfer students, the University makes decisions on the basis of previous college work (and high school grades if fewer than twenty-six semester hours will be transferred). At least a "C" average in transferable work is required for initial consideration.

Offers of admission made to students currently enrolled in another college or university are provisional, pending successful completion of work in progress. Poor performance may result in a change in admission status or withdrawal of the admission offer.

The University reserves the right to withdraw, revoke, and/or cancel an admission decision for any reason, and at any time, if it deems warranted. This right shall also apply in instances when the University acquires information about an applicant or student after an admission decision is made.

Admission to Western Michigan University is non-discriminatory.

Readmission

Students who make an initial enrollment at Western but do not return the following semester/term will have one year's valid admission status in which to re-enroll, providing they left in good standing and have not attended another college since leaving WMU. After one year, students in good standing and with no college work since leaving WMU may reactivate their admission status by completing a readmission form.

Students who leave the University in good standing and subsequently take additional college work must complete a readmission form and have official transcripts sent from each institution attended. The readmission decision will be made under existing transfer admission standards.

Dismissed students applying for readmission must complete a readmission application and obtain an authorized college advisor's approval for readmission. University students who have been dismissed will normally not be readmitted for at least one fifteen week semester. The University will require evidence that the causes of past academic problems have been removed before approving readmission.
Forgiveness Policy

WMU undergraduate students who have not earned a degree and have not attended the University for at least four years may apply for academic forgiveness through the Office of the Registrar. Students who are granted academic forgiveness may have work still applicable to their program counted toward graduation requirements, but grades will not be calculated in their grade point average. The WMU grade point average will be calculated from a minimum of twelve graded hours of work attempted after the re-entry date.

All other University regulations apply. As a matter of course, the Registrar will advise students granted forgiveness to meet with a college advisor.

Admission Procedures for Domestic Students

Freshman Applicants

To be considered for freshman admission, with no previous college work, applicants should:

1. Obtain an application (available from high school counselors, the Office of Admissions, or online at www.wmich.edu/admissions/undergradapp/), complete the applicant section, attach a non-refundable $35 application fee, and give the application to your high school counselor;

2. Have your high school counselor complete the school's portion of the application and send it along with an official copy of your high school transcript directly to the Office of Admissions;

3. Make arrangements to take the examinations of the American College Testing (ACT) Program, or the College Board (SAT), with results sent directly to Western Michigan University (ACT College Code 2066; SAT College Code 1902); and

4. For those who have completed a General Educational Development (GED) Test, submit official GED scores as well as a high school transcript.

When to Apply

Students should submit applications for fall semester during the fall preceding their enrollment. High school students may apply for freshman admission after completion of the junior year. Application by December 15 ensures priority consideration for scholarships.

Admission Interviews

In order to make the best possible decision for an individual student, an admissions officer may require a personal interview to clarify or explain parts of the application materials.

Advanced Placement

The Advanced Placement Program (AP) of the College Board provides the opportunity for students to earn college credit while still in high school. WMU awards credit for all AP areas. An AP score of three (3) or better will earn credit in all areas except physics, which requires four (4) or five (5). For those wishing to participate, have AP send a score report to WMU, College Code 1902.
**Campus Visits**

Whether you will be a freshman or transfer student, visiting campus is an important step in learning more about WMU. The Office of Admissions offers a variety of visit programs throughout the year, which include general information presentation and a walking tour of the main campus. For more information, or to arrange a visit, go online to www.wmich.edu/admission/undergraduate/visiting

**Notification of Status**

The University notifies freshman applicants of their admission status on a rolling basis. When all materials are on file and the Admissions Committee acts, students will receive written notice. The decision may be to admit; to request additional grades, test scores, or an interview; or to ask the applicant to begin at another school and transfer to the University after establishing a successful college record.

Admission of students to freshman status while they are still in high school is conditional upon their graduation from high school and the University's review of their final grades. Poor performance in the senior year may cause a change in admission status or withdrawal of the admission offer.

**Orientation**

The foundation for an intellectually engaged and socially involved freshman class of students is established in the first year. Events and programs are offered that will assist students, enrich academic and campus life, and encourage retention. The First Year Experience program is designed to address those topics, and new students will receive information about the program following admission to WMU.

**Transfer Applicants**

To be considered for admission as a transfer from another college or university, students should:

1. Submit an application (available from community college counseling offices, the Office of Admissions, or online at www.wmich.edu/admissions/undergradapp/) with a $35 non-refundable application fee;

2. Request that each college attended send an official transcript directly to the Office of Admissions at WMU (transcripts brought or sent by the student cannot be accepted as official). Failure to report all colleges attended will invalidate the application and may result in dismissal if admitted. Transfer credit will not be granted for any schools not reported. Applicants currently enrolled at another institution should have a partial transcript sent to WMU. A provisional admission decision and partial credit evaluation can be made to allow for advising and registration. A final transcript showing acceptable grades must be received within the first term of enrollment at Western; and

3. If transferring fewer than twenty-six college semester hours, submit a high school transcript and ACT/SAT scores.

**When to Apply**

Applicants are strongly advised to submit all materials (application, fee, transcripts) in January to be considered for the Fall semester, in September for the Spring semester, and in December for Summer I or II sessions. All application materials must meet postmark deadlines of August 1 for Fall semester and December 1 for Spring semester.

**Notification of Status**

The University notifies transfers of their admission status on a rolling basis. When all materials are on file and the Admissions Committee acts, students receive notification. The decision may be to admit, to hold a decision for work in progress at another institution, or to suggest a student take more work before being accepted.
Admission of students attending another institution is provisional upon successful completion of the work in progress. Poor performance may change the admission status or cause withdrawal of the admission offer.

Credit Evaluation

Students Transferring to WMU

Students accepted for transfer to WMU will receive an evaluation of their previous college work, showing courses transferred with WMU equivalencies. Course equivalencies for Michigan's public community colleges and other transfer information are available in the counseling offices of those community colleges or at the Office of Admissions web site www.wmich.edu/admissions. Credit transfer information for other institutions is also available from the Office of Admissions.

Transferable courses completed at another college will be accepted for credit only, and only courses in which a "C" or better was earned will be eligible for transfer. Grades earned in those classes will be used only to determine admissibility to the University; they will not be recorded on the WMU transcript. Credit earned by examination does not normally transfer to the University. Students who have taken AP or CLEP examinations should have official score reports sent to the Office of Admissions, according to the "Credit By Examination" information elsewhere in this catalog.

Western Michigan University normally accepts work taken at a college or university accredited by a regional accrediting agency (for example, North Central Association of Colleges and Schools). Work taken at a college or university accredited by an agency other than a regional accrediting agency may be accepted on a provisional basis, subject to validation. The validation process consists of successful, subsequent completion of 26 semester hours of course work at WMU or at another regionally accredited school with a minimum GPA of 2.0. Trend of the most recent grades also will be taken into account. The credit will be awarded after the validation has been completed.

Transfer credit from foreign institutions will be evaluated by the Office of International Student and Scholar Services and credit awarded on a course-by-course basis depending on the result.

WMU Students Transferring Credit Back to WMU

All regulations and procedures concerning transfer of credit for new students also apply to WMU students who take work at other institutions to transfer back to Western. Before enrolling at another institution, WMU students should discuss course selection with their WMU academic advisor and a credit evaluator in the Office of Admissions to ensure transferability.

Advising/Registration

All admitted transfer students should make arrangements for an advising session with an appropriate WMU college advisor as soon as they have their admission materials and credit evaluation. At this session students will learn how transferred courses apply to the WMU major and will select courses for registration. Registration may be completed after the advising session. Admitted transfer students should call their college advising office directly to arrange an advising session. Transfer students should meet with their advisor and register during the registration periods available to current WMU students and should not wait until just before the beginning of classes.

Orientation

For students starting at WMU in the Fall or Spring semester, one-day Transfer Transition Programs will cover vital information about the library, campus facilities, academic expectations, University services, and students activities. Information will be sent to students after admission.
Admission Procedures for International Students

The Office of International Student and Scholar Services handles the special needs of international students by processing applications for admission, conducting orientation programs for new international students, assisting with housing arrangements, coordinating community programs involving international students, providing immigration advice, serving as liaison between students and their financial sponsors, and offering personal and social counseling. While at the University, international students are encouraged to participate in academic and social activities as their interests and time allow.

International students interested in seeking admission to Western Michigan University should contact the Office of International Student Services for application forms and instructions. The website is www.wmich.edu/oiss

To qualify for admission, international students must show that they are academically, financially, and linguistically capable of succeeding in full-time study. Before an international student can be admitted and the Certificate of Eligibility for a visa issued, the student must:

1. Complete an application form and return it to the Office of International Student and Scholar Services with a $100.00 application fee.

2. Provide complete and official transcripts of secondary and undergraduate studies as well as copies of diplomas, certificates or degrees earned. These must be translated into English and list course titles and grades (marks) received for each.

3. Provide proof of adequate funding per academic year. This funding amount includes tuition, room and board, books, health insurance, and miscellaneous expenses ($26,200 for undergraduate applicants). Personal/family savings must be verified by a bank statement. If sponsored by a government, an official letter must be submitted showing that the scholarship is valid for use at WMU, and indicating beginning and ending dates of validity.

4. Complete the Student and Dependent Information form.

5. Provide proof of English competency. The following tests and scores are accepted at Western Michigan University as measures of English competency. This requirement is waived for students from certain countries (see www.wmich.edu/oiss/cq.html).

   **Test of English as a Foreign Language (TOEFL)** A score of 500 (173 CBT) is required for restricted admission (part-time remedial English and part-time academics during the first semester) or 550 (213 CBT) for unrestricted admission.

   **Michigan English Language Assessment Battery (MELAB)** A score of 75 is required for restricted admission or 85 for unrestricted admission.

   **General Certificate of Education Advanced Level Pass** in English with grade of A, B, or C from one of the five British-based examining boards only. This is equivalent to a 550 TOEFL.

   **International English Language Testing System (IELTS)** using Modules A, B, or C (not the General Training Module). A score of 6.5 is required for restricted admission or 7.0 for unrestricted admission.

   **International Baccalaureate (IB)** A grade of 5 in English is required at the Higher Level for unrestricted admission.

   **Certificate of Proficiency in English (CPE)** A passing grade is required for unrestricted enrollment.

   **Certificate in Advanced English (CAE)** A passing grade is required for unrestricted enrollment.

   **The College Board's English Language Proficiency Test (ELPT)** A score of 950 is required for restricted enrollment or 965 for unrestricted enrollment.
CELCIS Successful completion of the advanced level and instructor recommendations from CELCIS.

A prospective student may enroll in the WMU Career English Language Center for International Students (CELSIS) until achieving the required TOEFL score for academic enrollment. For more information, contact the CELSIS Office.

Special Admission Programs

Alpha Program

The Alpha Program is a one-year conditional-admission academic support program for first-year students. The program provides developmental academic advising, alerts students to University resources, and requires attendance at skill-building workshops.

Consideration is given to those students who do not meet WMU's regular admissions criteria but who have demonstrated the potential for college-level work. From this pool, the University's Office of Admissions will select those students who appear to have the best chance for success. The Office of Admissions determines eligibility of applicants for admission as Alpha students.

Selected students and their parents or guardians are asked to sign a program contract accepting conditions of admission.

The Martin Luther King, Jr. Academy

The Martin Luther King, Jr. Academy is an accelerated teaching and learning development program that has been in existence at WMU since 1968. Named in honor of the late Dr. King, this particular program has the distinction of being the forerunner of similar programs in colleges and universities throughout the United States.

Initially, the program was funded through a grant from the Kellogg Foundation and was able to provide scholarships as well as remedial help to its participants. "Project 73," the original name of the program, began in the fall of 1968 with sixty WMU freshmen coming from high schools throughout southwestern Michigan. It now is a year-round program, beginning in the fall of the student's freshman year.

Beginning Fall 2001, the Martin Luther King, Jr. Academy was redesigned to recognize the academic achievement of students who have been awarded scholarships through the Cultural Diversity Scholarship and various other programs at Western Michigan University. The MLK Academy provides an opportunity for scholarship students to pursue their major areas of study and to join with other scholarship students in a variety of educational experiences that broaden their educational perspectives. The Academy strives to enhance the educational experience by creating a challenging, diverse, and friendly learning environment which in college.

MLK Academy students have the opportunity to participate in a variety of programs and activities, including:

* Exposure to and encouragement for international study.

* Academic enhancement programs, including faculty and professional staff mentors and faculty-guided research projects leading to advanced degrees.

* Support of peer-group leaders to enhance student learning and development activities.

* Affiliation with student organizations that enhance professional development.

* Introduction to career development programs and associated internships.
* Participate in community involvement and volunteerism (service learning projects).

* Attend a series of events featuring speakers that represent the growing multicultural community at WMU.

Requirements for Academy Participation

* Must be a recipient of an institutional scholarship awarded through the admission process.

* Attend fall orientation program.

* Attend bi-monthly meetings with Division of Multicultural Affairs staff and peer leaders.

* Maintain a cumulative WMU grade point average of 2.0 or above.

Nontraditional Admission Programs

Non-degree Admission

Students who do not seek a degree and only wish to take classes will select this admission status. Students who have been enrolled in any academic institution within the preceding five years must meet the same admission requirements and follow the same admission procedures as degree-seeking students. Acceptance for non-degree status does not constitute degree admission to WMU. If a non-degree admitted student subsequently decides to apply to a specific WMU degree program, the applicant will be expected to meet all University and program-specific admission requirements. The time period for any "Non-degree Admission" status may not exceed four years from the time such admission status is granted. Applicants for non-degree admission:

1. Should complete a regular application for admission and indicate non-degree status for program choice;

2. may register for any course for which the prerequisites and/or course restrictions have been met; and

3. may enroll in subsequent terms for up to four years in non-degree status, providing they meet University probation and dismissal standards (see Academic Standards in the Registration, Records, and Regulations section of this catalog).

Certain University courses and financial aid may not be available to non-degree students.

Guest Students

Students who are currently in attendance and in good academic standing (at least a 2.0 grade point average) at another college or university may apply to Western Michigan University to take classes as a guest student. Guests should work with their home institution in advance to determine the appropriate classes to be taken at WMU. Guest admission does not constitute degree admission to WMU. Students seeking Guest status should use the guest application available from the Office of Admissions website www.wmich.edu/admissions or their current institution.

High School Dual Enrollees

Students who wish to take courses at the University while still in high school should submit a High School (Dual Enrollment) application (available from the Office of Admissions or from the Office of Admissions website). Seniors with at least a 3.25 high school grade point average will normally be admitted. Freshman through juniors with at least a 3.50 grade point average will be considered for enrollment on a case-by-case basis. In either instance, admission is as a guest student and does not constitute degree admission. Students who wish to apply for degree admission must be considered under regular admission standards.
Project Scope (Senior Citizens’ Opportunity Program in Education)

The following are the key features of the Senior Citizen's Opportunity in Education Program:

1. Senior citizens (persons 62 years of age or older) may qualify.

2. Enrollees may register in one regularly scheduled class, tuition free, each semester or session on a seat-available basis during the drop/add period. The late registration fee is waived.

3. Enrollees may not register for credit.

4. Only academic facilities necessary for the performance in class are accessible to SCOPE participants. SCOPE enrollees do not have access to normal services available to regular students such as the Health Center, Student Recreation Center, student discounts, etc. Special identification cards are issues to SCOPE participants.

5. Regular, degree-seeking admission is not extended to enrollees so the admission application is waived.

6. Special course fees for materials, trips, etc. are assessed.

7. Specific courses may not be available to SCOPE students due to space availability.

In addition to the tuition and fees, in the event the account is referred to a collection agency, the student will be responsible for any collection costs, collection fees, and collection charges and/or legal fees incurred in collecting the account balance.

Questions concerning current fee schedules should be directed to the Office of the Director of Accounting Services.

Tuition and Fees

For the current tuition rates, go to [www.wmich.edu/tuition](http://www.wmich.edu/tuition). These rates are subject to change without notice by action of the Board of Trustees.

[· ] **Resident:** See the Resident Classification section directly below for definition.

[· · ] **Non-Resident:** See the Residency Policy section directly below for definition.

* **Lower Division:** Undergraduate students who have not completed fifty-six credit hours by the start of each semester/session will be classified Lower Division.

** **Upper Division:** Undergraduate students who have completed fifty-six credit hours will be classified as Upper Division.

Residency Policy of Western Michigan University

The governing board at each university in Michigan has the authority to establish a residency policy/guidelines for admissions and/or fee purposes. Therefore, residency policies (guidelines) may vary from school to school and are independent of those used by other state authorities to determine residency for purposes such as income and property tax liability, driving and voting.

The following policy was approved by the Western Michigan University Board of Trustees, effective with the Fall Semester, 2001. This policy applies to all students (undergraduate and graduate) at WMU. The Office of the Assistant Vice President for Business administers this policy. Information on this policy is available through the University’s web site. Additionally you may contact the Office of the Assistant Vice President for Business directly at 3080 Seibert Administration Building, Western Michigan University, Kalamazoo, MI 49008, or call (269) 387-2366 for additional information or to request an application form.
Residency Policy for University Admissions and/or Fee Purposes

Any student may apply for in-state resident classification for any semester/session in which they are enrolled by completing the "Application for Resident Classification for University Admissions and/or Fee Purposes" and submitting it to the Office of the Assistant Vice President for Business. Applications can be filed as early as one month prior to the start of each semester/session but not later than 20 calendar days following the first day of classes for the fall and winter semesters (10 calendar days for the spring and summer sessions). The deadline dates are the same for all students (undergraduate and graduate).

1. Since normally a student comes to Western Michigan University for the primary or sole purpose of attending the University rather than to establish a domicile in Michigan, one who enrolls in the University as a non-resident shall continue to be so classified throughout his/her attendance as a student, unless and until he/she demonstrates that his/her previous domicile has been abandoned and a Michigan domicile established. The burden of proof is on the student.

2. "Domicile" is defined as the place where an individual's true, fixed and permanent home and principal establishment is and to which the individual returns whenever he/she is absent from the University. A student shall not be considered domiciled in Michigan unless the student is in continuous physical presence in this state for one year (12 consecutive months) immediately preceding the first day of classes of the term for which classification is sought and intends to make Michigan his/her permanent home, not only while in attendance at the University but thereafter as well, and has no domicile elsewhere.

3. Dependent Student: For tuition classification purposes, a student is presumed to be a dependent of the student's natural parents and/or legal guardian if the student is 24 years of age or younger and (a) has been involved primarily in educational pursuits, or (b) has not been entirely financially self-supporting through employment.

   a. Dependent Student - Parent(s) in Michigan

   The domicile of a dependent student is presumed to be the same as that of the student's natural parents. A dependent student whose parents are, according to University Residency Policy, domiciled in Michigan is presumed to be eligible for resident classification for University purposes as long as the student has not taken steps to establish a domicile outside of Michigan or any other action inconsistent with maintaining a domicile in Michigan.

   A dependent student with one parent domiciled in Michigan regardless of whether that parent is the student's custodial parent, is presumed to be eligible for resident classification for tuition-paying purposes if one parent is, according to University Residency Policy, domiciled in Michigan.

   The domicile of a dependent student's legal guardian(s) will be presumed to have the same evidentiary effect as that of a dependent student's natural parent(s), and references to parents in this policy shall include legal guardians, only when the student is the dependent of the legal guardian, and such guardianship has been established due to complete incapacity or death of the student's natural parent(s). A parent's inability to provide funds necessary to support a college education shall not qualify as complete incapacity.

   A dependent student who is living in Michigan and who is, according to University Residency Policy, permanently domiciled in Michigan does not lose resident status if the parents leave Michigan provided: (1) that the student has completed at least the junior year of high school prior to the parents' departure; (2) that the student remains in Michigan, enrolled as a full-time student in high school or an institution of higher education; and (3) that the student has not taken steps to establish a domicile outside Michigan or any other action inconsistent with maintaining a domicile in Michigan.

   b. Dependent Student - Parent(s) Not in Michigan

   A dependent student whose parents are domiciled outside the State of Michigan is presumed to be a non-resident for tuition-paying purposes at Western Michigan University.
4. Independent Student: A student may be granted in-state residency for tuition paying purposes, once the student provides evidence of 12 consecutive months (one year) of physical presence in the State of Michigan immediately preceding the first day of classes of the term in which the student is applying for a change in status. The year of continuous presence is never the only criterion used for determining in-state classification and, in itself, will not qualify a student for in-state status for tuition-paying purposes at WMU.

5. Residence of Spouse: The residence of a student who otherwise would be classified as a non-resident will follow that of his/her spouse if the spouse qualifies as a resident student for tuition-paying purposes.

6. Immigrants and Aliens: Only persons who are entitled to reside permanently in the United States may be eligible for resident classification at Western Michigan University. These individuals, like U.S. citizens, must still prove that they have established a Michigan domicile as defined in these regulations. In other words, having the privilege of remaining permanently in the United States, in itself, does not entitle a person to resident classification for University fee purposes. At the present time, non-citizens who are entitled to reside permanently in the United States include:
   a. Permanent Resident Alien must be fully processed and possess Permanent Resident Alien card or stamp in passport verifying final approval by filing deadline for applicable term.
   b. Refugees must have I-94 card with "Refugee" designation.
   c. A, E (primary), G, and I visa holders: Based upon current law, these non-immigrant visa classifications are the only ones that permit the visa holder to establish a domicile in the United States. As changes occur in applicable law, this list shall be updated.

7. Migrant Worker (Seasonal/Agricultural Employment): If an independent student, or the parent of a dependent student, has been employed as a migrant worker in Michigan for a minimum of two (2) months each year for the three (3) of the five (5) years prior to the date of the proposed in-state classification or for a minimum of three (3) months each year for two (2) of the five (5) years prior to the date of the proposed in-state classification, the student shall be classified as a resident. Proof and verification of employment is required. A migrant worker in Michigan is defined as one who travels to Michigan to pursue agricultural or related industry employment.

8. Misrepresentation and Falsification of Information: Students who provide false or misleading information or who intentionally omit relevant information on their admissions application or the "Application for Resident Classification for University Admission and/or Fee Purposes" or any other document relevant to residency eligibility may be subject to disciplinary and/or legal measures.

9. Appeal Process: Any student may appeal the decision on their residency application within 20 calendars days after he/she has been served notice of the decision on their application by taking the following steps:
   a. Provide a written notice of appeal to the Vice President for Business and Finance stating the reasons therefor. Please note that any additional documents that may provide evidence of domicile not submitted with the initial application must be included with the appeal.
   b. Additionally, the student must request in writing that all documents submitted with the initial application for residency be forwarded to the Vice President for Business and Finance so the entire file may be reviewed in the appeal process.
   c. Failure to comply within the required 20 days shall constitute a waiver of all claims to reclassification or rebates for the applicable semester/session.

   The student will receive a written decision on the Appeal when the review is complete. The decision on the residency appeal shall be the final recourse within the University.

The Student's Responsibility and the Residency Application Process

While circumstances for each applicant are unique, the following information is designed to be a reference for students who are interested in applying for resident classification for tuition-paying purposes at Western Michigan University (WMU). The fact that a student may qualify for resident status at another college or university in the State of Michigan or that the student may be considered a resident by other laws or regulations within the State of Michigan is not used in determining resident status for tuition-paying purposes at WMU.

Required Documentation

When filing an Application for Resident Classification for University Admissions and/or Fee Purposes, the following documentation must be included with the application form:
• All applicants must provide a copy of a valid driver's license for their self and of the person or persons upon whom the applicant is basing the claim to resident eligibility
• All applicants must provide copies of the front and signature pages of the most recent year's federal and state income tax returns and accompanying W2s for the applicant and the person or persons upon whom the applicant is basing the claim to resident eligibility
• All applicants who are born outside of the United States must provide verification of U.S. citizenship or visa status
• All applicants who are dependents (refer to Stipulation 3 of our policy) must provide copies of the front and signature pages of their parent’s most recent year’s federal and state income tax returns and accompanying W2’s
• All applicants whose claim to eligibility for resident classification is based on permanent, full-time employment for themselves, a parent or spouse must provide a letter from the employer, written on company letterhead (including phone number), stating the position, status and dates of employment. A copy of the most recent pay stub showing Michigan taxes being withheld must also be included.
• All applicants whose claim is based on their spouse's status as a resident, must provide a copy of their marriage certificate with the application.
• All applicants are also responsible for providing any other documentation necessary to support their claim to residency eligibility that may be requested by the Office of the Assistant Vice President for Business.

General Information

A student enrolling at WMU for the first time shall be classified as an in-state or out-of-state student for tuition-paying purposes. It is the student's responsibility to read the Residency Policy and to register under the proper residency classification. Students are encouraged to contact the Office of the Assistant Vice President for Business if they have questions regarding their residency classification or need assistance.

Any student who previously attended WMU as a non-resident student and reapplies for admission will continue to be classified as a non-resident student until an Application for Resident Classification for University Admission and/or Fee Purposes is filed and approved.

The admissions office performs the initial screening for in-state/out-of-state residency classification. If a student indicates Michigan resident on the admissions application and the admissions office questions the status, the student will be classified as a non-resident student. The fact that the student's claim to residency for tuition-paying purposes is questioned does not necessarily mean that the student will be ineligible. It simply means that the student's circumstances must be documented by completing an Application for Resident Classification for University Admission and/or Fee Purposes.

A student who has an out-of-state classification at the time of admission but claims eligibility for resident classification, must file an Application for Resident Classification for University Admission and/or Fee Purposes for an official determination of status if any of the following circumstances apply:

• The student is living out of the State of Michigan at the time of application to the University
• Either parent is living out of the state of Michigan (applies if the student is 24 years of age or younger and is a dependent student)
• The student has attended or graduated from an out-of-state high school and has been involved in educational pursuits for the majority of time since graduate from high school
• The student has had out-of-state employment or domicile within the last 3 years

(Please Note: The above list is not exhaustive.)

Before a student is granted residency status for admissions and/or fee purposes, the University will require the student to have continuously resided in Michigan for one year immediately preceding the first day of classes of the term in which the student is applying for in-state classification. If the student presents clear and convincing evidence which demonstrates the establishment of a Michigan domicile, the student will be eligible for in-state classification.
Establishing a Michigan Domicile

The following circumstances and activities which may demonstrate Michigan domicile, though not conclusive or exhaustive, may lend support to a claim to eligibility for in-state classification. This is not an exhaustive list.

- In the case of a dependent student, at least one parent domiciled in Michigan, as demonstrated by the parent's permanent employment, establishment of a household and severance of out-of-state ties.
- Student employed in Michigan in a full-time, permanent job, provided that the student's employment is the primary purpose for the student's presence in Michigan.
- Student's spouse employed in Michigan in a full-time, permanent job, provided that the spouse's employment is the primary purpose for the student's presence in Michigan.

The following circumstances and activities listed below are temporary or indeterminate and, in and of themselves, do not demonstrate domicile in Michigan:

- Enrollment in a Michigan high school, community college or university
- Employment in Michigan that is temporary or short-term
- Employment in Michigan in a position normally held by a student
- Military assignment in Michigan
- Payment of Michigan income or property taxes
- Ownership of property in Michigan
- Presence of relative in Michigan (other than parent(s) for dependent student)
- Possession of a Michigan driver's license or voter's registration
- A student's statement of intent to be domiciled in Michigan.

In cases where it is determined that a student has not demonstrated establishment of a domicile in Michigan as defined by this policy, the University will require the student to document one year of continuous physical presence in the state. The year to be documented will be the 12 consecutive months immediately preceding the first day of classes of the semester/session in which the student is requesting residency.

In documenting the year of continuous presence in Michigan, the student will be expected to show actual physical presence by means of enrollment, employment, in-person financial transactions, etc. **Having a lease or a permanent address in Michigan does not, in itself, qualify as physical presence.** Short-term absences (vacation periods of 21 days or less, spring break, and break time between fall and spring semesters), in and of themselves, will not jeopardize compliance with the one-year requirement. The nature of the short-term absence will be assessed to determine whether it is contrary to an intent to be domiciled in Michigan. Absences from Michigan that exceed the time mentioned above or failure to document 12 consecutive months of physical presence will be considered as noncompliance.

Filing Dates/Deadlines

Students may apply for resident classification for any semester/session in which they are enrolled. Applications must be filed not later than 20 calendar days following the first day of classes for the Fall and Spring semesters (10 calendar days for the Summer I and Summer II sessions). The deadline dates for filing the Application for Resident Classification for University Admission and/or Fee Purposes are the same for all students (undergraduate and graduate). If the deadline falls on a weekend, holiday or closure day, it will be extended to the next business day.

(Note: Applications must be received in the Office of the Assistant Vice President for Business by the filing deadline. Applicants who do not file by the deadline will be responsible for paying tuition at the non-resident rate. Exceptions will not be granted.)

Incomplete information (supporting documentation) and/or absence of dates (month/day/year) could result in immediate denial of resident status and/or delay the processing of your application.
All official actions concerning the review of your residence application will be communicated to you in writing. It is your responsibility to notify this office of any change in your mailing address.

Auditing Courses, Tuition for

Students who audit courses (who register for classes but do not desire credit) are governed by the same regulations and tuition fees as students desiring credit.

Change in Credit Hour Load, Effect on Tuition

Changes in student credit hour load prior to the end of the final day for adding a course are considered to be reassessments, and a refund may be granted if the net reduction in the credit hour load changes the student's rate category. After the final day for adding a course, there is no reassessment or refund for reduction in credit hour load. An increase in credit hour load may result in an upward adjustment of the tuition fee assessment if the net addition in the credit hour load changes the student's rate category. Students should refer to the current *Schedule of Course Offerings* for complete information pertaining to the University's refund policy.

Complete Withdrawal from All Courses, Effect on Tuition

The *Registration Information* booklet for the appropriate semester/session should be consulted for the refund policy that pertains to complete withdrawal.

Students completely withdrawing from all classes must enter this information into the touchtone registration system or by going to the Registrar's office during the official drop/add days in order to process their withdrawal and assure a refund. The withdrawal date for refund purposes will normally be determined by the date that the Registrar receives a Change of Enrollment Request form or an Appeal to Withdraw form.

Students who find it impossible to be on campus to process a complete withdrawal and do not have access to touchtone phones may write to the Registrar's office, Room 3210 Seibert Administration Building, for aid in processing their withdrawal. All written requests for complete withdrawal must bear the appropriate postmark date for consideration of any refund.

Student Fees Other Then Tuition

Admission Application Fee

A non-refundable fee of $35 must accompany each application for admission.

Admission Validation Deposit

Entering Students: A $50 deposit applicable to fall student fees is required for all admitted beginner, transfer, and former students. The deposit must be paid by May 1 for those admitted before that date, and upon admission for those admitted after that date. The deposit is not refundable after May 1. Detailed information is provided on the Certificate of Admission from the Office of Admissions and Orientation.

Class Fees

Some courses have class-specific fees for which the student will be responsible. The University makes every effort to publish in the *Registration Information* booklet such class-specific fees.
Collection Costs

In addition to the tuition and fees, in the event the account is referred to a collection agency, the student will be responsible for any collection costs, collection fees, and collection charges and/or legal fees incurred in collecting the account balance.

Enrollment Fee

For all students registered in on-campus courses, the enrollment fee incorporates all required fees with the exception of the student organizations' assessment fee into a single per capita assessment. The enrollment fee for students registered in on-campus classes can be found on www.wmich.edu/tuition.

Extended University Programs Fee

A tuition surcharge fee of $200.00 per three-hour course ($80.00 per one-hour course; $160.00 per two-hour course) is assessed each semester/session.

E-Learning Course Fee

A tuition surcharge fee of $90.00 per E-Learning course offered by Academic Technology and Instructional Services is assessed each semester/session.

Flight Instruction Fee

Fees for flight instruction courses in the College of Aviation range broadly. For specific course fee information, consult the College of Aviation.

Refund of flight instruction fees will be made in accordance with the policy established by the College of Aviation. For specific course fee information, consult the College of Aviation.

Graduation Fee and Application Deadline

Summer II Session Graduation (August)
$45.00 Application Deadline: February 1

Fall Semester Graduation (December)
$45.00 Application Deadline: August 1

Spring Semester Graduation (April)
45.00 Application Deadline: December 1

Summer I Session Graduation (June)
$45.00 Application Deadline: February 1

International Student Fee

International students will be charged a $25.00 fee each semester or $12.50 fee each session.

International Student Insurance Program: Mandatory Hospital, Medical, and Surgical Insurance

All international students are required to carry health insurance if health care coverage is not provided by their sponsor. Students will be automatically enrolled in the University-sponsored policy unless an approved alternate policy is chosen.
Non-sponsored international students must show proof of coverage and have alternate policies approved at the Sindecuse Health Center during the first two weeks of the semester/session. No refunds of insurance premiums can be given after that time. The insurance coordinator at the Health Center is available to assist students via e-mail at shc-usip@wmich.edu or phone at (269) 387-3266.

**Late Add Fee**

Classes cannot be added after the drop/add registration period ends except for extenuating circumstances as determined by the Office of the Registrar. Should the Registrar deem that a late add should be granted, the student will be assessed a fee of $100.00 per class added. If the student was not previously registered for at least one class, the late registration fee of $100.00 also will be assessed.

A late registration fee of $100.00 is assessed each student who is not registered for at least one class prior to the third day of the semester/session. Students who have registered for classes prior to the late fee assessment date and wish to process drops/add.

**Liability Insurance Fee**

Students enrolled in courses requiring participation off-campus for field experience or practicums will be charged a liability insurance fee. This fee will be assessed one time per year, fall semester through summer II session. Students registered in classes that require more than one type of liability insurance will be charged for each type one time.

**Records Initiation Fee**

A one-time fee of $300.00 is assessed for each entering (undergraduate, graduate, or transfer) student who is degree-seeking. This fee helps to subsidize the establishment of each student's official academic record at the University, and supports related activities such as integrated web course registration, online grade and program reviews, automated degree audit, student accounts receivables, and the provision of an individual electronic portfolio that reflects the learning, educational growth, and personal accomplishments for each student.

**Student Assessment Fee**

A student assessment fee (SAF) of $12.00 per semester (Fall and Spring) and $6.00 per session (Summer I and Summer II) will be collected from all undergraduate and graduate students at the time of registration. This assessment is for the support of student organizations and agencies. The student organizations and agencies use this money to enhance the out of classroom experience on campus. The following is a sample of the programs funded in previous years: Bronco Bash, Homecoming, College Bowl, Miller Movies, Bernie's Afterhours, Bernhard Center's Center Stage, lectures, etc.

**Transcript Fee**

An unofficial transcript may be obtained in the Registrar's Office for $2.00, or may be printed by the student from the web for no cost. An official transcript obtained in the Registrar's Office or sent via regular mail is $5.00. The transcript will be released only upon written authorization of the student and only after payment is made.

**Residence Hall and Dining Fees**

For current rates go to [www.reslife.wmich.edu](http://www.reslife.wmich.edu)

The rates quoted are on the basis of two or more students per room and include a $25.00 per semester deferred maintenance fee. These fees and rates are subject to change without notice by action of the Board of Trustees. The Board of Trustees reviews annually the room and dining rates and may increase the rates if, in its opinion, such an increase is necessary.
Newly admitted undergraduate students are automatically sent information about residence hall offerings for the semester they anticipate coming to the University. Individuals returning to the University as re-entries, and newly admitted graduate students, will receive information by return mail upon requesting details from the Manager of Residence Hall Facilities, Student Services Building. Residence hall accommodations are not automatically made as a result of admission to the University.

**Financial Aid and Scholarships**

WMU’s Student Financial Aid Office administers a variety of student financial aid programs designed to aid students who are in need of additional financial support. Five types of financial aid programs are available: scholarships, grants, employment opportunities, loans, and tuition plans. The federal and state governments, colleges and universities, private associations, companies, and private citizens are sources of financial aid.

The information in this section describes both need- and non-need based financial aid programs based upon the 2003-2004 award year criteria at the time of this editing. Should federal, state, or university regulations and procedures change for the subsequent award years, the University will be responsible for administering these programs according to updated descriptions and criteria.

For complete, current information, visit the Student Financial Aid Office website at [www.wmich.edu/finaid](http://www.wmich.edu/finaid) or email the Office at finaid-info@wmich.edu or call the Office at (269) 387-6000.

**FastWeb**

FastWeb is a free computerized scholarship search found on the Internet. FastWeb can be accessed at [www.fastweb.com](http://www.fastweb.com). This interactive scholarship search analyzes a student's major, grade point average, race, handicap, gender, hobbies, work experience, religion, residence, nationality, veteran status, and athletic ability to locate scholarships for which the student may apply.

**MI-Search**

The Michigan Higher Education Assistance and Student Loan Authority offers a free comprehensive search on their website. Michigan residents receive national and Michigan-specific scholarship information. Michigan students will receive information about any Michigan-specific scholarships listed in the database that matches the student's profile. MI-SEARCH can be accessed at [www.MI-StudentAid.org](http://www.MI-StudentAid.org).

**WMU Scholarship Search**

The WMU Scholarship Search is intended for students who plan to attend or currently attend Western Michigan University. Scholarships described are opportunities within WMU departments and federal and state grants. Please visit our website at [www.wmich.edu/finaid](http://www.wmich.edu/finaid) for a complete listing of these scholarships.

**Procedures**

**Applying for Financial Aid**

To determine eligibility for need-based financial aid programs, students must file a Free Application for Federal Student Aid (FAFSA). The FAFSA is available from high schools, from WMU’s Student Financial Aid office, and from other higher education institutions. Returning applicants will receive a Renewal FAFSA PIN notification at their home addresses by late December. Students may file the FAFSA on the web at [www.fafsa.ed.gov](http://www.fafsa.ed.gov) using their PIN as soon as January 1 of the award year for which they are planning to attend Western.
The FAFSA gathers information regarding the parents' and students' income, assets, and other related information to determine the expected family contribution (EFC). The amount of need based financial aid is determined by subtracting the EFC from the cost of attendance. The cost of attendance is based on an estimation of tuition, fees, books, supplies, housing, food, transportation and personal expenses. The amount of aid not based upon need (non-need programs) is also determined by subtracting eligible need based financial aid programs and other resources received from the cost of attendance.

Besides filing the FAFSA, other documents and processes may be required before an award notice or payment is processed. Written communications will be mailed to students identifying what is required as a result of application edits, specific programs awarded, or general eligibility requirements.

Application edits may require copies of Federal tax returns. Social security matches may require copies of social security card or driver's license. Immigration and Naturalization Service matches may require copies of INS documents.

Program related documents may include loan promissory notes. Entrance counseling attendance is also required for first time loan borrowers at Western.

Awarding Process

Considering the amount of student's financial need, the Financial Aid Office automatically considers students for all types of Federal, state, and institutional grants, employment, and loans. Any scholarships, stipends, or other resources will be assessed first before awarding need based financial aid. Additional eligibility factors will be considered in determining the type and amount of aid programs in the award package.

In general the eligibility factors that are reviewed are citizenship, residency, class level, grade level, enrollment hours, enrollment terms, degree status, default status, and good academic standing.

Most financial aid programs require a minimum enrollment equivalent to half time status to be eligible for payment. Awards are initially based on full time enrollment and adjusted to reflect actual enrollment after the term begins.

Any additional resources, changes to funding or regulations may affect student's financial aid awards. If the additional information received affects student's financial aid awards, a Revised Award Letter will be created.

Payment Process

Financial aid payments are credited on or before the first day of the term to a student's tuition, fees, housing, food, and other authorized charges. Payments are disbursed each term based upon the program eligibility requirements, and minimum enrollment requirements are verified at the time of each disbursement. Any excess funds remaining will be directly deposited to a student's account or mailed to a student's local address.

Maintenance Requirements

In accordance with Federal and State regulations, standards of satisfactory academic progress are applied to all students who wish to establish or maintain financial aid eligibility at Western Michigan University, regardless of whether or not they have received financial aid funds in the past. The following policy will affect aid eligibility beginning with the 2006-2007 financial aid year.

The standards of satisfactory academic progress include the following measurements:
1. Minimum credit hours passed per semester based on enrollment status and degree intent.
   Undergraduate Degree - Minimum Completion Standard for Each Term, Effective at Beginning of Fall 2005
   Enrollment Status, Fall or Spring
   Full Time (12 hours +)/Passed hours, 12
   Three-quarter Time (9-11 hours)/Passed hours, 9
   Half Time (6-8 hours)/Passed hours, 6
   Less than Half Time (1-5 hours)/Passed hours, 1-5

2. Pass at least 66% of all credit hours attempted at WMU.

3. Maximum total hours attempted to include hours attempted at Western along with any transfer credit hours based on degree intent. For undergraduates, no more than 183 hours total.

4. Minimum cumulative grade point average based on the University's Academic Standards for the degree intent.

The standards are established to encourage students to progress toward their educational objective and complete their degree within a reasonable time frame and with the least amount of loan debt. If the standards are not met, students are not eligible for federal and state financial aid.

Academic progress will be monitored once each year at the end of the spring semester and the status will be effective with the upcoming financial aid year. A student's eligibility for financial aid whose academic record indicates they are close to the maximum total hours attempted will be awarded term-by-term.

If the student has received an "ineligibility" notice due to not meeting the standards of satisfactory academic progress, the student may appeal for reinstatement of their financial aid eligibility.

Withdrawal from Courses and Impact on Financial Aid

All changes in registration, or an intent to withdraw completely from all courses, must be accomplished in accordance with the procedures published in the Registration Information booklet. The official registration drop/add period extends five business days into a semester or session. In addition, a twenty-four hour grace period will be provided to students who drop or add a class that meets for the first time on the final day of the drop/add period. This same twenty-four grace period also applies to any class that meets for the first time beyond the five-day drop/add period. A student who withdraws from the University or who reduces a credit hour load during the drop/add period will be granted a complete removal of tuition charges.

A complete withdrawal from all courses, past the drop/add period, results in a partial reduction of tuition charges, up through the first Friday past mid-semester. See the Refund Policy in the Registration Information booklet for complete information and dates. To appeal for a greater reduction or possible cancellation of tuition charges, students may complete a Request for Cancellation of Tuition Charges, with supporting documentation, through Student Financial Aid. Financial Services Specialists will review the submitted requests and forward a written decision to the student.

There is no reduction of tuition charges for a partial withdrawal from classes after the official drop/add period unless circumstances warrant. Students may complete a Request for Cancellation of Tuition Charges through Student Financial Aid. Circumstances which warrant an appeal may include medical reasons, university error, death of a close relative, or another significant event that occurred during the semester of withdrawal having a direct impact on the student's ability to complete the course(s). Supporting documentation is required in order to substantiate an appeal approval. A student's reasons for requesting a cancellation of tuition charges vary individually and are evaluated on that basis.

It is highly recommended that the student contemplating a partial or complete withdrawal from classes first discuss the situation with a Financial Services Specialist in the Office of Student Financial Aid.
**Types of Financial Aid**

**Grants/Need Based Scholarships**

Financial aid programs funded by the Federal and state government to provide free assistance to exceptionally needy undergraduate students.

**Federal Pell Grant** provides grants up to $4,050 per academic year to eligible undergraduate students who have not obtained a bachelor's degree.

**Federal Supplemental Educational Opportunity Grant** provides grants up to $1,800 per academic year to eligible, undergraduate students who have not obtained a bachelor's degree.

**Michigan Educational Opportunity Grant** provides grants up to $1,000 per academic year to eligible, undergraduate students who are Michigan residents and who have not obtained a bachelor's degree.

**Michigan Adult Part Time Grant** provides grants up to $600 per academic year to eligible, undergraduate students who are Michigan residents, self-supporting, enrolled part-time and have not obtained a bachelor's degree. Recipients are limited to two years of eligibility.

**Michigan Competitive Scholarship** is based on financial need and a student's composite ACT score. The scholarship provides up to $1,300 per academic year to eligible, undergraduate students who are Michigan residents and have not obtained a bachelor's degree. Recipients are limited to ten semesters of eligibility that must be used within ten years of their high school graduation.

**Employment**

Financial aid programs funded by the Federal and state government to assist needy students through employment opportunities:

**Federal College Work Study** provides employment opportunities for undergraduate and graduate students. Students who work from ten to twenty hours average a week while attending school may earn up to $3,000 per academic year. Western's Student Employment Referral Service office assists students who have been awarded employment in selecting jobs either on or off-campus (including community service opportunities).

**Michigan College Work Study** provides employment opportunities for undergraduate and graduate students who are Michigan residents. Students who work from ten to twenty hours average a week while attending school and may earn up to $3,000 per academic year. Western's Student Employment Referral Service office assists students who have been awarded employment in selecting jobs either on or off-campus (including community service opportunities).

**Loans**

Financial aid programs designed to assist students through borrowing at a lower interest rate with opportunities to defer principal payments and possibly interest payments until after enrollments ends:

**Federal Perkins Loan** allows needy undergraduate and graduate students to borrow funds on an annual basis with an interest rate of 5.0 percent. The annual amount ranges up to $4,000 per academic year for undergraduate students and $6,000 per year for graduate students. Interest and principal payments are deferred as long as a student is enrolled at least half-time. Repayment of the loan plus interest begins nine months after the student ceases to be enrolled a least half-time.

**Federal Direct Subsidized (FDS) Loan** allows undergraduate and graduate students with financial need to borrow funds on an annual basis with a variable interest rate capped at 8.25 percent. The annual amount is dependent upon cost of attendance, EFC, grade level, and other resources received. Interest and principal payments are deferred as long as a student is enrolled at
least half-time. Borrowers pay a 3 percent origination fee (less a 1.5% interest rebate) that is deducted from each
disbursement. Repayment of the loan plus interest begins six months after the student ceases to be enrolled at least half-time.

**Federal Direct Unsubsidized (FDU) Loan** is a program not based on need and allows undergraduate and graduate students
to borrow funds on an annual basis with a variable interest rate capped at 8.25 percent. The annual amount is dependent upon
cost of attendance, grade level, and other resources received. Interest accrues while the student is enrolled in school and the
student has the option of paying the interest payments or letting the interest payments be added to the loan amount. Loan
principal payments are deferred as long as a student is enrolled at least half-time. Borrowers pay a 3 percent origination fee
(less a 1.5% interest rebate) that is deducted from each disbursement. Repayment of the loan plus interest begins six months
after the student ceases to be enrolled at least half-time.

**Federal Direct Parent Loan (PLUS)** is a program not based on need and allows parents of dependent students to borrow
funds on an annual basis with a variable interest rate capped at 9.0 percent. The annual amount is dependent upon cost of
attendance and other resources received. Repayment of interest and principal payments are due within 60 days of the last
disbursement of the loan. Borrowers pay a 4 percent origination fee (less a 1.5% interest rebate) that is deducted from each
disbursement. Borrowers must have no adverse credit history. Dependent students whose parents have been denied a PLUS
loan due to an adverse credit history may borrow FDU loan funds.

**Other Alternative Loans** Banks and private organizations have set up a variety of alternative loan programs. These
programs require payment while the student is in school, the interest rates are at a higher rate than the federal programs, and
they offer different repayment options. Contact Student Financial Aid for a listing of known alternative loan programs.

**Other Financial Opportunities**

**Michigan Merit Award** is a $1,250 scholarship award for high school seniors based upon MEAP scores or a combination of
MEAP and ACT or SAT scores. For further details contact the Department of Treasury 1-888-4-Grants or visit their website
at [www.michigan.gov/mistudentaid](http://www.michigan.gov/mistudentaid).

**On and Off Campus Student Employment** opportunities exist. The Career and Student Employment Services Office
actively recruits both on- and off-campus employment, including community service, opportunities. Students may review the
jobs listed with the service in Room A-100, Ellsworth Hall or on the web at [http://jobs.dosa.wmich.edu](http://jobs.dosa.wmich.edu). Openings include
food service and clerical positions of all levels, retail sales positions, and technical positions requiring computer science
skills.

Students may also directly contact specific areas of the university where they wish to work. Students are employed by
University departments, offices, libraries, laboratories, residence halls, the recreation center, and the Bernhard Center.

The Career and Student Employment Services Office can also help students find an existing co-op or internship program or
design a program on their own and contact prospective employers.

Residence Hall positions are also available either as advisors or assistant directors. Advisors receive free room and board on
campus (single room). Assistant directors receive free room and board on campus (single room) and a stipend each semester.
Contact Residence Hall Life for further information.

**U.S. Armed Forces** offers students a variety of educational assistance programs. For further detail, contact your local armed
forces recruiter.

**Western's Short Term Loan Program** provides emergency short-term loans to Western enrolled students. Both graduate
and undergraduate students who have no financial obligations to the University may apply for loans at the Financial Aid
office. Loans average $300.00, are charged a simple interest rate of 5 to 7 percent, and require repayment generally in thirty
days.
WMU Scholarships for Beginning Freshman

Medallion Scholarship Program

The Medallion Scholarship, the University's most prestigious scholarship for new freshmen, exemplifies Western's commitment to recognize and encourage superior academic achievement. Medallion scholars receive $10,000 each year for up to four years. Some Medallion scholarships carry the name of the donor and are awarded to students entering programs designated by the donor; others are open to students in all degree programs. The top 300 Deans Scholarship recipients will be invited to the Medallion Scholarship Competition to compete for this award. Students must apply for admission by December 15 to be considered for the scholarship.

The Dean's Scholarship Program

The Dean's Scholarship, new to WMU, is a $4,000 award given to incoming freshmen for each year up to four years who have a 3.50 and higher overall high school grade point average and an ACT composite of 23 and higher (SAT Math and Critical Reading total of 1060 and higher). Students who apply for admission by December 15 are given priority consideration for the scholarship. After December 15, the scholarship will continue to be awarded as long as funds are available.

WMU Award for National Merit Scholarship Winners

Western Michigan University is an institutional member of the National Merit Scholarship Corporation and sponsors scholarships for National Merit Scholarship Finalists. Recipients are selected on the basis of national merit test scores and scholastic achievement. Western also awards $3,000 ($750 per year for up to four years). To be eligible, students must designate Western as their first school choice with the National Merit Scholarship Corporation no later than April 1 of the year preceding the award year. Students receiving the maximum $2,000 per year award as a National Merit Scholar, or students awarded the WMU Medallion Scholarship, are not eligible for the $3,000 scholarship.

Legacy Award

Recipients of the WMU Alumni Association Legacy Award will receive a one-time grant of $1,000 ($500 fall semester and $500 spring semester). To be eligible, the recipient must be an entering freshman or transfer student, and a child, grandchild, stepchild, or stepgrandchild of a dues paying WMU alumnus/alumna.

WMU Scholarships for Michigan Community College Transfer Students

A transfer student may receive only one of the following awards. For consideration, students must have completed at least 26 semester hours of transferable course work at the time of application.

WMU Distinguished Community College Scholars Award

Ten WMU Distinguished Community College Scholars Awards are given annually to Michigan residents transferring to Western with an associate's degree from a Michigan community college. Recipients of this $6,000 scholarship receive $3,000 each academic year. To be eligible, students must have a grade point average of 3.75 or above in transferable courses and all materials necessary for admission must be mailed to the Office of Admissions and postmarked by March 1. Recipients are selected by the Western Michigan University Transfer Scholarship Selection Committee.

WMU Community College President's Scholarship

Michigan community college presidents select the recipients of this $4,000 scholarship, which provides $2,000 each academic year. To be eligible, students must have a grade point average of 3.5 or above in transferable courses, selected by a Michigan community college president, and all materials necessary for admission must be mailed to WMU's Office of Admissions and postmarked by March 1.
Phi Theta Kappa Alumni Scholarship

Transfer students who are Phi Theta Kappa members in good standing are eligible for this $3,500 ($1,750/academic year) award. A 3.5 or higher in transferable courses is required. The completion of an Associate's Degree is recommended. For students to be eligible, all materials necessary for admission must be mailed to the Office of Admissions and postmarked by March 1. Recipients are selected by the Western Michigan University Transfer Scholarship Selection Committee.

Transfer Academic Scholarship

Students who transfer to WMU with a grade point average of 3.5 or above, as computed by the Office of Admissions, will be eligible for a $3,000 scholarship, which provides $1,500 each academic year. For students to be eligible, all materials necessary for admission must be mailed to the Office of Admissions and postmarked by March 1. The University makes these awards as long as funds are available.

Transfer Scholarship for Achievement

Transfer students who enter WMU in the fall semester with a minimum grade point average of 3.0 in transferable courses may be eligible for this $1,000 award, as long as funds are available. This scholarship is not renewable. For students to be eligible, all materials necessary for admission must be mailed to the Office of Admissions and postmarked by March 1.

WMU Scholarships for Currently Enrolled Students

For scholarship opportunities, please visit our website at www.wmich.edu/finaid/3-scholarships/scholarships.html.

WMU Undergraduate Research and Creative Activities Award

The WMU Undergraduate Research and Creative Activities Award Program, administered by the Honors College, is designed to encourage and nurture research and creative activities by outstanding students at Western Michigan University.

An essential feature of the Undergraduate Research and Creative Activities Award Program is the apprentice/mentor relationship established between a student and faculty member.

A suitable project can come from any area of academic endeavor at the University. It could include, but would not be limited to, research, development, design, field study, a creative project or performance. Normally the project should require approximately 150 hours (or ten hours per week) of the student's time over one semester. Additional funds are available for a second semester renewal application.

The applicant must be a Western Michigan University undergraduate, should have a grade point average of at least 3.3, and typically have accumulated at least 60 credit hours at the time the project will begin. The program awards a $600 stipend for the first semester. An award may be renewed once if there is sufficient justification. While the program is administered by the Honors College, the student does not need to be a member of the Honors College in order to qualify for an award.

The selection of awardees will be based on the past academic performance of the student, the experience and expertise of the sponsoring faculty member, and the merits of the proposed project.

WMU Academic Scholarship

Currently enrolled Western students whose University grade point average is 3.50 or above are eligible to apply for this $500 fall/spring semester award. Western awards 4.0 grade point averages and continues awarding down to a 3.75 grade point average as long as funds are available.
Application forms are available at Western's Student Financial Aid Office from January 1 through March 1 or online at www.wmich.edu/finaid/3-scholarships/scholarships.html. Students must submit their application by March 1 for the following fall/spring semester academic year.

Clifford and Ella Chapman Distinguished Senior Scholarship

The trust established in 1964 by Clifford and Ella Chapman, longtime friends of Western Michigan University, provides the funds for this scholarship program.

Western students who have achieved senior classification and have a grade point average of 3.5 or above may apply for a $200 spring semester award.

The selection committee also weighs extracurricular and community service activities, and the honors and awards the student has earned while enrolled at Western. Students whose extracurricular activities have been limited because of employment while attending Western should also include their work history.

Applicants must be U.S. citizens or permanent residents.

Applications are available online at www.wmich.edu/finaid/3-scholarships/scholarships.html.

Non-Traditional Student Scholarship

Awards up to $500 per semester for adult learners who have had a significant break in education. Awards are given on the basis of need and/or scholarship.

To be eligible, undergraduate students must be enrolled for three to eleven credit hours for fall/spring and have a 2.5 grade point average. Graduate students must be enrolled for two to five credit hours for fall/spring and have a 3.2 grade point average. The award year deadline is July 1.

Applications are available online at www.wmich.edu/finaid/3-scholarships/scholarships.html.

Degrees

The Board of Trustees, on recommendation of the Faculty and President of Western Michigan University, confers the following degrees:

Baccalaureate Degrees

Bachelor of Arts
Bachelor of Business Administration
Bachelor of Fine Arts
Bachelor of Music
Bachelor of Science
Bachelor of Science in Engineering
Bachelor of Science in Nursing
Bachelor of Social Work

Graduate Degrees

Master of Arts
Master of Business Administration
Master of Development Administration  
Master of Fine Arts  
Master of Music  
Master of Public Administration  
Master of Science  
Master of Science in Accountancy  
Master of Science in Engineering  
Master of Science in Medicine  
Master of Science in Nursing  
Master of Social Work  
Specialist in Education  
Doctor of Audiology  
Doctor of Education  
Doctor of Philosophy  

Undergraduate Majors

Majors by College

College of Arts and Sciences:

Students selecting a communication or psychology program will be placed in the "Pre-Communication" (CMUP) or "Pre-Psychology" (PRPP) program respectively until requirements have been met. See the Department of Communication or Department of Psychology section for complete information on admission requirements.

AFRJ Africans Studies  
AMLJ American Studies  
ANTJ Anthropology  
MAAJ Applied Mathematics  
BCHJ Biochemistry  
BYLJ Biology  
BMLJ Biomedical Sciences  
BUCJ Business-Oriented Chemistry  
CHLJ Chemistry  
CMUJ Communication Studies  
CRJJ Criminal Justice  
ERLJ Earth Science  
ECLJ Economics  
ENLJ English  
FVMJ Film, Video, and Media Studies  
FHLJ French  
GCMJ Geochemistry  
GGLJ Geography  
GELJ Geology  
GEPJ Geophysics  
GRLJ German  
GBLJ Global and International Studies  
HYLJ History  
HYGJ Hydrogeology
Coordinate Majors: (These are majors to be selected only along with a standard major.)

- EVLJ  Environmental Studies
- WOMJ  Women's Studies

College of Aviation:

Students selecting the Flight Science major in the College of Aviation will be placed in the "Pre-Flight Science program (PRFL)" until requirements have been met. See the College of Aviation section for complete information on admission requirements.

- AFAJ  Aviation Flight Science (Option A)
- AFBJ  Aviation Flight Science (Option B)
- AVAJ  Aviation Science and Administration
- MTCJ  Aviation Maintenance Technology

Haworth College of Business:

Students selecting the Business Administration program will be placed in the "Pre-Business Administration" (PRBP) program until requirements have been met. See the Haworth College of Business section for complete information on admission requirements.

- ACTJ  Accountancy
- ADVJ  Advertising and Promotion
- CMIJ  Computer Information Systems
- ECBJ  Economics
- EBZJ  Electronic Business Design
- FINJ  Finance
- FMKJ  Food and Consumer Packaging Goods Marketing
College of Education:

Students selecting teacher certification programs/majors will be placed in one of the "Pre-Education" programs until requirements have been met. See the College of Education section for complete information on admission and program requirements.

ATDJ Athletic Training Program
BYSJ Biology, Secondary Education
CHSJ Chemistry, Secondary Education
DIDJ Dietetics
ECEJ Early Childhood Professional Education Program
ERSJ Earth Science, Secondary Education
EPEJ Elementary Professional Education Program
ENSJ English, Secondary Education
PXDJ Exercise Science
FCDJ Family Studies, Child Development Emphasis
FSDJ Family Studies, Family Studies Emphasis
FCSJ Family and Consumer Sciences Teacher Education, (Secondary)
FADJ Food Service Administration
FHSJ French, Secondary Education
GGSJ Geography, Secondary Education
GRSJ German, Secondary Education
CHDJ Health Education, Community
HESJ Health Education, School, (Secondary)
HYSJ History, Secondary Education
IDDJ Interior Design
INSJ Industrial Technology, Non-Vocational (Secondary)
IVSJ Industrial Technology, Vocational (Secondary)
LTSJ Latin, Secondary Education
MHSJ Mathematics, Secondary Education
MSEJ Music, Elementary Education
PDEJ Physical Education, Teacher/Coach (Elementary)
PDSJ Physical Education, Teacher/Coach (Secondary)
College of Engineering and Applied Sciences:

Students selecting engineering programs will be placed in a "Pre-Engineering" (PREG) program until requirements have been met. See the College of Engineering and Applied Sciences section for complete information on admission and program requirements.

AERJ  Aeronaucal Engineering
CHGJ  Chemical Engineering
CIVJ  Civil Engineering
CEGJ  Computer Engineering
CENJ  Construction Engineering
CSGJ  Computer Science—General
CSTJ  Computer Science—Theory and Analysis
EENJ  Electrical Engineering
EGRJ  Engineering Graphics and Design Technology
UEMJ  Engineering Management Technology
CDNJ  Engineering Management Technology, Computer-Aided Design Option
CMNJ  Engineering Management Technology, Computer-Aided Manufacturing Option
GCAJ  General College
IDNJ  Industrial Design
IENJ  Industrial Engineering
IMGJ  Imaging
IMBJ  Imaging, Business Option
IMCJ  Imaging, Computing Option
IMMJ  Imaging, Multimedia Option
IMSJ  Imaging, Substrates Option
MFNJ  Manufacturing Engineering
MFTJ  Manufacturing Engineering Technology
MEGJ  Mechanical Engineering
PENJ  Paper Engineering, Process Option
College of Fine Arts:

Students selecting Graphic Design will be placed in the Art major until requirements have been met. See the Art section for complete information on admission requirements. Students selecting the Theatre major will be placed in a "Pre-Theatre" (PRTR) program until requirements have been met. See the Theatre section for complete information on admission requirements.

ARTJ  Art, B.A. program
ARFJ  Art, B.F.A. program
ARSJ  Art Education
AHIJ  Art History
DACJ  Dance, B.A. program
DAFJ  Dance, B.F.A. program
GRFJ  Graphic Design, B.F.A. program
MSCJ  Music
MUCJ  Music Composition
MSSJ  Music Education
MUJJ  Music—Jazz Studies
MUPJ  Music Performance
MUYJ  Music Therapy
MTFJ  Music Theatre Performance
TDTJ  Theatre, Design and Technical Production concentration
TPRJ  Theatre, Performance concentration
TSTJ  Theatre, Theatre Studies concentration

College of Health and Human Services:

Students selecting any Health and Human Services program will be placed in a "Pre-Program" until all requirements have been met [i.e., Pre-Interdisciplinary Health Services (PRIH), Pre-Nursing (PRNG or PRPR), Pre-Occupational Therapy (PROT), Pre-Social Work (PRSW), and Pre-Speech Pathology and Audiology (PRSA)]. See the College of Health and Human Services sections for complete information on admission requirements.

HSOJ  Interdisciplinary Health Services, Occupational Therapy concentration
HSVJ  Interdisciplinary Health Services
NURJ  Nursing
RNNJ  Nursing, RN Progression Track
SPNJ  Speech Pathology and Audiology
WKJ  Social Work

Extended University Programs:

Students selecting Occupational Educational Studies will be placed in the "Pre-Occupational Studies" (PROE) major until requirements have been met. Specific information about the programs listed below may be found in the Extended University Programs section of this catalog.
Students not selecting a curriculum will be placed in the Undecided, University Curriculum (UNV) program until a selection can be made. Students are encouraged whenever possible to select a specific curriculum.

First-Year Experience Program

Mrs. Toni Woolfork-Barnes, Director
Seibert Administration Building
387-8370

The First-Year Experience (FYE) program is a student-centered program and is designed to reinforce and foster a learning environment that fully engages students academically and socially in ways that will encourage student persistence and retention through graduation from this institution. The FYE Seminar, described below, is the credit portion of the FYE program for new, full-time, first-year students. The FYE seminar will be linked to a second course, which may be a college writing course or an elective that can be applied to a student’s program requirements.

The purpose of the FYE seminar is to develop an intellectually engaged and socially involved first-year student. This will greatly enrich academic and campus life and help to positively impact university retention. A major aspect of the FYE program is that students will be assigned to cohort groups based on selection and registration for two fall courses during new student registration. Students in the cohort groups will be registered together in the FYE seminar and a college writing course or a general education course. The FYE seminar is restricted to first-year, first-time students only, and has no prerequisites. Also, the FYE seminar will be offered both fall and spring semesters of the academic year. Spring semester attendance will be open to (1) new, full-time, first-year students beginning WMU in the Spring semester and (2) full-time, first-year students who began in the fall semester that did not enroll in the fall FYE seminar.

First-Year Experience Course (FYE)

FYE 2100 First-Year Experience
2 hrs.
The First-Year Experience seminar is designed to help students develop a sense of responsibility for their own education and learning. This seminar will introduce students to University resources and will provide support during the first semester of transition to the University. Taught in a small group setting, students will interact with a faculty member and a student leader three times a week. The FYE 2100 seminar will include weekly class meetings, sharing a common reading experience, a project-based assignment, written assignments, and attendance at selected University events. The importance of writing skills, communication skills, and study skills will be emphasized. FYE 2100 will be offered during Fall and Spring semesters and is restricted to freshmen. The course may not be repeated and students will receive a letter grade for this course.
University Curriculum

Mrs. Betty Dennis, Director
203 Moore Hall
387-4410

University Curriculum provides beginning and transfer students who wish to explore academic and career options with advising, assessment, and referral services designed to help them select a curriculum. The program is designed with a sensitivity to students' developmental as well as academic needs.

Students in the University Curriculum are assigned advisors who are specialists in academic planning, human development, and career planning. Help is provided for course selection, academic program planning, interpreting skills and interest assessments, exploring academic and career alternatives, and establishing goals.

In addition to academic advising and career counseling, opportunities available for University Curriculum students include:

- UNIV 1010: Freshman Seminar, 1-3 hrs.
- UNIV 1020: Career Exploration and Development, 1 hr.
- Academic Skills Center Programs and Workshops
- Career Exploration and Media Center
- Skills and Interest Assessments
- Specially-designed freshman curriculum options suited to skills and interests.

University Courses (UNIV)

UNIV 1010 Freshman Seminar
1-3 hrs.
This course is designed to assist students to encounter experientially, intellectually, and emotionally the various avenues of learning, and to foster the academic, personal, social, and career development of each student. The activities and assignments of the course aid students in the development of an intellectual awareness and provide the skills and self-management required for a successful transition from high school to the University. The course is intended to excite students about learning and living in the new and challenging world of Western Michigan University. For freshmen only.

UNIV 1020 Career Exploration and Development
1 hr.
This course is designed to help the undecided student assess and develop skills in self-awareness, career awareness, decision-making, and planning. It will include activities to identify and explore the following areas: values, interests, career information, decision-making, and University resources. Assignments will involve written exercises and research in the Career Media Center.

Pre-Professional Programs

Every professional school has prescribed the nature and amount of academic work to be completed as a prerequisite to the professional training for a particular vocation. Four years of higher education are generally required by most professional schools for entrance. Western Michigan University is able to offer its students courses of study that meet the requirements for this pre-professional training. It should be noted, however, that the courses outlined are only suggested plans to illustrate in general the kinds of programs that pre-professional students should follow.

In every case, students should plan their course of study according to the requirements of the school to which they plan to transfer for professional training.

It cannot be emphasized too strongly that the student should exercise care to make certain that the specific requirements of a particular school will have been met.
Predentistry and Premedicine

Most premedical and predental students at Western Michigan University major in biomedical sciences or chemistry, but any major may be pursued, provided that the basic science and other admission requirements are met. Regardless of the major chosen, the premedical or predental student should take the minimal required courses listed below. All science courses require laboratory work. Some medical and dental schools require one course in psychology and one in sociology or anthropology. Some medical schools also require course(s) in calculus.

Detailed guides for Premedicine and Predentistry are available at the College of Arts and Sciences web site:

www.wmich.edu/casSs. Students should meet with a premedical or predental advisor on a regular basis for guidance on making a plan to complete admission requirements, be ready to take required admission tests, and apply for admission by the end of their junior year. They also must follow the official manuals listed below, available at Waldo Library's Science Reference Desk, with special attention to official information on admission requirements, selection factors, and deadlines:

ADEA Official Guide to Dental Schools, published by the American Dental Education Association. Medical School Admission Requirements (MSAR), published by the Association of American Medical Colleges.

Required Core

1. General Chemistry (CHEM 1100/1110 and 1120/1130).
2. Organic Chemistry (CHEM 3750/3760 and 3770/3780).
3. General Biology (BIOS 1500/1510).
4. Two advanced Biology courses (BIOS 2500 and 3500 are recommended).
5. General Physics (PHYS 1130/1140 and 1150/1160 or 2050/2060 and 2070/2080).
6. Two semesters of English (ENGL 1050 and a literature course).

Other Health Professions (Optometry, Pharmacy, Podiatry, Veterinary, Chiropractic, Physical Therapy, and Physician Assistant)

The requirements for admission to other doctoral level health profession schools and many master's degree programs are similar to those of medical and dental schools. However, unlike medical and dental schools, these programs can be quite varied in their requirements. The student should work with his/her medical sciences advisor in tailoring as many required course as possible to fit their curriculum or degree requirements.

Pre-Law

Kerrie Jo Harvey, Prelaw Advisor
College of Arts and Sciences Academic Advising Office
2318 Friedmann Hall
269-387-4366
http://www.wmich.edu/cas/advising/prelaw.html

Though law schools do not require a specific degree program, they do urge a solid four-year bachelor's degree program. Courses in critical analysis, logical reasoning, and written and oral communications can be found in a number of majors. The
most typical majors are English, business, political science, and history, but other disciplines can also be suitable majors; prelaw students should discuss possible majors and major/minor combinations with their advisor to determine which one best suits them. It is very important that prelaw students see their advisor on a regular basis for curriculum guidance.

Some courses are essential during a bachelor's degree program; however, courses with a strong writing or oral communication component are ideal as are courses that require legal reasoning like business law and constitutional law. Courses that allow the student a broader understanding of the structure and processes of government (such as nation government, the legal environment, and judicial processes) are also valuable, as are those that focus on the American historical experience.

Students interested in pursuing the further study of law should see a prelaw advisor as early as possible to select a curriculum.

**Accreditation**

**University Accreditation**

Western Michigan University is accredited by the Higher Learning Commission of the North Central Association of Colleges and Schools, 30 North LaSalle Street, Suite 2400, Chicago, IL, 60602-2504; telephone 800-621-7440.

**Program Accreditation**

The National Council for Accreditation of Teacher Education has accredited the College of Education, which includes the following programs:

- bachelor's programs for preparation in early childhood; elementary, middle and junior high school; secondary education; health, physical education, and recreation; and special education.
- master's programs in early childhood; reading; teaching at the elementary level; and health, physical education, and recreation.
- master's and doctoral programs in counselor education and special education
- master's, educational specialist, and doctoral programs in educational leadership.

Programs in the School of Art are accredited by the National Association of Schools of Art and Design.

Programs in rehabilitation teaching and orientation and mobility in the Department of Blindness and Low Vision Studies are accredited by the Association for Education and the Rehabilitation of the Blind and Visually Impaired. The program in travel instruction and rehabilitation counseling/teaching are accredited by the Council on Rehabilitation Education.

Programs in the Haworth College of Business are accredited by the International - Association to Advance Collegiate Schools of Business. The master's program in accountancy is accredited by the International - Association to Advance Collegiate Schools of Business - Accounting Accreditation.

Programs in the Department of Chemistry are accredited by the American Chemical Society.

The computer science theory and analysis major in the Department of Computer Science is accredited by the Computing Accreditation Commission of ABET, Inc., 111 Market Place, Suite 1050, Baltimore, MD 21202-4012; telephone (410) 347-7700.

The programs in aeronautical, chemical, computer, construction, electrical, industrial, mechanical, and paper engineering are accredited by the Engineering Accreditation Commission of ABET, Inc., 111 Market Place, Suite 1050, Baltimore, MD 21202-4012; telephone (410) 347-7700. The programs in engineering graphics and design technology, engineering management technology, and manufacturing engineering technology are accredited by the Technology Accreditation Commission of ABET, Inc., 111 Market Place, Suite 1050, Baltimore, MD 21202-4012; telephone (410) 347-7700. The industrial design program is accredited by the National Association of Schools of Art and Design.
The baccalaureate programs in flight training organization and flight school license are accredited by the Civil Aviation Authority (UK), the Joint Aviation Authority (International), the Federal Aviation Administration, and the Michigan Department of Transportation. The aviation flight science program is accredited by the Federal Aviation Administration and the Council of Aviation Accreditation, Flight Education.

The dietetics programs in the Department of Family and Consumer Sciences are approved by the American Dietetics Association. The bachelor's didactic program in dietetics is accredited by the Commission on Accreditation of Dietetic Education.

In the Department of Counselor Education and Counseling Psychology, the master's and doctoral programs in counselor education are accredited by the Council for Accreditation of Counseling and Related Educational Programs; the doctoral program in counseling psychology is accredited by the American Psychological Association.

Programs in the Department of Dance are accredited by the National Association of Schools of Dance. The bachelor's and master's programs in family studies in the Department of Family and Consumer Sciences are accredited by the National Council of Family Relations.

The bachelor's physical education program in the Department of Health, Physical Education and Recreation is accredited by the National Association for Sport and Physical Education; the bachelor's health education program by the American Association of Health Education; the bachelor's recreation program by the National Recreation and Park Association; and the bachelor's and master's athletic training programs by the National Athletic Trainer Association.

The interior design program in the Department of Family and Consumer Sciences is accredited by the Foundation for Interior Design Education Research and by the National Association of Schools of Art and Design.

Programs in the School of Music are accredited by the National Association of Schools of Music.

Programs in the Bronson School of Nursing are accredited by the Commission on Collegiate Nursing Education.

Programs in the Department of Occupational Therapy are accredited by the Accreditation Council for Occupational Therapy Education.

The physician assistant program is accredited by the Accreditation Review Commission on Education for the Physician Assistant, Inc.

In the Department of Psychology, the master's and doctoral programs in behavioral analysis are accredited by the Association for Behavior Analysis International; the doctoral program in Clinical Psychology is accredited by the American Psychological Association;

The master's program in public administration is accredited by the National Association of Schools of Public Affairs and Administration.

Programs in the School of Social Work are accredited by the Council on Social Work Education.

Programs in the Department of Speech Pathology and Audiology are accredited by the Council on Academic Accreditation in Audiology and Speech Language Pathology; the speech pathology and audiology clinics are accredited by the Professional Services Board of the American Speech-Language-Hearing Association.

Programs in the Department of Theatre are accredited by the National Association of Schools of Theatre.

Copies of accreditation documents are available for review upon request in the Office of the Provost and Vice President for Academic Affairs.
Graduation Requirements

When a student satisfactorily completes all academic requirements for a degree, fulfills all financial and legal obligations to the University, and meets all relevant processing deadlines, the student is eligible for graduation and to receive the appropriate degree. An eligible student may graduate at the end of a semester or a session—in December, April, June, or August; however, a Commencement Ceremony is held only in December, April, and June.

Applications for a graduation audit to determine the student's eligibility for graduation are available in the College Advising Offices. Major slips, minor slips, and curriculum guides also must be secured from the appropriate advisor(s) and submitted along with the application and fee to the Registrar's Office. The deadlines and fees for submitting the application are listed below.

The graduation audit, initiated by the submission of the Application for a Graduation Audit form, is a process by which a student's academic record is examined to make sure all University obligations and all academic requirements for the degree have been met. The audit is conducted by a graduation auditor in the Registrar's Office, and its outcome depends greatly on the completeness and appropriateness of the materials contained in the student's academic record.

Graduation Application Deadlines and Fees

- **Fall Semester Graduation (December)**
  - $45.00 Application Deadline: August 1

- **Spring Semester Graduation (April)**
  - $45.00 Application Deadline: December 1

- **Summer I Session Graduation (June)**
  - $45.00 Application Deadline: February 1

- **Summer II Session Graduation (August)**
  - $45.00 Application Deadline: February 1

Final Date for Completion of Work

All work taken either on or off the campus must be completed by graduation day. Transcripts of completed work earned off the campus will be received after the end of the semester only in cases where there are extenuating circumstances. Courses taken or completed after the summer session will not count toward bachelor's degrees, teaching certificates or credit hours earned at the close of the summer session. Students who take or complete such courses will receive their degrees and certificates at the close of the fall semester.

Students who fail to meet academic standards or complete all degree requirements will be removed from graduation lists automatically. Such students will be placed in the class of the succeeding semester or session only after they change their graduation date with the Registrar's Office, assuming requirements can then be met. No fee is charged for submitting a Change of Graduation Date form. The graduation auditor will not automatically move the student to another graduation class. Under no circumstances will any student be graduated with a class if his/her academic record does not show complete fulfillment of all requirements within thirty days after the established commencement date.

Graduation Requirements

General Requirements, Bachelor's Degree

Any curriculum leading to a bachelor's degree consists of at least 122 hours of credit. The student must meet the following requirements or their equivalent.
1. The requirements in at least one of the University approved curricula must be fulfilled before graduation.
2. The student must complete a major with a minimum of 24 hours and, if required by the curriculum, a minor with a minimum of 15 hours. Specific departmental major and minor requirements may exceed these minimums; please refer to the departmental sections in this catalog that identify the specific major or minor requirements. Students interested in the elementary and secondary education curricula should refer to both the departmental sections and to the College of Education section that list the major and minor requirements for elementary and secondary teaching curricula. Courses elected to satisfy requirements in one major and/or minor may not be counted again to satisfy requirements in another major and/or minor. Some students may be excused from the requirement of declaring a regular major and/or minor field if they satisfy the requirements of their curriculum as set forth in the catalog, or that curriculum as modified by substitutions approved through normal channels.
3. Each student must complete the required General Education program. Beginning with the Fall Semester, 1973, students graduating with an Associate of Science degree from Michigan two-year colleges, which are signatory to the Michigan Association of Collegiate Registrars and Admissions Officers General Education Agreement, will automatically have fulfilled the first and second year General Education requirements. General Education requirements of two courses at the junior and senior levels will continue to be required.
4. A minimum grade point average of 2.0 must be obtained in any major or minor(s) presented for graduation. Individual colleges, departments, or programs may have additional University approved requirements including a higher minimum grade point average.
5. A student must also have an overall University grade point average of 2.0 or higher to graduate. If a student fails to meet minimum University academic standards, he/she is placed on academic probation or is dismissed.
6. Each student will fulfill all requirements of the Intellectual Skills Development Program as outlined in this section.
7. Minimum residence requirements. All candidates must present a minimum of 30 hours through Western Michigan University. Ten of the last 30 hours must be taken through Western Michigan University. Correspondence credit and credit by examination may not be used to satisfy any of the minimum requirements. Individual colleges and departments may have additional residency requirements.
8. A maximum of fifteen semester hours of credit in correspondence (self-instructional) courses may be applied to a degree. Individual colleges and departments may have restrictions on the application of correspondence (self-instructional) courses to degree requirements.
9. A maximum of 8 hours of general physical education (PEGN) courses may be counted toward graduation.
10. Students transferring from a two-year community or junior college must complete a minimum of one-half of the academic work required in their curriculum at an accredited four-year, degree-granting institution. Students who have been gone from the University for ten years or more must enter the University under the catalog in effect at the time of re-entry. For exception, see special policy under "Graduation Requirements-Bachelor of Science in Engineering" listed in the College of Engineering and Applied Sciences section of this catalog.
11. In cooperation with two-year institutions of higher education in the State of Michigan, a student who transfers within three years upon leaving the community college to Western Michigan University from a two-year Michigan institution may elect to graduate under the WMU catalog in effect at the time of the initial registration at the two-year institution.

Requirements for Earning a Second Bachelor's Degree

WMU Graduates

Students wishing to pursue two or more baccalaureate degrees either concurrently or otherwise from WMU must also meet these minimum requirements:

1. Completion of a minimum of 30 credits in residency beyond the requirements for the first degree.
2. Completion of new major requirements as well as all specified University, college, and program requirements.
3. Generally, no second degree will be granted from the discipline in which the first degree was earned. Rather than seeking a second bachelor's, students may enroll as post-baccalaureate students and have the completion of an additional major recorded on the transcript.
4. NOTE: Program accreditation standards may impose additional requirements or limitations. Completion of certification requirements generally does not qualify the student for a second degree.
Non-WMU Graduates

Students who received a bachelor's degree from an institution other than Western Michigan University, must meet the following minimum requirements:

1. Possession of a prior bachelor's degree from a regionally accredited college or university.
2. Completion of a minimum of 30 credits in residency beyond the requirements for the first degree.
3. Completion of new major requirements as well as all specified University, college, and program requirements, including general education, proficiencies, and a minimum 2.0 grade point average.
4. Generally, no second degree will be granted from the discipline in which the first degree was earned.
5. NOTE: Program accreditation standards may impose additional requirements or limitations. Completion of certification requirements generally does not qualify the student for a second degree.

Major and Minor Requirements

A major is a sequence of related courses totaling a minimum of twenty-four hours. A minor is a sequence of related courses totaling a minimum of fifteen hours. However, since not all majors and minors require the same number of hours, students should consult the departmental advisor to be assured of the requirements.

1. The student's major and minor will be the subject specialization, such as mathematics or accounting.
2. Departmental requirements for a number of majors and minors are listed elsewhere in this catalog. Where requirements are not specified, students should consult the departmental advisors for approval of a major or minor program as soon as possible but not later than the student's reaching junior status.
3. Most candidates for a degree must complete a major and a minor. There are some exceptions, which the student’s advisor will explain.
4. In certain cases "group" majors and "group" minors are permitted. The student's academic advisor can explain the circumstances.
5. Under certain conditions General Education courses may be counted toward major and minor requirements. (See departmental requirements.)
6. The following courses are not to be counted as satisfying major and minor requirements:
   a. Required professional courses in education.
   b. Required courses in general physical education.
7. A combination of foreign language courses, or of English or American Literature courses with a foreign language, is not a permissible method of constructing a major or minor.
8. Mathematics courses may not be counted towards a science (physics, geography, or chemistry) major or minor sequence, but may be required to satisfy curricula requirements.
9. Courses elected to satisfy requirements in one major and/or minor may not be counted again to satisfy requirements in another major and/or minor.
10. Only approved majors and minors listed in the catalog can be placed on a student record.

Intellectual Skills Requirements

The Baccalaureate degree at Western Michigan University includes proficiency in the intellectual skills of writing, reading, and quantification. In order to insure development of students' abilities in these skills, the University maintains an Intellectual Skills Development Program. New students entering WMU will participate in the program.

The first phase of the program occurs upon entry to the University, typically at Orientation, when student competencies are assessed via ACT scores and/or University-developed tests. Skills requirements for each student are determined at this time.

Writing

Students whose test results indicate weak writing skills must pass a basic writing course before proceeding to the required college-level writing course. All WMU students are required to pass a college-level writing course. Students who demonstrate superior writing skills may be exempted from the college-level writing course requirement.
Basic writing course options are:

- ENGL 1000
- BCM 1000 (Business students)

College-level writing course options are:

- ENGL 1050
- BIS 1420 (Business students)
- IME 1020 (Engineering and Applied Sciences students)

In addition to the college-level writing requirement, each student must also demonstrate writing proficiency by successfully meeting a baccalaureate-level writing requirement as designated by the student's major department or program. It is recommended that students complete this requirement after attaining junior standing. Existing guidelines regarding repeating a course will apply. Credit for course work from four-year institutions only will fulfill this requirement. This requirement meets General Education Proficiency 2.

Reading

On the basis of test scores, certain students are required to pass ED 1040, Effective College Reading. This course is designed to improve comprehension, vocabulary, and study skills, and thus prepare students for further college work.

Quantification

On the basis of scores on a test of basic mathematical skills, certain students are required to pass MATH 1090. Students must earn a "C" or better in MATH 1090 in order to proceed to fulfill other mathematics requirements.

Guidelines for Writing, Reading, Quantification Skills

ENGL 1000, BCM 1000, ED 1040, and MATH 1090 carry academic credit, and grades earned are included in calculating the student's grade point average. The credits for these courses, however, constitute an additional graduation requirement beyond the total number of credit hours required for a student's curriculum. Students who are placed into any of these courses must pass the course(s) before registering for their thirty-third credit hour at Western Michigan University.

Students who fail to demonstrate competency by test or by course by the time of enrollment in the thirty-third credit will be permitted to enroll only in the above-named skill-building course(s).

Students may resume regular course enrollment only after all entry-level competencies are demonstrated.

A college-level writing course must be completed before a student registers for the sixty-second credit hour at Western and before the baccalaureate-level course is attempted.

Intellectual Skills Requirements for International Students

Writing and Reading

Beginning undergraduate international students are placed into, or exempted from, English 1600/1610 or 3600/3610 based on the results of either the MTELP (Michigan Test of English Language Proficiency) or the TOEFL (Test of English as a Foreign Language). Scores of 75-84 on the MTELP or 500-549 on the TOEFL warrant placement into this language program.

The Office of International Student and Scholar Services requires completion of the language program during the student's first enrollment period at WMU. The student may then proceed to fulfill the college-level writing requirement.
International students who are not required to take the language program will proceed to fulfill all Intellectual Skills requirements in writing, beginning with the college-level writing course and proceeding through the baccalaureate-level requirement.

Quantification

International students will fulfill all Intellectual Skills Requirements in quantification (see above).

Failure to enroll in the Intellectual Skills Program as outlined above will result in cancellation of admission.

Intellectual Skills Requirements for Transfer Students, Including International Transfer Students

Domestic and international transfer students will abide by the Intellectual Skills Requirements for transfer students. See immediately below for the specific requirements.

Writing

Students who transfer a college-level writing course of 2.7 or more semester hours credit (or a sequence of courses that satisfies the college-level writing requirement at the transfer institution), will be exempted from the writing assessment upon entry. These students will be considered to have met the Intellectual Skills Program college-level writing course requirement. All other transfer students will be placed into a remedial or college-level writing course according to assessment results.

Reading

Students who transfer twenty-six semester hours or more of credit with a GPA of 2.0 or better, or who transfer the equivalent of ED 1040, are exempted from the reading assessment upon entry. All other transfer students will have their reading skills evaluated by standardized test and will either place into or be exempted from ED 1040, Effective College Reading.

Quantification

Students who transfer a mathematics course at the level of MATH 1100 or higher are considered to have entry-level computation skills and need not take the computational skills assessment test upon entry. All other transfer students will place into or be exempted from MATH 1090 according to assessment results.

Computer Usage

A computer or technology usage requirement, if applicable to a student's curriculum, is described in the departmental or college sections of this catalog. Entering students should contact their college advising office for specific information concerning any applicable requirement and/or option for fulfilling the requirement.

Foreign Language Requirement

The Foreign Language Requirement for students who will graduate through the College of Arts and Science is described in the Arts and Sciences section of this catalog.

General Education Requirements

This general education program incorporates the University's college-level and baccalaureate-level writing requirements, eliminates the former physical education requirement, and lets the University computer usage (literacy) requirement continue in force separately.
The program has two parts, proficiencies and distribution. What follows describes these elements of the program. However, all descriptions of course content and structure presuppose the individual professor's freedom to teach the course according to personal professional judgment. Stated requirements are not intended to impinge upon academic freedom, but only to specify a range of content within which the course should be structured. Matters of interpretation and pedagogy are the sole prerogative of the individual professor.

**Proficiencies**

The general education program requires each student to develop proficiency in writing and mathematics or quantitative reasoning and, beyond that, to enhance one of these proficiencies or to develop another foundational skill. Each student must complete:

1. college-level writing course;
2. baccalaureate-level writing or writing-intensive course in one's major or curriculum;
3. college-level mathematics or quantitative reasoning course beyond MATH 1100 (not satisfied by MATH 1110), not limited to courses in the Departments of Mathematics or Statistics;
4. course or courses in one of the following categories (one of these options may be required by the student's major and/or curriculum):
   a. advanced writing, 3-4 hours,
   b. mathematics or quantitative reasoning, 3-4 hours,
   c. critical thinking, 3-4 hours,
   d. oral communication, 3-4 hours,
   e. American Sign Language, 3-4 hours,
   f. computer programming and applications, 3-4 hours, or
   g. courses to advance proficiency in a foreign language to at least second semester, college-level, 6-8 hours.
5. Satisfy both the college-level writing (1. above) and college-level mathematics or quantitative reasoning (3. above) proficiency requirements before registration in any upper-division-level course. Upper-division-level courses are defined as those courses with a course number of 3000 or above.

**Distribution Areas**

The general education program defines a comprehensive and balanced distribution of eight content areas and requires that a student take a course from each area:

- Area I, Fine Arts, 3-4 hours
- Area II, Humanities, 3-4 hours
- Area III, The United States: Cultures and Issues, 3-4 hours
- Area IV, Other Cultures and Civilizations, 3-4 hours
- Area V, Social and Behavioral Sciences, 3-4 hours
- Area VI, Natural Sciences with Laboratory, 4-5 hours
- Area VII, Natural Science and Technology: Applications and Implications, 3-4 hours
- Area VIII, Health and Well-Being, 2 hours

**Other Requirements**

In addition to meeting the proficiencies and distribution area requirements, the following requirements apply to the general education program:

- Course work must total a minimum of 37 hours, not counting the baccalaureate-level writing course except for designated majors. If a student completes all requirements by completing fewer than 37 credit hours, the remaining required credits may be selected from any course approved for general education.
- A minimum of six hours must be taken from 3000- or 4000-level courses in the distribution areas.
- No more than two courses from any one department may be used to satisfy distribution requirements.
General Education Requirements for Transfer Students

All students graduating from WMU must meet the thirty-seven semester hour requirements of the General Education Program. This must include at least two courses at the 3000-4000-level in the distribution areas and, in addition, the baccalaureate-level writing requirement.

1. **Students who have fulfilled the requirement of the MACRAO Articulation Agreement and are transferring from participating Michigan Community Colleges:**

   Colleges listed below have signed the MACRAO Articulation Agreement. Transfer students from these schools whose transcripts have been appropriately identified and certified as having fulfilled the requirements of the MACRAO agreement by their respective community college will have satisfied WMU's lower level General Education requirements. Such students need only satisfy Western's requirement of six hours of 3000-4000-level General Education course work from the distribution areas, and complete the baccalaureate-level writing course (Proficiency 2). In addition, the University will determine the equivalence and applicability of transferable community college courses in meeting other graduation requirements.

   **Michigan Community College MACRAO Agreement Signators:**
   - Alpena Community College
   - Bay De Noc Community College
   - Delta College
   - Glen Oaks Community College
   - Gogebic Community College
   - Grand Rapids Community College
   - Henry Ford Community College
   - Jackson Community College
   - Kellogg Community College
   - Kirtland Community College
   - Lake Michigan College
   - Lansing Community College
   - Macomb Community College
   - Mid Michigan Community College
   - Monroe County Community College
   - Montcalm Community College
   - Mott Community College
   - Muskegon Community College
   - North Central Michigan College
   - Northwestern Michigan College
   - Oakland Community College
   - St. Clair County Community College
   - Schoolcraft College
   - Southwestern Michigan College
   - Washtenaw Community College
   - Wayne County Community College
   - West Shore Community College

2. **Transfer Students without MACRAO Certification.**

   Students who transfer from Michigan community colleges and who have not fulfilled the requirements of the MACRAO Articulation Agreement will have their course work evaluated according to the General Education requirements as described in Western's General Education Program Transfer Guides available at the WMU Office of Admissions and Orientation web site. In order to determine remaining General Education requirements, students should consult their curriculum advisor.

3. **Transfer Students from all other colleges.**

   Students will have their transfer work evaluated according to the General Education requirements as described in the General Education Policy section of this catalog. In order to determine remaining General Education requirements, students should consult their curriculum advisor.
4. **Waiver of junior-senior requirement for transfer students with advanced standing.**

A student transferring ninety or more semester hours may be eligible to have the junior-senior General Education requirement waived, provided that a minimum of thirty semester hours are from a four-year college or university. Such students should contact their curriculum advisor for further information.

**General Education Program Courses**

[The General Education Courses can be found here.](#)

**Graduation Rate**

Number of first-time, full-time, degree-seeking beginning freshman, Class of 1998: 3,621.

After six years, the number (and percentage) of those in the Class of 1998 who graduated: 1,981 (54.7%).

**Academic Advising**

The faculty and administration of Western Michigan University believe that academic advising is a necessary part of undergraduate education. The University has committed many faculty and staff to this essential service, and strongly urges all students to make full use of the available resources in order to receive the best possible education.

All students should consult with their curriculum advisors who will help them plan their degree programs. Curriculum advisors offer academic advising, which includes General Education requirements, specific curriculum requirements, career opportunities, etc. In addition, they offer academic guidance, that is, exploration of alternatives and other educational possibilities. This is a useful and productive means of attempting to match a student's interests and abilities with an academic program. Curriculum advisors will make referrals to other advising facilities and departmental advisors when it is appropriate. **It should be emphasized that it is the student's responsibility to arrange to meet with curriculum and/or departmental advisors.**

A listing of curriculum advisors may be found on the advising website [www.wmich.edu/registrar/advising](http://www.wmich.edu/registrar/advising). Students not certain of their curriculum or advisor should contact the Advising Office of the College to which they have been admitted. Students should refer to their Admission Certificates to find out to which curriculum and College they have been admitted.

**Academic Advising for Freshman Students**

Freshmen students admitted for the Fall Semester will receive a written invitation to attend one of the Orientation sessions held during the summer. Attendance is mandatory. During this program, students will have the opportunity to meet with their curriculum advisors, at which time they will receive academic information and assistance in requesting classes for their first semester. Orientation provides comprehensive advising, as well as important campus information.

Students who have been admitted for Spring, Summer I, or Summer II must make individual appointments for advising prior to registering. Appointment should be with curriculum advisors.

**Academic Advising for Transfer Students**

Newly-admitted transfer students will be invited either to an Advising Conference scheduled especially for transfer students, to summer orientation, or to an individual appointment. Invitations to these events will be sent along with the Admission Certificates or shortly thereafter. At these events, students will be advised as to how transfer courses apply to programs at Western. In addition, students will receive curriculum and major/minor advising, as well as Intellectual Skills Program advising. It is important that transfer students bring their most recent Credit Evaluations to these conferences. Transfer students are urged to take advantage of Western Michigan University's comprehensive advising services.
Academic Advising for Graduation

Applications for a graduation audit to determine the student's eligibility for graduation are available in the College Advising Offices. Major and minor slips also must be secured from the appropriate advisor(s) and submitted along with the application for a graduation audit. Advisors will assist students with this application process, and students should visit regularly with their advisors to ensure that their progress toward degree completion conforms with all University and degree requirements.

College Advising Offices

College of Arts and Sciences
2318 Friedmann Hall, 387-4366
College of Aviation
Aviation Education Center, 964-6375
Haworth College of Business
2130 Schneider Hall, 387-5075
College of Education
2504 Sangren Hall, 387-3474
College of Engineering and Applied Sciences
E102 CEAS, 276-3270
College of Fine Arts
2132 Dalton Center, 387-4672
College of Health and Human Services
221 Health and Human Services Building, 387-2656
University Curriculum
203 Moore Hall, 387-4410
Lee Honors College
Lee Honors College Building, 387-3230

Registration, Records and Academic Regulations

Registration is conducted via the web at Western Michigan University according to the schedule and procedures given in the Registration Information booklet, published prior to each semester and session and available in the Registrar's Office, in advising offices, and on the WMU web site. The Registration Information booklet should be consulted for details (procedures and regulations regarding the adding or dropping of courses, tuition and fee schedules and their methods of payment, final examination week schedules, names and telephone numbers of departments and advisors, and all the University regulations that affect the registration process.) Registration by students signifies an agreement to comply with all regulations of the University whenever approved by the University.

To begin registration, the student will log in to GoWMU at http://gowmu.wmich.edu and follow the script displayed.

Advance Registration

Western Michigan University offers advance registration for each enrollment period as described in the Registration Information booklet issued prior to each semester and each session. Students are encouraged to take advantage of advance registration but are cautioned that any subsequent change in their schedules should be made before the final day of the drop/add period. See the sections below for more information about changing registration schedules.

Forgiveness Policy

WMU undergraduate students who have not earned a degree and have not attended the University for at least four years, and have reapplied to the University, may apply for academic forgiveness through the Office of the Registrar. Students who are
granted academic forgiveness may have work still applicable to their program counted toward graduation requirements, but grades will not be calculated in their grade point average. The WMU grade point average will be calculated from a minimum of twelve graded hours of work attempted after the reentry date. All other University regulations apply. As a matter of course, the Registrar will advise students granted forgiveness to meet with a college advisor.

Research Subject Protection and Registration

Students conducting research that involves human or animal subjects, biohazards, genetic materials, or nuclear materials/radiation must have prior approval of the research proposal by the appropriate University board, thus assuring compliance with the regulations for the protection of such subjects or for the use of such materials. There are no exceptions to this requirement. Registration for courses in which research is conducted that requires such prior approval should not be attempted until the approval is granted by the appropriate University board. The department requiring the course is responsible for assuring that the student has complied with federal, state, and WMU requirements. The student completing such regulated research for a course report, paper, project, or thesis must include the written approval or exemption letter from the appropriate board as an addendum to the report, paper, project, or thesis. For more information, call the Office of the Vice President for Research, 387-8298.

University Tuition Scholarship Waiver

Undergraduate students interested in taking advantage of the University Tuition Scholarship Waiver must report to the Registrar's Office, Seibert Administration Building to pick up the authorization form.

Students who meet the following criteria are eligible to participate in this program:

1. Must have previously earned thirty hours of credit from WMU.
2. Must presently be enrolled and have paid for fifteen hours of credit for the semester they are seeking the tuition waiver.
3. Must have an overall G.P.A. of 3.25 at Western Michigan University.
4. Must be an undergraduate student in a degree program.

Undergraduate students who meet the qualifications may select one course per semester outside their major, in under-enrolled courses, during the drop/add week only.

Once the students have ascertained that they would like to participate in this program and meet all the criteria, they should go to the Registrar's office for the authorization form. The student will present the signed authorization card to Cashiering, 1270 Seibert Administration Building as their payment.

Withdrawing from or Adding Classes before the Final Date to Drop

Students may enroll in (add) any course through the first five days of classes of a semester or session. The final date for adding courses is published in the Registration Information booklet.

Only students who have a class that is not officially scheduled to meet during the five-day drop/add period will be given an additional opportunity to drop.

Students may withdraw (drop) classes through the fifth (5th) day of the term and the course will not be reflected on the student's official transcript. All withdrawals received after the drop/add period will be reflected on the student's academic record as a non-punitive "W" (Official Withdrawal), as long as the withdrawal complies with the policy explained directly below.
Dropping Classes and Withdrawing from All Classes

Students may drop a course or withdraw from all courses without academic penalty through the Monday of the tenth week of classes in the fall and spring semesters and through the Monday of the fifth week of the summer I and summer II sessions. See the Registration Information booklet for details concerning the amount of tuition refund allowed. A non-punitive "W" will be reflected on the student's academic record for any classes dropped after the drop/add period and before the withdrawal deadline. The final date for withdrawing is published in the Registration Information booklet. Students may not withdraw from any class after this date without academic penalty.

Each student is encouraged to confer with the instructor before withdrawing from a class as the student may not re-register for the class.

Students who wish to drop a course or withdraw from all class officially after the Monday of the tenth week of classes in the fall and spring semesters and through the Monday of the fifth week of the summer I and summer II sessions because of genuine hardship (i.e., illness, death in the immediate family), must be passing the course and must file a written appeal on a Request to Late Drop a Class form which may be obtained from the Registrar's Office.

Students wishing to withdraw from some but not all classes must obtain the approval of the instructor of record for each course to be dropped. Students wishing to withdraw from all classes must obtain the approval of the academic advisor and a financial aid advisor. International students must also obtain the approval of the Office of International Student and Scholar Services.

If the semester has ended, the student must request a grade change to "W" through the Grade Appeal Process, as described in the section Students Rights and Responsibilities, "Course Grade and Program Dismissal Appeals".

The Registrar's Office will record the drop or withdrawal if it has approvals as listed above.

Records

Identification Card

The Bronco Card is the student's photo identification card at WMU. In addition, the Bronco Card is the student's access card for the library, dining areas, Student Recreation Center, and computer centers and is a security access card for buildings on campus.

The Bronco Card also enables the student to ride for free on the Metro Bus Service on any route around the Kalamazoo area.

The Bronco Card has the size, look, and feel of a credit card. Included on the card are the student's picture and signature. On the back of the card is a magnetic strip, used for authentication.

The Bronco Card will serve the student as a University ID for as long as the student remains at WMU.

Name Change

Students may maintain academic records under the name used at the time of admission. However, any active student desiring to make an official name change must report to the Registrar's Office, third floor Seibert Administration Building to record the change. Legal proof is required.

Transcripts

A student's transcript is a document listing, at minimum, all courses taken and credit hours and grades earned in the courses.
Academic Regulations

Academic Standing

Notwithstanding the Academic Standing policy outlined below, a student admitted with Conditional Admission or Provisional Admission status must meet the specified performance level within the time frame identified in the letter of admission or may not continue to enroll in University courses. Further, the Academic Standing policy inherently presumes the student will first meet satisfactorily any obligations or requirements specified in the letter of admission before the Academic Standing policy shall have any effect on the continuing enrollment of the student.

1. Good Standing
   A student is in good standing whenever the student's overall grade point average is at least 2.0.

2. Warning
   Whenever the grade point average for any enrollment period is less than 2.0, but the overall grade point average is 2.0 or above, the student will be warned.

3. Probation
   The student will be placed on probation whenever the student's overall grade point average falls below 2.0. A student who is admitted (with Conditional Admission status) to the University on academic probation and receives at least a .01 grade point average, but less than a 2.0 grade point average at the end of the first enrollment period, will be placed on Final Probation. A first semester grade point average of 0.00 will result in Dismissal.

4. Probation Removed
   Whenever the conditions of Good Standing are restored, Probation will be removed.

5. Extended Probation
   The student will be placed on Extended Probation when, following a semester on probation, the student's overall grade point average is below 2.0 and the grade point average for the enrollment period is 2.0 or above.

6. Final Probation
   The student will be placed on Final Probation when, following a semester on Extended Probation, the student's overall grade point average is below 2.0 and the student's grade point average for the enrollment period is 2.0 or above.

7. Dismissal
   Students on Probation or Extended Probation who fail to achieve at least a 2.0 grade point average for the enrollment period, or students on Final Probation who fail to achieve a 2.0 overall grade point average will be dismissed from the University.

Attendance

Students are responsible directly to their instructors for class and laboratory attendance, and for petitions to excuse absences.

Course Grades and Grading System

The student receives one grade in each course taken. This grade combines the results of course work, tests, and final examinations. Grades are indicated by letters, to each of which is assigned a certain value in honor points per hour of credit, as shown in the table below.

<table>
<thead>
<tr>
<th>Grade</th>
<th>Significance</th>
<th>Honor Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Outstanding, Exceptional, Extraordinary</td>
<td>4.0</td>
</tr>
<tr>
<td>BA</td>
<td></td>
<td>3.5</td>
</tr>
<tr>
<td>B</td>
<td>Very Good, High Pass</td>
<td>3.0</td>
</tr>
</tbody>
</table>
**Credit/No Credit System**

The regulations of a system supplementing the A, B, C, D, and E grading system for undergraduate students but not replacing it, except as the student wishes, are as follows:

1. The name of the program shall be "Credit/No Credit."
2. "Credit" will be posted for each undergraduate student who earns the grade of "C" or better. "No Credit" will be posted for any grade below a "C." Faculty members will not be notified whether a student is taking a course for a grade or for Credit/No Credit.
3. A student may elect for "Credit/No Credit" any course approved for General Education or General Physical Education credit, as well as other courses not counting toward his/her major or specified in his/her curriculum as defined in the University Undergraduate Catalog. Intern Teaching, a required course, is, however, taken on a credit/no credit basis. Acceptance of "Credit/No Credit" in required courses may be permitted on an individual basis by the head of the department or dean of the college requiring the course.
4. A student may change only during the drop/add period from "Credit/No Credit" to letter grade or from letter grade to "Credit/No Credit."
5. All undergraduate students, regardless of classification or probationary status, will be allowed to enroll "Credit/No Credit."
6. "Credit/No Credit" courses, while counting toward a degree, will not be used to determine the overall grade point average (GPA) of the individual student.

Important: Students should be fully aware of the implications of this system for acceptance in graduate schools. It has been ascertained that most graduate schools will accept students who have elected to take courses on a "Credit/No Credit" basis, but that if courses taken on this basis are sufficient in number on the transcript, the Graduate Record Examination may be utilized to determine the student's acceptability. Graduate schools, in general, do tend to favor those applicants who have good letter grades on their transcripts.

"I" Incomplete

This is a temporary grade, which the instructor may give to an undergraduate student when illness, necessary absence, or other reasons beyond the control of the student prevent completion of course requirements by the end of the semester or session. The grade of "I" (Incomplete) may not be given as a substitute for a failing grade.

A grade of "I" must be removed by the instructor who gave it or, in exceptional circumstances, by the department chairperson. If the unfinished work is not completed and the "I" grade removed within one calendar year of the assignment of the "I," the grade shall be converted to an "E" (failure). **Students who receive an incomplete grade in a course must not reregister for the course in order to remove the "I."**
An instructor who assigns a grade of "I" will complete an official Report of Incomplete Work form indicating the remaining requirement for removal of the incomplete grade and indicating the time allowed, if less than one full year. The instructor will retain a copy for his/her own records and submit a copy to the departmental office. The remaining copies will be returned to the Registrar's Office, which will provide the student with a copy.

"W"—Official Withdrawal

A grade of "W" is given in a course when a student officially withdraws from that course or from the University before the final withdrawal date in the semester or session specified in the Registration Information booklet. The "W" is a non-punitive grade.

"X"—(Failure) Unofficial Withdrawal

The symbol "X" is used to indicate that a student has never attended class or has discontinued attendance and does not qualify for the grade of "I." The "X" will be computed into the student's grade point average.

Grade Change

A student who believes an error has been made in the assignment of a grade must follow the procedures described in Students Rights and Responsibilities, "Course Grade and Program Dismissal Appeals." The policy describes the appeal procedures, the stages of appeal, and the time deadlines for submitting the appeal at the various stages.

Grade Point Average

A grade point average is obtained by dividing the total number of honor points earned by the total number of semester hours of work for which the student is officially enrolled during any period. For example, a total of thirty-two honor points earned in a semester by a student officially enrolled for sixteen hours of work, gives a grade point average of 32 ÷ 16 or 2.0 for the semester.

Honor Points

The number of honor points earned in a course is the number of semester hour credits given by the course multiplied by the honor points assigned to the grade earned in the course. (See the "Grading System" table above.) For example, a grade of B (3 honor points) in a 4 credit hour course gives 4 x 3, or 12 honor points.

Credit by Examination

Advanced Placement Program (AP)

Western Michigan University participates in the Advanced Placement Program (AP) of the College Board. Students with scores of at least 3 (4 or 5 in the case of Physics) on any AP exam will receive college credit in the appropriate subject. Students should have College Grade Reports of their test scores sent to the Office of Admissions and Orientation at Western Michigan University (college code 1902).

After AP College Grade Reports of examination scores are received and evaluated, the Office of Admissions and Orientation will notify students of the specific decisions regarding any credit award. After students' enrollment at Western, the Office of the Registrar will post course credit to students' transcripts. For more information on AP score requirements and equivalent credit awarded at Western, visit the Office of Admissions and Orientation web site. www.wmich.edu/admi/ap
College Level Examination Program (CLEP)

This program gives individuals the chance to earn college credit by examination in a variety of areas of study. There are two types of tests offered—general examinations and subject examinations. Western Michigan University's credit award policies for each type are noted below. Interested students should check with their WMU academic advisors before making testing plans. Official score reports of CLEP testing should be sent to Western (college code 1902) by the Educational Testing Service (ETS).

General Examinations

1. The general CLEP examination is available only to nontraditional students at WMU.
2. A nontraditional student is defined as a person who has spent a minimum of four years in non-school occupations since attending an educational institution on a full-time (minimum of twelve semester hours) basis.
3. Nontraditional students may take the general CLEP examinations only before completing fifteen hours after entering or re-entering WMU.
4. The following eligibility rules apply to nontraditional students who wish to take the general CLEP examinations:
   - Students who have already received credit for a college writing class cannot receive credit by passing the English composition examination.
   - Students who have already received credit in a college mathematics course cannot receive credit by passing the mathematics examination.
   - Students who have received college credit for two courses in any of three areas, the humanities, social sciences, or natural sciences (excluding mathematics courses), from the Distribution Areas of General Education, or comparable transferred courses, cannot receive credit for the respective examinations.
5. The following guidelines shall apply in the earning of CLEP credit:
   - If a student passes the humanities examination with a score of 50 or above (540 prior to July 1, 2001), three hours of credit will be awarded in Area I (fine arts) of the General Education Program.
   - If a student passes the social sciences-history examination with a score of 50 or above (520 prior to July 1, 2001), six hours of credit will be awarded to Area V (social and behavioral sciences) of the General Education Program.
   - If a student passes the English composition test (with the writing sample) with a score of 50 or above (550 prior to July 1, 2001; 660 for 1978 through April 1986 testing), four hours of credit will be awarded in Proficiency 1 of the General Education Program.
   - If a student passes the natural sciences examination with a score of 50 or above (489 prior to July 1, 2001), three hours of elective credit will be awarded in Area VI (natural sciences) of the General Education Program, but will not satisfy the lab course requirement for Area VI.
   - If a student passes the college mathematics examination with a score of 50 or above (497 prior to July 1, 2001), three hours of credit will be awarded in Proficiency 3 (mathematics) of the General Education Program.

Subject Examinations

CLEP subject examinations test specific knowledge areas and, unlike the general examinations, any Western student may take them and receive credit with appropriate scores. The University awards credit to students based on thirteen of the CLEP subject examinations. Students may not receive CLEP subject credit if they have already received college credit for an equivalent course. Interested persons may contact the Office of Admissions and Orientation (telephone: 269-387-2000) for information on Western's score requirements and CLEP credit policy.

Comprehensive Examinations

Each department shall have the authority, with the approval of its dean, to establish a procedure for granting credit for any course in that department through comprehensive examinations. All comprehensive examinations should be administered by authorized personnel determined by the department. Each department should determine those courses for which the comprehensive examination procedure applies.
All credit by examination is subject to the following requirements:

1. All credit will be posted as credit only, without grade or honor points. Students who do not achieve a sufficient score for credit will have no entry made.
2. Credit by comprehensive examination in courses numbered 3000 or higher can be used to meet the requirement that one-half of all academic work must be completed at a four-year degree-granting institution.
3. Credit by comprehensive examination can be used to meet all other University graduation requirements, except the minimum residence requirements.
4. Credit by comprehensive examination can be posted only for admitted students who have either previous or current enrollment.
5. All credit by comprehensive examination is normally considered undergraduate credit.

Examination fees are assessed on a credit hour basis and are the same for all students. The current fee schedule: less than four credit hours, $50.00 Four credit hours to eight credit hours, $100.00.

By special arrangement, some course examinations may require higher fees.

Final Examinations

All students enrolled in a course in which a final examination is given must take the examination.

Student requests for an examination at any other time than that scheduled may not be honored.

Full-Time/Part-Time Student Status

Full-time undergraduate students are defined by credit hours enrolled in a given semester or session as follows:

Fall/Spring Semester
Undergraduate 12 hours

Summer I/Summer II Session
Undergraduate 6 hours

University Housing has its own regulations on the definition of hours needed to be eligible for housing contracts. Students should contact the University Housing Office for this information. [www.studentworld.wmich.edu](http://www.studentworld.wmich.edu)

The above definitions are Western Michigan University regulations and may or may not be accepted by other agencies.

Honors

Dean's List

To gain a place on the Dean's List for a semester, a student must:

1. Have completed at least twelve semester hours of work during the fall or spring semester for letter grade.
2. Have a grade point average of at least 3.50 for the semester.

To gain a place on the Dean's list for a Summer I or II session, a student must:

1. Have completed at least six semester hours of work during the Summer I or Summer II for letter grade.
2. Have a grade point average of at least 3.50 for the session.
Honors Upon Graduation

Honors are conferred upon graduating students who have displayed a high level of performance during their University career.

Recipients of honors receive their degrees:

**Cum laude:** when their grade point average is 3.50 to 3.69, inclusive

**Magna cum laude:** when their grade point average is 3.70 to 3.89, inclusive

**Summa cum laude:** when their grade point average is 3.90 to 4.00, inclusive

In computing the grade point average for honors, the following rules will apply:

1. All credits and honor points earned at Western Michigan University will be counted.
2. Credits and honor points earned in correspondence and extension classes will be counted toward honors.
3. All students must have earned at least fifty-six semester hours of credits at Western Michigan University, of which fifty must be graded by a letter grade and computed into the final cumulative grade point average.

The graduation program will list as candidates for honors all students who have earned a point-hour average of 3.50 through the next-to-last semester of residence (based on a minimum of forty-five semester hours of credit earned at Western of which thirty-five hours must be in courses with grades.) Final determination of honors and level of awards will be based upon all work and will appear on the final transcript.

Independent Study

Independent Study refers to enrollment in an appropriately designated, variable-credit course for a specific plan of study, authorized and supervised by a designated, consenting faculty member.

Independent Study is not a substitute for regular courses, but an enrichment opportunity. Normally, it is a project designed to allow students to investigate an area of interest not within the scope of a regular course, to probe in more depth than is possible in a regular course, or to obtain an educational experience outside that normally offered by a regular course.

Since individual Independent Study projects are not normally reviewed through the usual departmental and University processes, it is essential that the academic adequacy of such projects be assured by some other means applied consistently throughout the University.

The following policy guidelines are intended to serve that function.

Proposals for Independent Study

Independent Study requires an adequate description of the work to be undertaken, requiring planning in advance of the registration period. Sufficient time, therefore, must be allowed for such planning and for obtaining the necessary faculty and administrative approvals.

While the Independent Study project is normally student-initiated, early interaction with faculty is essential in the development of a mutually acceptable project description. At a minimum, such a description should contain an outline of the study topic, specification of the work to be done and the materials to be read, the credit to be given, the type and frequency of faculty-student contacts, and a statement of the evaluative criteria to be used by the faculty member.
Approval Process

The faculty member must accept and approve the student and the project, and then submit the agreed-upon proposal on the appropriate University form to the department chairperson for approval. If the chairperson approves, information copies of the form must be submitted to the dean and the Registrar.

The granting of approval by the department chairperson may involve considerations, such as faculty workload, which go beyond the merits of the project.

Faculty Responsibility

Independent Study is basically a tutorial process, necessarily involving substantial faculty participation. In that respect, it should be distinguished from "credit by examination," a different option in which the role of the faculty member is primarily evaluative.

A student is on his/her own in Independent Study in that it involves no class meetings or formal lectures, but the faculty member is the responsible custodian of the project, obliged to provide guidance, assistance, criticism, suggestion, and evaluation, and shall be the instructor of record who is responsible for turning in a grade to the Registrar's Office.

Interinstitutional Study

Western Michigan University undergraduate students may take classes at Davenport College, Kalamazoo College, and Kalamazoo Valley Community College through a cooperative program.

Information and enrollment forms may be obtained from the Registrar's Office, Room 3210, Seibert Administration Building. Participation is generally restricted to students in good academic standing and to courses not offered at WMU.

Repeated Course

The following is the general University policy regulating repeated courses. Some academic Colleges, however, have a somewhat different policy regulating students in academic programs within those Colleges. You are advised to seek the counsel of the academic advisors in the College advising offices regarding the specific repeated course policy for that College.

Any course in which a student may have been enrolled more than once is considered a repeated course. A grade must be presented for each course, and any course first elected for a letter grade must be elected for a letter grade when repeated.

Only the most recent grade for a repeated course is used in calculating a student's grade point average. However, if a student receives a letter grade in the first enrollment and then enrolls again in the course and receives a grade of "W," "Cr," or "NC," the previous grade will remain in the grade point average.

The number of times a course can be taken is limited to three, although courses in which grades of "W," "Cr," or "NC" are received will not count as attempts in limiting the maximum number of times a student can register for a course. Appeals may be addressed to the department chairperson.

There is no limit on the number of different courses that can be repeated.

A repeated course is not removed from the student's record. All grades earned are shown on the transcript.

Many graduate and professional schools recalculate the grade point average using grades from all classes taken, including repeats, in determining eligibility for admission. This fact should be carefully considered by students who are attempting to increase their grade point average by repeating courses in which they have received a passing grade.
Repeated Courses in the College of Engineering and Applied Sciences

Students in the College of Engineering and Applied Sciences may enroll in a course that is required in their curriculum only three times. Any additional enrollments require prior written approval of their department chair.

University Policy on General Education

The rationale for a general education requirement for graduation is based on the educational goals of Western Michigan University. We review these goals before stating the goals of undergraduate general education:

Educational Goals of Western Michigan University

To help each student develop the ability to think critically and objectively, to locate and assess information, and to communicate clearly and effectively in speaking and in writing; to expose each student to the knowledge and insights essential to significant participation in our increasingly technological, interdependent, and rapidly changing world; to assure that each student has the opportunity to examine the central role of ethics and values in the shaping of meaningful lives; to structure the learning experience so that students can appreciate and understand the importance and consequences of our diverse cultural and ethnic heritage; to instill in students a lifelong love of learning and a desire for involvement in the world of learning; and to enable students to acquire mastery of a field of inquiry or profession sufficient for an understanding of its methods, its subject matter, and its future in our world.

An additional basis for the general education requirement is the statement of goals for Western Michigan University contained in the report of the University Committee on Undergraduate Education, published in October 1971:

Goals of Undergraduate Education

The major concern of Western Michigan University is the education of its undergraduate students, and it is committed to provide the environment and the means to enable these students:

1. To assume primary responsibility for their own growth and education, to achieve a genuine sense of competence, and to develop the motivation and ability to perceive and pursue learning as a continuous process.
2. To acquire the knowledge, skills, and will to examine critically [human] experience, especially as that experience relates to contemporary life and illuminates the future.
3. To gain an understanding of the persistent values of their own and other cultures and the ability to respond critically, sensitively, and sympathetically to cultural differences and change.

Goals of General Education

A bachelor's degree should signify that the individual to whom it is granted has had a broad and balanced education, as well as concentrated studies in at least one discipline or area of knowledge. It should also signify that the individual has acquired intellectual skills that are applicable across a wide range of endeavors, as well as those narrower skills appropriate to a specialization. Thus the University requires structured plans of study leading toward both a specialized and general education.

Specialized education—the primary objective of concentrated study in majors, minors, and curricula—normally restricts the scope of concern in order to ensure a detailed, specific competence in techniques and subject matter. It seeks to accomplish these ends through a program of study comprising a number of segments (courses) taught by specialists and planned to contribute to the whole; the intended result is a person with particular information and a set of skills and abilities usually shaped by specific job demands and descriptions. Often the goals of specialized education are determined or strongly influenced by external agencies, e.g., accrediting bodies or professional field demands, as much as by the stated goals of the University.
General education, on the other hand, is concerned with the breadth and balance of learning, and with the versatility that comes with proficiency in intellectual skills that have universal application. General education should develop each student's knowledge, capacity for expression and response, and critical insight to help the student become a capable, well-informed, and responsible citizen of a culturally diverse society in a complex world. To this end, the University's general education program aims to improve the student's competence in mathematics and language, both oral and written, and to foster the will and ability to think clearly, critically, reflectively, and with as much precision as the subject allows. While requiring a degree of proficiency of everyone, the University's general education program enables a student to master foundational intellectual skills through a sequence of related courses.

General education also seeks to extend the undergraduate learning experience beyond particular academic or professional concentrations. It aims to acquaint the student with essential subject matter and methods of knowing in the arts and humanities, the social and behavioral sciences, mathematics, and the natural (including applied) sciences. Moreover, it aims to enable the student to use technology appropriately, and to understand the value of individual health, fitness, and well-being. These aims are based on the belief that such learning enriches human experience and fosters understanding of oneself, others, and the world.

While the two kinds of education can thus be distinguished, they are essentially complementary, not antithetical, elements of an undergraduate education; and courses in each type often contribute to fulfilling the goals of the other. Study in depth can reward the student with a sense of competence and the sobering awareness of how much is yet to be learned in any field, while the broader perspective and the habit of seeking interrelationships enhance the benefits of specialized study. Furthermore, just as specialized programs mandate some breadth in a student's education, so should the general education program allow some study in-depth.

**Structure of the General Education Program**

The program has two parts: **proficiencies and distribution areas**. What follows describes these elements of the program. However, all descriptions of course content and structure presuppose the individual professor's freedom to teach the course according to personal professional judgment. Stated requirements are not intended to impinge upon academic freedom, but only to specify a range of content within which the course should be structured. Matters of interpretation and pedagogy are the sole prerogative of the individual professor.

**Criteria for Selecting and Evaluating General Education Courses**

**Criteria Applicable to All Courses**

1. Courses should further the goals of general education articulated in the introduction to this document. Courses may be those specifically designed for general education, or they may be introductory or intermediate courses in a major sequence so long as they conform to the goals of general education. Advanced courses may be offered for proficiencies 2 (baccalaureate-level writing), 4a (advanced writing), and 4b (optional mathematics or quantitative reasoning).
2. Courses at the 500-level do not count towards general education. Courses with prerequisites may count towards general education.
3. Grading and the amount of work required of students should be as rigorous in general education courses as in courses for majors. However, course work and teaching methods should be designed to open the discipline(s) to non-specialists.
4. All courses included in general education should have syllabi detailing course content, amount of student work, and grading procedures. Syllabi and other related course materials should be made available to the Committee on General Education (COGE) on request.
5. Departments that offer courses in multiple sections should demonstrate that all sections meet the standards of general education and are comparable with one another.
6. In the case of variable topics courses which may be taken more than once for credit when the subject matter is different, the different course subtopics should be reviewed for general education credit, and not simply the basic courses.
7. Students may receive credit by examination in place of coursework in the proficiencies, but not proficiencies 4a-4g, if the department offering the course provides for credit by examination, and the COGE approves. Placement in a foreign language at a second-year level does not waive the fourth proficiency requirement.

8. Courses approved for general education credit should, if possible, be offered at least once every two years.

9. If a department seeks approval for a course that is other than three credit hours, it should explain the basis for the difference in credit-hour requirements.

Criteria for the Proficiencies

Writing Courses (Proficiencies 1 and 2)

Writing courses that satisfy proficiency requirements should work to develop students' ability to express themselves effectively in writing. Specifically, college-level writing courses should develop the ability to think critically and reflectively about written material, an awareness of the process of composition, the ability to employ appropriately, though not necessarily faultlessly, the grammatical and mechanical conventions of standard written English, and the ability to organize materials and to develop and support ideas and arguments and express them clearly.

Baccalaureate-level, writing-intensive courses should reinforce the skills acquired in college-level courses and should promote maturity as a writer. They should further the ability to analyze and evaluate writing, the ability to construct and develop a point or idea, the ability to develop organized paragraphs and use appropriate transition devices, and the ability to employ the grammatical and mechanical conventions of standard written English. Papers in every course approved for baccalaureate-level writing must be substantial in nature and length. Instructors and departments will be responsible for determining the format, modes of presentation, technical vocabulary, and research or bibliographic conventions appropriate for writing in their respective disciplines.

These descriptions do not supersede criteria stated in the current University baccalaureate-level writing requirement.

Mathematics or Quantitative Reasoning Courses (Proficiency 3)

Each student must either:

- complete a college-level mathematics or quantitative reasoning course requiring Math 1100 (not satisfied by Math 1110), or its equivalent, as a prerequisite, or
- place into Math 1220/1700 (calculus) or higher on the Mathematics Placement Exam.

Courses satisfying this requirement may be offered in the Departments of Mathematics or Statistics or in other departments that offer courses satisfying the described criteria and requiring the use of the skills of Math 1100 as part of the course content (Math 111 does not satisfy this requirement). These skills are those derived from the study of arithmetic foundations of algebra, properties of real numbers, linear equations and inequalities, and systems of linear equations. Courses satisfying the proficiency must significantly advance students' mathematical skills and competencies beyond the level of one year of elementary algebra.

Courses that Enhance a Proficiency or Develop Another One (Proficiency 4)

Writing, 4a
Advanced writing courses should promote mastery of the mechanical, rhetorical, or aesthetic conventions of writing.

Mathematics or Quantitative Reasoning, 4b
The second course in mathematics or quantitative reasoning that students may take for general education credit should build upon the skills developed in their required quantitative reasoning course or its equivalent. Courses may be selected from statistics, discrete mathematics, general topics in mathematics, foundational calculus, or other related approved courses.
Critical Thinking, 4c
Critical thinking is the art of reasoning, which may be defined as reaching reasonable and reflective judgments focused on what to believe and do, or on how to interpret others' words and deeds. Courses in this area should help students become more expert in reasoning when they listen, read, think, evaluate, write, speak, and when they carry out plans of action. To this end, the courses have at least two of these four goals:

• Courses should help students become more skilled in making several kinds of distinctions: between arguments (chains of reasoning) and other information, between conclusions and premises, between the different patterns of arguments, between complete and incomplete presentations of arguments, between strong and weak arguments, and between cogent and ineffective ways of exposing weak arguments.
• Courses should help students become more skilled in resolving differences of opinion by locating common ground, by marshalling arguments, and by becoming sensitive to fallacies and other pitfalls of disputes.
• Courses should sensitize students to methods of overcoming differences that obstruct agreements to cooperate, so that the parties may come to an accord on how to interact with a minimum of dissatisfaction and a maximum consideration of the merits of each side.
• Courses should help students become more skilled in planning tasks involving choices and uncertainties. To develop these skills, students should learn techniques for analyzing and operationalizing the tasks, e.g., formulating objectives, flow-charting, programming, and assessing probabilities.

Oral Communication, 4d
Courses in oral communication should promote a breadth of skills in listening and clear expression in interpersonal or public speaking situations. Courses that satisfy this proficiency should foster the ability to use appropriate listening and expressive skills, to inform and persuade, and to analyze and synthesize for problem solving in interpersonal or public settings.

American Sign Language, 4e
Courses should enable students to recognize, describe, and produce under appropriate conditions the basic grammatical features and vocabulary of American Sign Language with the aim of achieving conversational fluency. Courses should also enable students to recognize and describe the essential features of the culture, education, and communication strategies of deaf people.

Computer Programming and Applications, 4f
Courses are not limited to those offered by the Department of Computer Science.

Foreign Language, 4g
Foreign language courses should develop facility in understanding, speaking, reading, and writing a language other than one's own. Additionally, these courses should introduce salient features of the culture from which the language derives or in which the language flourishes. Two semesters of college-level foreign language study will satisfy this requirement; students entering the University with college-level knowledge of a foreign language will be allowed to satisfy this requirement by taking two more advanced language courses or by taking two semesters of yet another foreign language.

Criteria for Courses in the Distribution Areas

Area I, Fine Arts
Courses that meet the fine arts requirement should provide experiences and develop skills that promote awareness of the imaginative and inventive capacities of the mind and of the aesthetic qualities of works of fine art. To achieve this goal courses should:

• deal with the arts in a direct, experiential manner, and whenever possible, include attendance and/or involvement in live performances, exhibitions, or arts events;
• entail formal or historical study of an art form or forms through reading, lecture, or discussion, and writing to develop the knowledge and perceptual skills that make for critical response, discernment, and informed evaluation; and
be designed for the layperson rather than the skilled practitioner.

Courses may focus on the role of an art or the arts in a culture or on the enhancement of life they provide the individual. Courses may introduce students to the practice of an art so long as they meet the three criteria cited above.

Learning Outcomes for Area I

- Explain the role of the arts in reflecting and influencing the human condition.
- Describe the historical context of various art forms.
- Interpret, evaluate, and describe aesthetic experiences and creative activities.
- Demonstrate knowledge of formal and thematic characteristics of different media and genres.

Area II, Humanities

Humanities courses offer the opportunity to study some of the forms by means of which human beings have reflected upon and represented human experience and the varieties of the human condition. These forms are mostly linguistic-literary, philosophic, historiographic, and religious. Sources studied in the humanities courses should be presented in ways that develop appreciation for their intellectual and aesthetic integrity and their imaginative scope. They should be studied in ways that require effort of response and reflection, and expand the students' critical and empathic capacities.

Learning Outcomes for Area II

- Explain the intellectual traditions that have helped shape present cultures.
- Describe the historical context of various literary, philosophic, historic, or religious works.
- Evaluate qualities and characteristics of works of literature, philosophy, history, or religion.
- Explain the role of at least one of the humanities in reflecting and influencing the human condition.

Area III, The United States: Cultures and Issues

The United States has always been, and will continue to be, a nation of great cultural and human diversity, its citizens deriving from many different religious, racial, and social groups. As the United States, increasingly multicultural and aware of the claims and rights of its diverse citizenry, strives to include all groups fully into the national life, a multicultural perspective needs to be incorporated into a student's general education. Courses that fulfill this requirement:

- should address the subject within the larger context of United States history and culture;
- should afford students the opportunity for informed reflection upon the cultural and human diversity of the United States. They should develop awareness of the national dimensions of cultural and human diversity and of critical social issues affecting component cultures of our society;
- may focus on one or more of the cultures that comprise our society, studying that culture (or those cultures) in ways that promote an understanding of the perspectives of the group or groups in the national context;
- may reflect upon issues that cut across constituencies, such as those stemming from age, class, disabilities, gender, race, or the dynamics of discrimination;
- may focus on a specific issue such as race relations or the psychology of difference; on a specific perspective such as that provided by women's writing or the arts of a cultural group; or on distinctive features of one cultural tradition such as musical forms developed by Blacks/African Americans or historic and contemporary institutions of Native American culture; and
- may focus on the ethical, legal, and institutional aspects of the fact of diversity in United States history and culture.

Learning Outcomes for Area III

- Explain the characteristics and historical background of diverse racial, religious, political, and social groups in the U.S.
• Identify issues such as age, class, disabilities, gender, race, or discrimination that have an impact on the cultural life of the United States, and analyze the roles those issues play in U.S. culture.
• Identify some of the historical dynamics (social, economic, political) that have shaped a current social condition (for example, economic and social segregation in U.S. cities or economic inequality) and explain how that dynamic has contributed to that condition.

**Area IV, Other Cultures and Civilizations**

This area introduces students to the values, institutions, and practices of cultures whose origins lie outside the European cultural arena. The experience of the Western world forms only a part of a much vaster human legacy. This area seeks to broaden perspectives on the human condition by focusing on other cultures and civilizations, singly or comparatively, both as systems unto themselves and as participants in an increasingly interdependent global society. Courses in this area have several of the following characteristics:

• deal systematically with the cognitive and pedagogical challenges of presenting and understanding cultures other than one's own;
• attempt to acknowledge and utilize multidisciplinary insights of scholars devoted to the study of cultures and civilizations;
• provide an opportunity to step outside one's own frame of reference by considering human experience and the potential for human achievement from other perspectives;
• emphasize the adaptive nature of cultures or civilizations in response to the challenges of physical environment, intercultural and international relations, and internal social dynamics;
• examine the history, literature, arts, religion, ideas and institutions of other cultures and civilizations;
• stimulate reflection on characteristics of various cultures;
• stimulate reflection on the interaction of cultures and nations in an increasingly interdependent world; and
• explore alternative views of modernization.

**Learning Outcomes for Area IV**

• Explain the adaptive nature of culture.
• Explain the influence and contributions of at least one other culture and/or civilization.
• Describe the history, literature, arts, religion, ideas, and institutions of at least one culture other than one's own.
• Compare, contrast, and evaluate two or more different cultures, including one's own.

**Area V, Social and Behavioral Sciences**

The courses in the social and behavioral sciences provide students with an understanding of human society, its cultures and environments, or of the dynamics of individuals and groups. The courses may:

• provide a theoretical, empirical, or experimental analysis of the economic, political, communicative, psychological, and other kinds of behavior of individuals and institutions;
• work toward descriptions adequate to the complexity of human beings and their institutions;
• examine the policy implications and service applications of social science in ways that promote critical reflection; or
• focus analytically and critically on the history or prehistory of societies, particularly those not covered in distribution areas III and IV.

**Learning Outcomes for Area V**

• Describe how geographic, political, and historical processes influence the social and behavioral science issues.
• Examine critically the applications of the social and behavioral sciences for policy and public service.
• Analyze data and draw appropriate conclusions.
Area VI, Natural Sciences with Laboratory

Laboratory courses in the natural sciences which meet the general education requirement require students to interact with objects of nature and to use instruments that permit careful examination of natural phenomena. They require students to use scientific methods to collect and analyze data and to report results. These courses have a laboratory period of at least one hour and fifty minutes per week. Courses must carry at least 4 hours but no more than 5 hours of credit. Area VI is deemed to have been completed satisfactorily if, and only if, the laboratory course and the theory course pertain to the same subject area (i.e., physics, chemistry, etc.). Area VI is deemed to have been completed satisfactorily by three transferred credit hours when those credit hours consist of both a lecture and a laboratory section. The laboratory component of an approved course must:

- be based on direct observation;
- deal with objects of nature and employ appropriate instruments to observe or measure these objects;
- employ scientific methods; and
- have a designated period for laboratory work.

General purpose laboratory courses which instruct in scientific methods independent of a particular science discipline are not eligible for satisfying the general education laboratory sciences requirement. Only discipline-specific courses in the areas of physical sciences, earth sciences, or life sciences satisfy this requirement.

Learning Outcomes for Area VI

- Apply the scientific method of discovery to the study of natural phenomena by critically evaluating and analyzing data and reaching the appropriate conclusions.
- Use scientific concepts and vocabulary to explain and make predictions about natural phenomena in a physical, life, or behavioral science.

Area VII, Natural Science and Technology: Applications and Implications

If students are to understand contemporary life, they should understand the implications of natural science and technology as applied to health, social and economic welfare; the storage, transfer, and processing of information; and the management of society's impact on the environment with sensitivity to ecological interconnections. Courses in this area should help students attain this understanding and should promote the ability to evaluate and participate in the decisions of society regarding science and technology. Criteria for these courses are:

- A substantial portion of the course work must be devoted to the teaching of the relevant science and technology. Techniques and skills acquired without learning an underlying natural science do not meet this criterion.
- The courses should also explore the costs and benefits of society's decisions regarding the uses of the sciences they teach.
- A substantial portion of the course should prompt reflection on responsible choices between competing values and interests.
- Although courses will contain a core of natural science, computer science, or the technology based on these sciences, they will explore practical applications and implications by examining some of the following:
  - sciences relevant to informed judgment about social and environmental costs and benefits;
  - salient history of science and technology;
  - assessments, systems analyses, and other quantitative tools;
  - considerations of law, rights, ethics, and the political process;
  - global challenges (e.g., population growth, climate and atmospheric change, loss of biodiversity, and resource management) involving more than one science and technology; or content from the social and behavioral sciences, humanities, and fine arts.

Courses in this area lend themselves to a multi-disciplinary approach, and may be the sole responsibility of individual instructors with wide competencies, or may be team-taught, or may be offered by a group of instructors, each assuming responsibility for a module of the course.
Learning Outcomes for Area VII

- Describe the history of technological innovation and its impact, both positive and negative, on society.
- Explain the interconnection between the natural sciences and advancements in technology as they impact health, social and economic welfare; the storage, transfer, and processing of information; and the environment.
- Demonstrate the ability to evaluate and participate in making societal decisions regarding science and technology.

Area VIII, Health and Well-Being

Courses which satisfy this area must advance students' knowledge and ability to influence their own health. Course content should examine national health priorities regarding the reduction of preventable death, disease, and disability among students and must include material on HIV/AIDS, and alcohol and substance abuse.

Courses which satisfy this requirement should improve a student's capacity to make healthy lifestyle choices. Single-topic courses may not be used to satisfy the requirement, and course content must address a minimum of four areas of health-related issues such as substance abuse, stress-related issues, grief and loss, development of healthy relationships, sexually transmitted diseases, lifestyle related diseases (primarily heart disease and cancer), and the principles of a healthy lifestyle.

Courses may be drawn from any department within the University. A maximum of eight (8) hours of general activity physical education may be applied toward electives for graduation credit.

Students who have completed a minimum of two years United States military service through active, reserve, or national guard duty, will be deemed to have satisfied and will receive two credit hours for Area VIII Health and Well-being of the University General Education Program.

Learning Outcomes for Area VIII

- Identify major health issues affecting students and other people and describe ways of reducing preventable disease, disability, and death.
- Describe the principles of a healthy lifestyle and ways of assessing health risks.

General Education Program Courses
Approved as of 1/18/06

The Proficiencies

Proficiency 1: College-Level Writing
BCM 1420 - Informational Writing Credits: 3 hours
ENGL 1050 - Thought and Writing Credits: 4 hours
IME 1020 - Technical Communication Credits: 3 hours

Proficiency 2: Baccalaureate-Level Writing
Does not count toward 37 credit minimum General Education hour requirement. Consult your curriculum or major program advisor for the course(s) approved for your area of study.

Proficiency 3: College-Level Mathematics or Quantitative Reasoning
MATH 1140 - Excursions in Mathematics Credits: 3 hours
MATH 1160 - Finite Mathematics with Applications Credits: 3 hours
MATH 1180 - Precalculus Mathematics Credits: 4 hours
MATH 1500 - Number Concepts for Elementary/Middle School Teachers Credits: 4 hours
MATH 1900 - Survey of Mathematical Ideas Credits: 4 hours
MATH 2000 - Calculus with Applications Credits: 4 hours

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STAT 1600 - Statistics and Data Analysis Credits: 3 hours
STAT 3660 - Introduction to Statistics Credits: 4 hours

**Proficiency 4: Enhance or Develop a Proficiency**
Consult your major or college advisor regarding the requirement(s) for your program. A course or courses in one of the following categories:

*Proficiency 4a. Advanced Writing*
ENGL 4620 - Advanced Writing Credits: 4 hours

*Proficiency 4b. Mathematics or Quantitative Reasoning*
MATH 1220 - Calculus I Credits: 4 hours
MATH 1510 - Geometry for Elementary/Middle School Teachers Credits: 4 hours Credits: 3 hours
MATH 1700 - Calculus I, Science and Engineering Credits: 4 hours
MATH 2000 - Calculus with Applications Credits: 4 hours
MATH 2650 - Probability and Statistics for Elementary/Middle School Teachers Credits: 4 hours
STAT 2160 - Business Statistics Credits: 3 hours
STAT 2600 - Elementary Statistics Credits: 4 hours

*Proficiency 4c. Critical Thinking*
NUR 2200 - Foundations of Nursing and Critical Thinking Credits: 3 hours
PHIL 2200 - Critical Reasoning Credits: 3 hours
PHIL 2250 - Deductive Logic Credits: 3 hours
PHIL 3200 - Introduction to Formal Logic Credits: 4 hours
PHIL 3250 - Inductive and Scientific Reasoning Credits: 3 hours
PSCI 1050 - Critical Thinking About Politics Credits: 3 hours

*Proficiency 4d. Oral Communications*
COM 1040 - Public Speaking Credits: 3 hours
COM 1700 - Interpersonal Communication Credits: 3 hours

*Proficiency 4e. American Sign Language*

*Proficiency 4f. Computer Science*
CS 1110 - Computer Science I Credits: 4 hours
CS 1120 - Computer Science II Credits: 4 hours
IMAG 2510 - Multimedia Publication and Design Credits: 3 hours

*Proficiency 4g. Foreign Languages*
All Western Michigan University foreign language courses are granted general approval to satisfy Proficiency 4g.

Two semesters of college-level foreign language study will satisfy this requirement; students entering the University with college-level knowledge of a foreign language will be allowed to satisfy this requirement by taking two more advanced language courses or by taking two semesters of yet another foreign language.

**The Distribution Areas**

*Distribution Area I: Fine Arts*
AFS 3300 - History and Significance of Black Pop Culture-1906 to Present Credits: 3 hours
AFS 3400 - African and African-American Cinema Credits: 3 hours
AFS 4000 - Blacks in the Arts Credits: 3 hours
ART 1200 - Introduction to Art Credits: 3 hours
ART 1300 - Studio Experience - (3-D) Credits: 3 hours
ART 1400 - Studio Experience - (2-D) Credits: 3 hours
ART 1480 - Direct Encounter with the Arts Credits: 4 hours
ART 2200 - History of Art Credits: 3 hours
ART 2210 - History of Art Credits: 3 hours
CHIN 2800 - Chinese Calligraphy Credits: 3 hours
DANC 1450 - Experiencing Dance Credits: 3 hours
ED 2300 - The Nature of Creativity Credits: 3 hours
ENGL 1100 - Literary Interpretation Credits: 4 hours
ENGL 1500 - Literature and Other Arts Credits: 4 hours
ENGL 2100 - Film Interpretation Credits: 4 hours
HIST 3150 - Popular Art and Architecture in America Credits: 3 hours
INTL 3300 - Study Abroad - WMU Programs Credits: 1 to 16 hours
INTL 3310 - Study Abroad - Non-WMU Programs Credits: 1 to 16 hours
MUS 1480 - Direct Encounter with the Arts ($50 fee) Credits: 4 hours
MUS 1500 - Music Appreciation: Live Music Credits: 4 hours
MUS 1510 - Music Appreciation: Jazz/Pop Credits: 4 hours
MUS 1520 - Rock Music: Genesis and Development Credits: 3 hours
MUS 4500 - Music Appreciation: The Symphony Credits: 3 hours
PHIL 3120 - Philosophy of Art Credits: 3 hours
PHYS 1010 - The Science of Music Credits: 3 hours
THEA 1000 - Introduction to Theatre Credits: 3 hours

**Distribution Area II: Humanities**

AFS 2140 - Black Religion and Liberation Credits: 3 hours
AFS 2240 - Africana Autobiography Credits: 3 hours
AFS 2800 - Topics and Themes in Africana Studies Credits: 3 hours
AFS 3130 - Radical Activism and the Black Community Credits: 3 hours
ENGL 1120 - Literary Classics Credits: 4 hours
ENGL 2110 - Folklore and Mythology Credits: 4 hours
ENGL 2520 - Shakespeare Credits: 4 hours
ENGL 3070 - Literature in Our Lives Credits: 3 hours
ENGL 3080 - Quest for Self Credits: 3 hours
ENGL 3110 - Our Place In Nature Credits: 3 hours
ENGL 3120 - Western World Literature Credits: 3 hours
ENGL 3150 - The English Bible as Literature Credits: 3 hours
ENGL 3820 - Literature for the Young Child Credits: 4 hours
ENGL 3830 - Literature for the Intermediate Reader Credits: 4 hours
ENGL 4160 - Women in Literature Credits: 4 hours
HIST 1000 - Early Western World Credits: 3 hours
HIST 1010 - Modern Western World Credits: 3 hours
HIST 1450 - Heroes and Villains in the Middle Ages Credits: 3 hours
HIST 3000 - Arts and Ideas: Ancient/Medieval Credits: 3 hours
HIST 3010 - Modern Arts and Ideas Credits: 3 hours
HIST 3300 - Canadian History and Culture Credits: 3 hours
HIST 3360 - Women in European History Credits: 3 hours
HIST 3790 - World War II in American and Japanese History Credits: 3 hours
INTL 3300 - Study Abroad - WMU Programs Credits: 1 to 16 hours
INTL 3310 - Study Abroad - Non-WMU Programs Credits: 1 to 16 hours
INTL 4050 - Foreign Studies Seminar Credits: 1 to 6 hours
LANG 3500 - Classical Greek and Roman Mythology Credits: 3 hours
LANG 3510 - The City of Gods: Power and Morality in the Roman World Credits: 3 hours
LANG 3530 - Russian Myths and Tales Credits: 3 hours
LANG 3750 - Foreign Literature in English Translation: Views of Humanity Credits: 3 hours
MDVL 1450 - Heroes and Villains of the Middle Ages Credits: 3 hours
NUR 3220 - Health Care Ethics Credits: 3 hours
PHIL 2000 - Introduction to Philosophy Credits: 4 hours
PHIL 2010 - Introduction to Ethics Credits: 4 hours
PHIL 3000 - Ancient and Medieval Philosophy Credits: 4 hours
THEA 1050 - Introduction to African-American Theatre Credits: 3 hours
WMS 2000 - Introduction to Women's Studies Credits: 4 hours
WMS 3000 - Working Women, Past and Present Credits: 3 hours
WMS 3500 - Male/Female Psychological Perspectives Credits: 3 hours

Distribution Area IV: Other Cultures and Civilizations
A-S 3040 - Nonwestern World Credits: 4 hours
AFS 2250 - African Storytellers as Traditional Historians Credits: 3 hours
AFS 2350 - Black Majorities in the Caribbean and Latin America Credits: 3 hours
AFS 3250 - Ethnohistory of Sub-Saharan East Africa Credits: 3 hours
AFS 3880 - Introduction to African Civilization Credits: 3 hours
AFS 4100 - Bridging the African Diaspora in the New Millennium: An Interdisciplinary Approach Credits: 3 hours
ANTH 1200 - Peoples of the World Credits: 3 hours
ANTH 3390 - Cultures of Latin America Credits: 3 hours
ANTH 3400 - Cultures of Asia Credits: 3 hours
ANTH 3410 - Cultures of Africa Credits: 3 hours
ANTH 3440 - The First Americans Credits: 3 hours
ARAB 2750 - Life and Culture of the Arabs Credits: 3 hours
ART 2220 - Art of Africa, Oceania, and the Americas Credits: 3 hours
ART 2230 - Introduction to Asian Art History Credits: 3 hours
CHIN 2750 - Chinese Life and Culture Credits: 3 hours
ECON 3850 - Central and East European and Central Asian Economies Credits: 3 hours
ECON 3870 - Studies in Asian Economies Credits: 3 hours
ECON 3880 - African Economies Credits: 3 hours
ECON 3890 - Latin American Economies Credits: 3 hours
ENGL 3130 - Asian Literature Credits: 3 hours
ENGL 3140 - African Literature Credits: 3 hours
FCS 3150 - Global Ecology of the Family Credits: 3 hours
FREN 2750 - Francophone Culture Credits: 3 hours
GEOG 3810 - South America Credits: 3 hours
GEOG 3820 - Mexico and the Caribbean Credits: 3 hours
GEOG 3890 - Monsoon Asia Credits: 3 hours
GEOG 3900 - China, Japan, and Korea: Lands and Cultures Credits: 3 hours
HIST 3020 - World History to 1500 Credits: 3 hours
HIST 3030 - World History since 1500 Credits: 3 hours
HIST 3740 - History of the Caribbean Credits: 3 hours
HIST 3750 - East Asian Societies and Cultures Credits: 3 hours
HIST 3760 - Modern East Asia Credits: 3 hours
HIST 3840 - Islamic Civilization Credits: 3 hours
HIST 3850 - Modern Middle East Credits: 3 hours
HIST 3880 - Introduction to African Civilization Credits: 3 hours
INTL 2000 - Introduction To Global and International Studies Credits: 3 hours
INTL 3300 - Study Abroad - WMU Programs Credits: 1 to 16 hours
INTL 3310 - Study Abroad - Non-WMU Programs Credits: 1 to 16 hours
JPNS 2750 - Japanese Life and Culture Credits: 3 hours
MUS 3520 - Non-Western Music Credits: 4 hours
PSCI 3410 - The Politics of Sub-Saharan Africa Credits: 4 hours
PSCI 3440 - Russian and Central Asian Politics Credits: 4 hours
PSCI 3450 - Latin American Politics Credits: 4 hours
PSCI 3460 - Women in Developing Countries Credits: 4 hours
REL 3010 - Buddhist Traditions Credits: 4 hours
REL 3020 - Religion in the Indian Tradition Credits: 4 hours
REL 3030 - Chinese Religion Credits: 4 hours
REL 3040 - African Religions Credits: 4 hours
REL 3070 - The Islamic Tradition Credits: 4 hours
REL 3080 - Japanese Religion Credits: 4 hours
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<td>Nonwestern World</td>
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<td>SOC 3340</td>
<td>Pacific Rim - Asian Societies</td>
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<td>SOC 3350</td>
<td>Modern Latin American Societies</td>
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<td>SOC 3360</td>
<td>Modern Japanese Society</td>
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<td><strong>Distribution Area V: Social and Behavioral Sciences</strong></td>
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<td>AFS 2100</td>
<td>Comparative Approaches to Forms of Black Consciousness</td>
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<td>AFS 3350</td>
<td>Research Procedures in Africana Studies</td>
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<td>ANTH 1100</td>
<td>Lost Worlds and Archaeology</td>
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<td>ANTH 2100</td>
<td>Introduction to Archaeology</td>
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<td>ANTH 2400</td>
<td>Principles of Cultural Anthropology</td>
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<td>ANTH 3430</td>
<td>Cultures of Europe</td>
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<td>BUS 1750</td>
<td>Business Enterprise</td>
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<td>Introduction to Communication Theory</td>
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<td>Economic Issues in the U.S. Today</td>
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<td>Contemporary International Economic Issues</td>
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<td>Principles of Microeconomics</td>
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<td>World Geography Through Media and Maps</td>
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<td>Economic Geography</td>
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<td>GEOG 3830</td>
<td>Western and Southern Europe</td>
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<td>GEOG 3840</td>
<td>The Post-Soviet States</td>
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<td>HIST 1030</td>
<td>History and Current Events</td>
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<td>Technology and Culture</td>
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<td>HIST 3130</td>
<td>American Diplomatic History</td>
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<td>The Medieval World: Society and Culture</td>
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<td>History of Modern Britain</td>
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<td>HIST 3640</td>
<td>Modern Europe: Culture and Society</td>
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<td>HIST 3660</td>
<td>Russia Yesterday and Tomorrow</td>
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<td>HIST 3700</td>
<td>History of Latin America</td>
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<td>IME 4220</td>
<td>Engineering Teams: Theory and Practice</td>
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<td>Study Abroad - Non-WMU Programs</td>
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<td>Foreign Studies Seminar</td>
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<td>LANG 2500</td>
<td>The Nature of Language</td>
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<td>LAW 1500</td>
<td>Personal Law</td>
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<td>LAW 3500</td>
<td>Computer Law</td>
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<td>OT 2250</td>
<td>Growth, Development, and Aging</td>
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<td>PADM 2000</td>
<td>Introduction to Nonprofit Leadership</td>
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<td>PHIL 3130</td>
<td>Philosophy of Law</td>
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<td>PSCI 1000</td>
<td>Introduction to Political Science</td>
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<td>PSCI 1050</td>
<td>Critical Thinking About Politics</td>
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<td>Comparative Politics</td>
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<td>International Relations</td>
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<td>PSCI 3110</td>
<td>American Politics and the Media</td>
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<td>European Politics</td>
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<td>PSCI 3500</td>
<td>American Foreign Policy</td>
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<td>PSY 1000</td>
<td>General Psychology</td>
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<td>REL 3230</td>
<td>Religion and Revolution</td>
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<td>SOC 2000</td>
<td>Principles of Sociology</td>
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<td>WMS 3200</td>
<td>Women, Multiculturalism, and Social Change</td>
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<td>WMS 3300</td>
<td>Gender Issues in Education</td>
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<td><strong>Distribution Area VI: Natural Science with Laboratory</strong></td>
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<tr>
<td>ANTH 2500</td>
<td>Introduction to Biological Anthropology</td>
<td>4 hours</td>
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68
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<tr>
<th>Course Code</th>
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<tr>
<td>BIOS 1050</td>
<td>Environmental Biology</td>
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<td>BIOS 1100</td>
<td>Biology Laboratory</td>
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<td>BIOS 1120</td>
<td>Principles of Biology</td>
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<tr>
<td>CHEM 1100</td>
<td>General Chemistry I</td>
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<td>CHEM 1110</td>
<td>General Chemistry Laboratory I</td>
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<td>CHEM 1900</td>
<td>Chemistry in Society</td>
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<td>CHEM 1910</td>
<td>Chemistry in Society Laboratory</td>
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<td>GEOG 1050</td>
<td>Physical Geography</td>
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<td>GEOS 1000</td>
<td>Earth Studies</td>
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<td>GEOS 1300</td>
<td>Physical Geology</td>
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<td>GEOS 2000</td>
<td>Evolution of Life - A Geological Perspective</td>
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<td>IMAG 1500</td>
<td>Introduction to Imaging</td>
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<td>OT 2000</td>
<td>Human Functional Anatomy</td>
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<td>PHYS 1000</td>
<td>How Things Work</td>
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<td>PHYS 1030</td>
<td>Sky and Solar System Laboratory</td>
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<td>Introduction to the Sky and Solar System</td>
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<td>PHYS 1050</td>
<td>Stars and Galaxies Laboratory</td>
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<td>PHYS 1060</td>
<td>Introduction to Stars and Galaxies</td>
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<td>PHYS 1070</td>
<td>Elementary Physics</td>
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<td>PHYS 1080</td>
<td>Elementary Physics Laboratory</td>
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<tr>
<td>PHYS 1130</td>
<td>General Physics I</td>
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<tr>
<td>PHYS 1140</td>
<td>General Physics I Laboratory</td>
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<tr>
<td>PHYS 2050</td>
<td>Mechanics and Heat</td>
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<tr>
<td>PHYS 2060</td>
<td>Mechanics and Heat Laboratory</td>
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**Distribution Area VII: Natural Science and Technology: Applications and Implications**

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<td>ANTH 1500</td>
<td>Race, Biology, and Culture</td>
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<tr>
<td>AVS 2800</td>
<td>Transportation Technology: Policy, Perils, and Promise</td>
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<td>CHEG 2610</td>
<td>Environmental Engineering</td>
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<td>COM 2400</td>
<td>Introduction to Media and Telecommunications</td>
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<td>CS 1000</td>
<td>Fluency With Information Technology</td>
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<tr>
<td>CS 1010</td>
<td>What is Computer Science?</td>
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<tr>
<td>CS 1011</td>
<td>What is Computer Science? - Lab</td>
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<td>ENVS 3000</td>
<td>Environment, Technology, and Value</td>
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<td>GEOG 1000</td>
<td>World Ecological Problems and Man</td>
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<td>GEOG 3500</td>
<td>Conservation and Environmental Management</td>
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<td>GEOS 1440</td>
<td>Environmental Earth Science</td>
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<td>GEOS 3120</td>
<td>Geology of the National Parks and Monuments</td>
<td>3 hours</td>
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<tr>
<td>GEOS 3220</td>
<td>Ocean Systems</td>
<td>3 hours</td>
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<tr>
<td>IME 1220</td>
<td>Automobile in Society</td>
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<tr>
<td>IME 1500</td>
<td>Introduction to Manufacturing</td>
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<tr>
<td>ME 2200</td>
<td>Processes and Materials in Manufacturing</td>
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<td>MSE 2510</td>
<td>The Evolution of Materials</td>
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<td>NUR 3330</td>
<td>Informatics for Health Professionals</td>
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<td>PAPR 1600</td>
<td>Introduction to Environmental Technology</td>
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<td>PHIL 2550</td>
<td>Science, Technology, and Values</td>
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<tr>
<td>PHIL 3340</td>
<td>Biomedical Ethics</td>
<td>4 hours</td>
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PHIL 3500 - Foundations of the Modern Worldview Credits: 4 hours
PHIL 3550 - Philosophy of Science Credits: 3 hours
PHYS 1020 - Energy and the Environment Credits: 3 hours
SPPA 2000 - Communication Disorders and Sciences Credits: 3 hours

Distribution Area VIII: Health and Well-Being
ADA 2250 - Drug Use: Personal and Social Impact Credits: 3 hours
HOL 1000 - Choices in Living Credits: 3 hours
HPER 1110 - Healthy Living Credits: 2 hours
PEGN 1700 - Health and Wellness - Aerobics Credits: 2 hours
PEGN 1710 - Health and Wellness - Water Aerobics Credits: 2 hours
PEGN 1720 - Health and Wellness - Circuit Fitness Credits: 2 hours
PEGN 1730 - Health and Wellness - Jogging Credits: 2 hours
PEGN 1740 - Health and Wellness - Walking Credits: 2 hours
PEGN 1760 - Health and Wellness - Racquet Sports Credits: 2 hours
PEGN 1770 - Health and Wellness - Climbing Techniques Credits: 2 hours
PEGN 1780 - Health and Wellness - Self-Defense Credits: 2 hours
PEGN 1790 - Health and Wellness - Figure Skating Credits: 2 hours
PEGN 1800 - Health and Wellness - Beginning Swimming Credits: 2 hours
PEGN 1810 - Health and Wellness - Intermediate Swimming Credits: 2 hours
PEGN 1820 - Health and Wellness - Swim Conditioning Credits: 2 hours

General University Policies

In addition to the several policy statements included below, the University's Student Code and general academic policies may be found, respectively, on the following Western Michigan University websites: www.wmich.edu/studentcode and www.wmich.edu/sub/policies.html

Code of Honor

Western Michigan University (WMU) is a student-centered research university that forges a responsive and ethical academic community. Its undergraduate, graduate, and professional programs are built upon intellectual inquiry, investigation, discovery, an open exchange of ideas, and ethical behavior. Members of the WMU community respect diversity, value the cultural differences of those around them, and engender a sense of social obligation. Because of these values, all individuals are expected to conduct themselves in a professional and civil manner. This includes exemplifying academic honesty, integrity, fairness, trustworthiness, personal responsibility, respect for others, and ethical conduct. These attributes are exhibited in the University as well as in the community. Members of the University community abide by this code out of commitment to serve as responsible citizens of the University, the community, the nation, and the world. Responsibility for fulfilling the obligations of the code of honor is shared by the students, faculty, and every other member of the University community.

Student Rights

Basic Rights

As provided by University policy or by law:

1. Students have the right to free inquiry, expression, and association.
2. Students should be free from discrimination and harassment based on race, sex, sexual orientation, age, color, national origin, religion, disability, marital status, or family status.
3. Students should be secure in their persons, living quarters, papers, and effects.
4. Students are protected against improper disclosure as provided for in the Family and Education Rights and Privacy Act of 1974.
5. Students have the right to access their personal records and other University files as provided for under the Michigan Freedom of Information Act.
6. Students are free to participate in the governance of the University through membership in appropriately designated University and college committees.

**Academic Rights**

Students have those academic rights and responsibilities as described in the University catalogs, including but not limited to the following:

1. Student performance will be evaluated solely on academic criteria.
2. Students have protection against prejudiced or capricious academic evaluation.
3. Students are free to take reasoned exception to the data or views offered in any course of study and to reserve judgment about matters of opinion, but they are responsible for learning the content of any course of study for which they are enrolled.
4. Students will be fully informed by the faculty about course requirements, evaluation procedures, and the academic criteria to be used in each class. This information will be provided at the beginning of the semester or sufficiently in advance of actual evaluation. Each course instructor is required to make available to students a course syllabus that shall contain a basic course description, course objectives, course requirements and policies, grading criteria, and instructor contact information. Instructors are encouraged to include a tentative schedule indicating when various topics will be addressed, and when quizzes, exams and due dates for assignments shall occur. Instructors are further encouraged to include in their syllabi basic University policies regarding academic conduct, human rights, diversity, and students with disabilities.
5. Students have the right to have all their examinations and other graded material made available to them with an explanation of the grading criteria. Faculty will retain all such materials not returned to the student for at least one full semester (or through spring plus summer sessions) after the course was given. Faculty are not required to return such material to the student, but must provide reasonable access.

**Student Academic Conduct**

The following policies and procedures shall apply to all matters of student academic conduct.

**Academic Honesty**

If a student is uncertain about an issue of academic honesty, he/she should consult the faculty member to resolve questions in any situation prior to the submission of the academic exercise.

Violations of academic honesty include but are not limited to:

**Cheating**

*Definition*

Cheating is intentionally using or attempting to use unauthorized materials, information, notes, study aids or other devices or materials in any academic exercise.

*Clarification*

1. Students completing any examination are prohibited from looking at another student's examination and from using external aids (for example, books, notes, calculators, conversation with other) unless specifically allowed in advance by the faculty member.
2. Students may not have others conduct research or prepare work for them without advance authorization from the faculty member. This includes, but is not limited to, the services of commercial term paper companies.

Fabrication, Falsification, and Forgery

Definition

Fabrication is the intentional invention and unauthorized alteration of any information or citation in an academic exercise. Falsification is a matter of altering information while fabrication is a matter of inventing or counterfeiting information for use in any academic exercise or University record. Forgery is defined as the act to imitate or counterfeit documents, signatures, and the like.

Clarification

1. "Invented" information shall not be used in any laboratory experiment, report of results or academic exercise. It would be improper, for example, to analyze one sample in an experiment and then "invent" data based on that single experiment for several more required analyses.
2. Students shall acknowledge the actual source from which cited information was obtained. For example, a student shall not take a quotation from a book review and then indicate that the quotation was obtained from the book itself.
3. Falsification of University records includes altering or forging any University document and/or record, including identification material issued or used by the University.

Multiple Submission

Definition

Multiple submission is the submission of substantial portions of the same work (including oral reports) for credit more than once without authorization from instructors of all classes for which the student submits the work.

Clarification

Examples of multiple submission include submitting the same paper for credit in more than one course without all faculty members' permission; making revisions in a credit paper or report (including oral presentations) and submitting it again as if it were new work.

Plagiarism

Definition

Plagiarism is intentionally, knowingly, or carelessly presenting the work of another as one's own (i.e., without proper acknowledgment of the source). The sole exception to the requirement of acknowledging sources is when the ideas, information, etc., are common knowledge.

Instructors should provide clarification about the nature of plagiarism.

Clarification

1. Direct Quotation: Every direct quotation must be identified by quotation marks or appropriate indentation and must be properly acknowledged, in the text by citation or in a footnote or endnote.
2. Paraphrase: Prompt acknowledgment is required when material from another source is paraphrased or summarized, in whole or in part, in one's own words. To acknowledge a paraphrase properly, one might state: "To paraphrase Locke's comment, . . ." and then conclude with a footnote or endnote identifying the exact reference.
3. **Borrowed facts**: Information gained in reading or research which is not common knowledge must be acknowledged.

4. **Common knowledge**: Common knowledge includes generally known facts such as the names of leaders of prominent nations, basic scientific laws, etc. Materials which add only to a general understanding of the subject may be acknowledged in the bibliography and need not be footnoted or endnoted.

5. **Footnotes, endnotes, and in-text citations**: One footnote, endnote, or in-text citation is usually enough to acknowledge indebtedness when a number of connected sentences are drawn from one source. When direct quotations are used, however, quotation marks must be inserted and acknowledgment made. Similarly, when a passage is paraphrased, acknowledgment is required.

Faculty members are responsible for identifying any specific style/format requirement for the course. Examples include but are not limited to American Psychological Association (APA) style and Modern Languages Association (MLA) style.

**Complicity**

*Definition*

Complicity is intentionally or knowingly helping or attempting to help another to commit an act of academic dishonesty.

*Clarification*

Examples of complicity include knowingly allowing another to copy from one's paper during an examination or test; distributing test questions or substantive information about the materials to be tested before the scheduled exercise; collaborating on academic work knowing that the collaboration will not be reported; taking an examination or test for another student, or signing another's name on an academic exercise.

(NOTE: Collaboration and sharing information are characteristics of academic communities. These become violations when they involve dishonesty. Faculty members should make clear to students expectations about collaboration and information sharing. Students should seek clarification when in doubt.)

**Computer Misuse**

*Definition*

Academic computer misuse is the use of software to perform work which the instructor has told the student to do without the assistance of software.

**Conduct in Research**

Research and creative activities occur in a variety of settings at the University, including class papers, theses, dissertations, reports or projects, grant funded projects and service activities. Research and creative activities rest on a foundation of mutual trust. Misconduct in research and in creative activity destroys that trust and is prohibited. Students shall adhere to professional standards of integrity in both artistic and scientific research including appropriate representations of originality, authorship and collaborative crediting.

*Definition*

Misconduct in research is defined as serious deviation, such as fabrication or falsification of data, plagiarism, or scientific or creative misrepresentation, from accepted professional practices of the discipline or University in carrying out research and creative activities or in reporting or exhibiting/performing the results of research and creative activities. It does not include honest error or honest differences in judgments or interpretations of data.

*Clarification*
Examples of misconduct in research include but are not limited to:

1. **Fabrication of Data**: Deliberate invention or counterfeiting of information.
2. **Falsification of Data**: Dishonesty in reporting results, ranging from unauthorized alteration of data, improper revision or correcting of data, gross negligence in collecting or analyzing data, to selective reporting or omission of conflicting data.
3. **Plagiarism and Other Misappropriation of the Work of Another**: The representation of another person's ideas or writing as one's own, in such ways as stealing others' results or methods, copying or presenting the writing or ideas of others without acknowledgment, or otherwise taking credit falsely. Representing another's artistic or technical work or creation as one's own. Just as there are standards to which one must adhere in the preparation and publication of written works, there are standards to which one must adhere in creative works in the tonal, temporal, visual, literary and dramatic arts.
4. **Abuse of Confidentiality**: Taking or releasing the ideas or data of others which were given in the expectation of confidentiality, e.g., stealing ideas from grant proposals, award documents, or manuscripts intended for publication or exhibition/performance when one is a reviewer for granting agencies or journals or when one is a juror.
5. **Dishonesty in Publication or Exhibition/Performance**: Knowingly publishing, exhibiting or performing work that will mislead, e.g., misrepresenting material, particularly its originality, or adding or deleting the names of other authors without permission.
6. **Deliberate Violation of Requirements**: Failure to adhere to or receive the approval required for work under research regulations of federal, state, local or university agencies, including guidelines for the protection of human subjects or animal subjects and the use of recombinant DNA, radioactive material, and chemical or biological hazards.
7. **Failure to Report Fraud**: Concealing or otherwise failing to report known misconduct or breaches of research or artistic ethics. Research Board Requirements Misconduct in research includes failure to comply with requirements of the conduct of research and creative activities, e.g., the protection of human subjects, the welfare of laboratory animals, radiation, and biosafety. Allegations in these areas may be brought by Human Subjects Institutional Review Board, the Institutional Animal Care and Use Committee and the Institutional Biosafety Committee.

**Charges of Violations of Academic Honesty and Conduct in Research**

Western Michigan University's academic honesty and conduct in research policies have been created and defined by members of its academic community, recommended by its faculty senate, and adopted by its board of trustees. The processes necessary to support these policies are managed and facilitated by the Office of Student Conduct (OSC). If you have questions about the forms, the process, your role in the process, or anything else related to academic honesty, please call the Office of Student Judicial Affairs at 387-2160. These policies take effect August 30, 1999, and supersede previous catalog sections entitled "Academic Policy and Status," "Academic Conduct Violation: Consequences and Appeals," "Academic Grade Appeals Procedure," and "General Academic Appeals Procedure."

This section applies to cases in which a student is to be charged with a violation of the Academic Honesty Policy, including the policy on Academic Honesty and the policy on Conduct in Research.

1. **Charging a student with a violation**: An Academic Dishonesty/Conduct in Research Charge Form is filled out by the instructor for the purpose of charging the student. After the instructor completes the form, the instructor sends it (or may fax it) to the OSC. A staff member in that office will then contact the student and schedule a meeting between the student and the OSC. An OSC staff member will also notify the Registrar of the pending case, and will institute a "disciplinary hold" preventing the student from dropping, adding, or registering in classes.

2. **If the student admits the charge**: If the student admits responsibility, the OSC will contact the instructor and arrange an appointment between the instructor and the student to communicate the instructor's penalty for the behavior, unless the instructor chooses not to meet with the student. The instructor may impose an academic penalty up to failure of the course in which the student is enrolled. The OSC may also impose non-grade-related penalties ranging from reprimand to dismissal from the University.

3. **If the student denies responsibility**: If the student denies the charge, the OSC will consult with the instructor to ascertain the instructor's preference as to the hearing type. The hearing may be a meeting between the instructor and the student or a meeting between the student and an Academic Integrity Committee. An Academic Integrity Committee will consist of three faculty members and two students, selected using procedures established by the
4. **If the student wants to appeal a finding of responsibility after a hearing with the instructor:** A student may appeal a finding of responsibility resulting from a hearing with the instructor to an Academic Integrity Committee within five University business days. The student cannot appeal after that time has elapsed.

5. **The authority of the academic integrity committee:** An Academic Integrity Committee will conduct hearings to determine whether the student is responsible for academic dishonesty. An Academic Integrity Committee makes no decisions regarding the penalties and/or grades to be imposed, either by the instructor or by the OSC.

6. **If a finding of "responsible" has been made:** A finding of "responsible" occurs when a student admits responsibility to the OSC, the instructor so decides, or an Academic Integrity Committee so decides by majority vote. When that finding has occurred, the instructor may impose an academic penalty up to and including failure of the course in which the student is enrolled. A decision by the instructor regarding a grade penalty cannot be appealed by the student once the student has been found responsible and has exhausted or waived all appeals. Also, once the student has been found responsible and has exhausted or waived all appeals, that student's continued attendance in the relevant class depends on the penalty imposed by the instructor and/or the OSC. If the instructor determines to fail the student in the course, the student is not permitted to continue attending class. Again, following a finding of responsibility, the OSC may impose additional penalties ranging from reprimand to dismissal from the University. In all cases when a final finding of responsibility has been made, the finding will be included in the student's educational record. Students will not be permitted to withdraw from a course to avoid imposition of any academic penalty.

7. **If a finding of "not responsible" has been made:** If a finding of "not responsible" has been made, the charge is dismissed and no penalties are imposed.

8. **While a case is pending:** A case is considered pending until one of two events occurs: (1) the student admits responsibility or (2) the hearing process is completed. While a case is pending, the student has the right to attend and participate in the class. If the case is pending at the end of the semester, the instructor must assign an Incomplete grade and then submit a change of grade once the process is complete.

9. **Instructor unavailable to assign grade:** Circumstances may arise which may prevent an instructor from assigning a grade in a timely manner. In such instances, the academic unit chair/director will make reasonable efforts to contact and ask the instructor to supply a grade. If these efforts are unsuccessful, the instructor's academic unit chair/director will appoint another qualified faculty member to assign the grade.

**Selection, Training, and Organization of Academic Integrity Committee (AIC)**

An Academic Integrity Committee (AIC) will be drawn from a panel of faculty and students who are trained by the Office of Student Conduct (OSC). For each instance of an academic dishonesty charge which requires AIC review (see above), a five-member AIC composed of three faculty members and two students will be selected to hear the charge of academic dishonesty and to determine whether the charge has merit. Procedures for selection of a five-member AIC and, when required, AIC replacements from the AIC panel will be constructed and administered by the Professional Concerns Committee (PCC).

Each academic unit will elect one tenured or tenure-track faculty member to serve on the AIC panel. Student AIC panel members must be recommended by faculty, and each academic unit is asked to recommend one undergraduate and one graduate student to the AIC. Students recommended to the AIC panel will be screened by the OSC to ensure that no AIC student member has incurred a previous academic dishonesty sanction and that each AIC student member has a satisfactory disciplinary record.

Faculty members will serve three-year terms. Students will serve one-year terms with reappointment possible for up to a total of three years. It will be necessary to include on the panel those who can serve in the spring and summer.

For a charge against an undergraduate student, at least one student member of the AIC shall be an undergraduate. For a charge against a graduate student, at least one student member shall be a graduate student. Each AIC will elect a faculty member to chair the committee. Whenever possible, hearings should be conducted with a full panel; however, should extenuating circumstances arise, a hearing may be conducted with four members.

The Professional Concerns Committee (PCC) shall also function as an oversight committee for reviewing and monitoring all University policies and procedures dealing with academic conduct, including academic dishonesty, grade appeal, and
program dismissal issues. A report of all AIC activities shall be made to the Faculty Senate Executive Board each year by the PCC, and recommendations for changes in policies and procedures regarding academic conduct, including academic dishonesty, grade appeal and program dismissal issues may be part of that annual report. Such recommendations may result in modifications to these procedures and policies.

Course Grade and Program Dismissal Appeals

Course Grade Appeals

This section applies when a student wants to appeal a final course grade that has been recorded by the Registrar on the student's academic record. Appeal panels are assembled from the faculty under the authority of and by the Provost and Vice President for Academic Affairs or designate. Throughout this process, the Provost's Office is available to students and instructors for assistance on procedures and clarification of the rights of all parties.

The accepted bases of course grade appeal are:

A. Grades were calculated or the program dismissal decision was made in a manner inconsistent with the University policy, the syllabus, or changes to the syllabus.
B. The grade(s) was/were erroneously calculated.
C. Grading/performance standards were arbitrarily or unequally applied.
D. The instructor failed to assign or remove an Incomplete or to initiate a grade change as agreed upon with the student.
E. Late withdrawal from class(es), after grades have been assigned, due to genuine hardship. (Students appealing on this basis should proceed by contacting the Registrar's Office and following the procedures for a late withdrawal appeal. A grade appeal cannot be made in response to a grade penalty assessed as a result of an official finding of responsibility for academic integrity violation(s). Such a finding will have been made through the procedures provided in the academic integrity policy.

The steps to be taken in appealing a grade are:

1. Informal meeting with instructor: A student is encouraged to begin the appeal process by meeting with the instructor who assigned the grade. Such meetings often help students understand the grading practices of instructors and often lead to resolution of differences over grades.
2. Written appeal and conference with the academic unit chair/director: A grade appeal must be in writing, in hard copy, and must be submitted to the academic unit chair/director. This appeal must be received by the academic unit chair/director within sixty business days of the last day of the semester or session in which the grade was recorded on a student's record. The Provost or designate may grant an extension should a genuine hardship arise (i.e., illness, death in the immediate family). The letter must identify the basis of the appeal and must state in detail why the student believes the grade should be changed. Following a conference with the student, the chair/director must respond in writing to the student with a copy to the instructor, their dean, and the Grade and Program Dismissal Appeals Committee (GAPDAC) within twenty business days. In this letter, the chair/director should confirm the meeting with the student, recap their discussion, and state whether the student has an appeal which meets the established criteria (A, B, C, or D above). If the situation appears to meet the criteria for appeal, the chair/director may recommend that the instructor reevaluate the student's work. The chair/director cannot change the student's grade without the instructor's agreement. Note: Grade appeals or other complaints based on charges of discrimination or sexual harassment should be taken to the Office of Institutional Equity or other office, pursuant to other University policies and procedures.
3. Appeal to committee: After the chair has completed the response to the student's appeal, the student may appeal to GAPDAC. This appeal must be initiated within twenty business days completion of step 2. If the student has requested a meeting with the academic unit chair/director and has not been granted such a meeting within forty business days of the student's request, the student may then initiate an appeal to GAPDAC.

The student will initiate an appeal through the Provost's Office. When the appeal is received, the Provost or designate will schedule a meeting of GAPDAC using procedures determined by the Professional Concerns Committee (PCC) of the Faculty Senate. The GAPDAC will consist of three members drawn from a pool of faculty established for this purpose. In a grade appeal, both the student(s) and the instructor should provide a written
statement describing the situation under consideration. An appearance to provide additional information at the appeal by either the instructor or student(s) may be requested by the appeals committee. *A GAPDAC can effectuate a grade change by majority vote.* The decision of the hearing panel is final and not subject to appeal.

4. **Instructor unavailable to assign grade:** Circumstances may arise which may prevent an instructor from assigning a grade in a timely manner. In such instances, the academic unit chair/director will make reasonable efforts to contact and ask the instructor to supply a grade. If these efforts are unsuccessful, the instructor's academic chair/director will appoint another qualified faculty member to assign the grade.

**Program Dismissal Appeals**

This section applies when a student wants to appeal a decision to dismiss the student from an academic program for reasons other than charges of violations of academic integrity policies. Appeal panels are assembled under the authority of and by the designate of the Provost and Vice President for Academic Affairs. Throughout this process, the Provost's Office is available to students and instructors for assistance on procedures and clarifications of the rights of all parties.

The accepted bases of program dismissal appeal are:

A. The program dismissal decision was made in a manner inconsistent with University policy or the program policy.
B. The program dismissal procedures were not followed. C. Evaluation/performance standards were arbitrarily or unequally applied.

A program dismissal appeal cannot be made in response to an academic integrity or conduct dismissal from the University. The student's status, as dismissed from the program, will remain unaltered until a successful appeal is completed.

**NOTE:** A program dismissal appeal based on charges of discrimination or sexual harassment should be taken to the Office of Institutional Equity or other office, pursuant to the other University policies and procedures.

The steps to be taken in appealing a program dismissal are:

1. **Appeal to committee:** The student may appeal to a Grade and Program Dismissal Appeals Committee (GAPDAC). This appeal must be initiated within twenty business days of the notification of program dismissal. The student will initiate an appeal through the Provost's Office. When the appeal is received, the Provost or designate will schedule a meeting of a GAPDAC using procedures determined by the Professional Concerns Committee of the Faculty Senate. The GAPDAC will consist of three members drawn from a pool of faculty established for this purpose. In a program dismissal, the student appellant should attend the meeting of the appeal panel and must provide a written statement describing the grounds for appeal. A University representative from the program must attend the meeting and must provide a written statement describing the grounds for and circumstances of dismissal.

A GAPDAC may reverse or sustain a program dismissal by majority vote. The decision of the hearing panel is final and not subject to appeal.

**Selection, Training, and Organization of Grade and Program Dismissal Appeal Committee**

A Grade and Program Dismissal Appeal Committee (GAPDAC) will be drawn from a pool of faculty who are trained under procedures determined by the Professional Concerns Committee (PCC) of the Faculty Senate. For each appeal that requires review, a GAPDAC panel will be selected to hear the appeal and to decide the matter.

Each academic college shall provide a cohort of tenured or tenure-track faculty members to serve on the GAPDAC pool in proportion to its respective student credit hour production. Faculty members will serve three-year terms. It will be necessary to include in the pool those who can serve during summer sessions.

Each GAPDAC shall be composed of three faculty members, at least one of whom is from the college where the course or program in question resides. Each GAPDAC will elect a faculty member to chair the committee, and each GAPDAC must
have all three members present to have a quorum. Procedures for selection of a GAPDAC will be constructed and administered by the PCC.

**Faculty Oversight of Grade and Program Dismissal Appeals Committee**

The PCC shall function as an oversight committee for reviewing and monitoring all University policies and procedures dealing with grade and program dismissal appeal issues. A report of all GAPDAC activities shall be made to the Faculty Senate Executive Board each year by the PCC, and recommendations for changes in policies and procedures regarding grade and program dismissal appeal issues may be part of that annual report. Such recommendations may result in modifications to these policies and procedures.

**The Family Educational Rights and Privacy Act**

The Office of the Registrar is the institution's official custodian of educational records. This office also holds the final responsibility in the enforcement of the Federal Educational Rights and Privacy Act of 1974 (FERPA). Maintaining confidentiality of educational records is the responsibility of all users whether the individuals are faculty, staff, or students. The Family Educational Rights and Privacy Act affords students certain rights with respect to their educational records. They are:

1. The right to inspect and review the student's educational records within 45 days of the date the University receives a request for access. Students should submit to the registrar, dean, head of the academic department, or other appropriate official, written requests that identify the record(s) they wish to inspect. The University official will make arrangements for access and notify the student of the time and place where the records may be inspected. If the records are not maintained by the University official to whom the request was submitted, that official shall advise the student of the correct official to whom the request should be addressed.

An educational record is a record which is maintained by the institution directly related to a student, and from which a student can be identified. Educational records do not include the records of instructional, administrative, and educational personnel, which are in the sole possession of the maker and are not accessible or revealed to any individual except a temporary substitute, records of the law enforcement unit, student health records, employment records, or alumni records.

Students may not inspect and review the following as outlined by the Act:

- Financial information submitted by their parents.
- Confidential letters and recommendations associated with admissions, employment, or job placement.
- Honors information to which they have waived their rights of inspection and review.

Educational records containing information about more than one student, in which case the institution will permit access only to that part of the record which pertains to the inquiring student.

2. The right to request the amendment of the student's educational records that the student believes are inaccurate, misleading, or otherwise in violation of the student's privacy rights. Students may ask the University to amend a record they believe is inaccurate or misleading. They should write the University official responsible for the records, clearly identifying the part of the record they want changed, and specify why it is inaccurate or misleading. If the University decides not to amend the record as requested by the student, the University will notify the student of the decision and advise the student of his or her right to a hearing regarding the request for amendment. Additional information regarding the hearing procedures will be provided to the student when notified of the right to a hearing.

3. The right to consent to disclosures of personally identifiable information contained in the student's educational records, except to the extent that FERPA authorizes disclosures without consent.
One exception, which permits disclosure without consent, is disclosure to University officials with legitimate educational interests and/or needs to review an educational record in order to fulfill his or her professional responsibility. A University official for the purpose of this policy is defined as follows:

- Members of the faculty
- Members of the professional, executive and administrative staff, excluding any member of the WMU Police Department
- Students, when properly appointed as members of a hearing panel or screening committee
- Representatives of the State Auditor General when performing their legal function
- A person or company with whom the University has contracted (e.g., attorney, auditor, or collection agency) but limited to only the specific student information needed to fulfill their contract
- Others as designated in writing by the President, Vice President, or Dean
- Persons in compliance with a court order
- Accrediting agencies performing an accreditation function

The University, upon request, may disclose educational records to officials of another school in which a student seeks to enroll, with a student's consent.

Another exception that permits disclosure without consent is when the information consists solely of "Directory Information." Directory Information may be published or released by University faculty and staff at their discretion. Unless a student specifically directs otherwise, as explained more fully in paragraph four (4) below, WMU designates all of the following categories of information about its students as "Directory Information."

Name
Address
Telephone number
Date and place of birth
Curriculum and major field of study
Dates of attendance
Enrollment status (full/part-time)
Degrees/awards received
Most recent previous educational agency or institution attended by the student
Participation in officially recognized activities and sports
Weight and height of athletes

4. A student has the right to refuse the designation of all categories of personally identifiable information listed above as Directory Information. If a student exercises this right, it will mean that no Directory Information pertaining to the student will be published or otherwise released to third parties without consent, a court order or a subpoena.

Any student wishing to exercise the right of withholding all categories of personally identifiable information must inform the Registrar's Office in writing by not later than the fifth day of the semester/session. A student's notification to withhold information will remain in effect until the student requests in writing that the prior withholding be revoked.

5. The right to file a complaint with the U.S. Department of Education concerning alleged failures by WMU to comply with the requirements of FERPA. The name and address of the Office that administers FERPA is Family Policy Compliance Office, U.S. Department of Education, 600 Independence Avenue SW, Washington, D.C. 20202-4605.

**Western Michigan University Policy on Sexual Harassment and Sexism**

Western Michigan University is committed to an environment which encourages fair, humane, and beneficial treatment of all faculty, staff, and students. In accordance with that fundamental objective, the University has a continuing commitment to assure equal opportunity and to oppose discrimination because of race, color, sex, sexual orientation, age, religion, national origin, handicap, height, weight, or marital status. Therefore, in that same perspective, neither sexual harassment nor sexism...
will be tolerated at Western Michigan University. It is expected that each member of the University community will consider himself/herself responsible for the proper observance of this policy.

Definitions

**Sexual Harassment:**
Sexual harassment is defined as unwelcome sexual conduct which is related to any condition of employment or evaluation of student performance. This definition is intended to include more than overt advances toward actual sexual relations. It applies as well to repeated or unwarranted sex-related statements, unwelcome touching, sexually explicit comments, and/or graphics. All persons should be sensitive to situations that may affect or cause the recipient discomfort or humiliation or may display a condescending sex-based attitude towards a person. Sexual harassment is illegal under both state and federal law. In some cases, it may be subject also to prosecution under the criminal sexual conduct act. Conduct will be defined as sexual harassment when any or all three of the following conditions exist:

1. The sex-related situations are unwelcome by the recipient.*
2. A specific or implied connection with employment or student status is involved.
3. The sexual harassment continues after the recipient has made it clear that the conduct is unwelcome.*

*Note: In some cases of overt physical sexual conduct, a blatant threat if sexual favors are not given, or promised reward in exchange for sexual favors, no notice that the conduct is unwelcome shall be necessary and a finding of sexual harassment may be based on a single occurrence.

**Sexism:**
Sexism is defined as the perception and treatment of any person, not as an individual, but as a member of a category based on sex. Whether expressed in overt or subtle form such as sex-related jokes or materials, sexism in the classroom or workplace is unacceptable at the University; and its elimination shall be the responsibility of the entire University community. Depending upon the seriousness of the misconduct, informal corrective action may be adequate.

Complaint Procedure

Sexual harassment and sexism constitute acts of misconduct. Therefore, whenever such acts are reported and confirmed, prompt, disciplinary action will be taken, up to and including discharge. However, to enable the University to act through these formal procedures, employees and students are encouraged to report such incidents. Employees should report such conduct to the Associate Vice President and Chief Human Resources Officer, 1300 Seibert Administration Building (387-3620). Students should report such conduct to the Office of Institutional Equity, 1220 Trimpe Bldg. (387-6316).

The Associate Vice President and Chief Human Resources Officer and the Associate Vice President for Institutional Equity shall jointly establish appropriate procedures to implement this policy. They shall also investigate thoroughly any complaints of alleged sexual harassment or sexism, and then report the results of such investigation to the President of the University.

**If you hesitate to file a sexual harassment complaint for fear of retaliation, you need to know that:**

Federal and state law, as well as University policies, protect any person who has filed a complaint of sexual harassment or sexism from being intimidated, threatened, coerced, discriminated against or any other form of retaliation.

Likewise, protection is afforded any person who testifies, assists or participates, in any manner, in an investigation resulting from a sexual harassment complaint.

Therefore, any individual so harassed, intimidated, or otherwise retaliated against may file a complaint alleging harassment, intimidation, or retaliation. Such complaint should be filed with the Office of Institutional Equity, 1220 Trimpe Bldg. (387-6316).
President's Statement on Racial and Ethnic Harmony

Western Michigan University is firmly committed to the principles of racial equality and nondiscrimination. On its campus, students, faculty, and staff of many races and ethnic backgrounds live and work closely together day by day in offices, classrooms, and residence halls. This racial and ethnic mix brings richness and diversity to the cultural, intellectual, and personal dimensions of campus life. The University benefits from this diversity and seeks to enhance it.

All members of the University are expected to contribute to an atmosphere of racial and ethnic harmony on campus, displaying tolerance for cultural differences and courtesy and civility in discourse with students, faculty, and staff of diverse backgrounds and origins. In this environment there is no room for any derogatory comments of a racial nature, be they in the form of slurs, posters, songs, jokes, graffiti, or the like.

Most members of the campus community need not be reminded of the institutional position in this regard. The very few who need the admonition must realize that the University will take the strongest possible action, including dismissal, against those who through racist acts bring discord to this campus.

Discrimination: Complaints and Grievance Procedure

Western Michigan University, in accordance with the law, prohibits discrimination in the provision of all student instruction, activities, and programs. Discrimination based on race, color, religion, national origin, sex, sexual orientation, age, disability, height, weight, veteran status, family status, or marital status shall not be tolerated in the determination of eligibility, participation, or grading for any courses or program established for the benefit of students unless otherwise provided by law.

Students who have inquiries about the University's Anti-Discrimination Policy or about anti-discrimination laws, including Title IX and the Rehabilitation Act of 1973, or who have complaints of prohibited discrimination, may file their inquiries and complaints with the Office of Institutional Equity, 1220 Adrian Trimpe Building, 387-6316.

The Office of Institutional Equity will receive and investigate complaints of prohibited discrimination filed with the Office by students and may assist the students in resolving their concerns. The complaint, an oral allegation or charge against the University, an employee(s), or agent, stating prohibited discrimination has occurred, must be filed with the Office of Institutional Equity within 180 days of the alleged prohibited discrimination and/or harassment.

The Office of Institutional Equity will make reports and recommendations to the complaining students and/or to the academic dean or program director and/or Office of Student Conduct.

Western Michigan University Student Code

Western Michigan University is a student-centered research university, building intellectual inquiry, investigation, and discovery into all undergraduate, graduate, and professional programs. The university provides leadership in teaching, research, learning, and public service. Nationally recognized and internationally engaged, the University:

Forges a responsive and ethical academic community
Develops foundations for achievement in pluralistic societies
Incorporates participation from diverse individuals in decision-making
Contributes to technological and economic development
Engenders an awareness and appreciation of the arts

The Student Code and the Office of Student Conduct are tangible examples that illustrate commitment these ideals. He Student Code describes the boundaries of acceptable student behavior and is approved by the Board of Trustees. The Office of Student Conduct interprets and enforces the Student Code.

A student who chooses to enroll at Western Michigan University assumes the obligation for conduct that is compatible with the University's mission as an educational institution. While students have the privilege to enroll at the institution of their
choice, choosing to enroll at Western Michigan University requires a student to become aware of, and to abide by the behavior standards of the University. Ignorance of acceptable boundaries of student behavior as contained in the Student Code is not a basis for excusing inappropriate behavior.

The University conduct process is not analogous to, is not equivalent to, and does not conform to, criminal law processes. This process is designed, in part, to determine responsibility, or lack thereof, for violations of the Student Code only—not guilt or innocence relative to criminal matters. The University conduct process shall be informal in nature so as to provide substantial justice and it shall not be bound by the same proceedings, definitions, or rules which apply in the courts of law.

The conduct of students in the educational community is a part of the teaching process and as such, its focus shall be educational. This includes the possible use of suspension or expulsion as disciplinary measures as they may prove invaluable tools in the education of the University community. The student conduct system is not only concerned with the individual student's welfare, but also the welfare of the University community. Any question about the processes, rules, or policies, or any other concern not specifically covered by the Student Code shall be decided solely by the Dean/Associate Dean of Students/ or designee. Additionally, the Student Code provisions may be extended or amended to apply to new and unanticipated situations which may arise.

Enrollment in the University does not insulate students from their obligation to behave in a manner consistent with local, state, and federal law. Violation of local, state, and federal law while on University premises may also constitute a violation of the Student Code. Some of the policies referred to in the Student Code may also constitute violations of local, state, or federal law and carry the possibility of criminal prosecution or civil legal action.

While the University does not desire to act as a policing authority for the activities of the student off of University premises, the University may take appropriate action in situations involving misconduct demonstrating flagrant disregard for any person or persons, and/or when a student's or student organization's behavior is judged to threaten the health, safety, and/or property of any individual or group even when the misconduct occurs off University premises.

While any violation of the Student Code is considered a serious matter, certain violations are considered to be especially egregious. These violations include acts of academic misconduct, any act that disrupts the functions of the University, and any act that threatens the health or safety of any member of the University community or any other person. Students involved in these activities are considered a threat to the orderly functioning of the University, and their behavior is considered detrimental to the educational mission.

University and Student Services

Complete and current information about University and Student Services may be obtained by visiting the University's website (http://www.wmich.edu/). The services listed below are only a portion of those offered by the University to students, alumni, staff, and visitors.

Archives

The University Archives and Regional History Collections is located in East Hall, Room 111. Staff collect, preserve, and make accessible records documenting the history of the University and of twelve southwestern Michigan counties. Holdings include: books, ephemera, newspapers, microfilm, photographs, oral history tapes, and manuscript collections. In addition, local public records from southwestern Michigan are on deposit from the State Archives.

Athletics, Intercollegiate

The University is represented by men's teams in football, baseball, basketball, tennis, ice hockey, and soccer. Women's teams represent the University in basketball, golf, gymnastics, softball, tennis, indoor and outdoor track, soccer, and volleyball.
Athletics are governed by the Athletic Board, which adheres to the policies and principles established by the National Collegiate Athletic Association, Mid-American Conference and Central Collegiate Hockey Association (CCHA). Western Michigan University is a member of the Mid-American Conference in all sports but Ice Hockey. Ice Hockey members are WMU, Bowling Green, Miami of Ohio, Notre Dame, Ohio State, Michigan State University, University of Michigan, Lake Superior State, Northern Michigan, Omaha Nebraska, Alaska Fairbanks, and Ferris State. Other members of the Mid-American Conference are Akron, Ball State, Bowling Green, Buffalo, Central Michigan, Eastern Michigan, Kent State, Marshall, Miami (Ohio), Northern Illinois, Ohio, and Toledo.

**Career and Student Employment**

Career and Student Employment Services advises students regarding skill development, exploring career options and obtaining professional employment upon graduation. Services include: advising by appointment and drop-in hours at various locations on campus, web-based employment listings and resources related to part-time employment, internship and full-time opportunities, on-campus interviewing, career fairs and integration of relevant career programs into existing courses throughout the university. Career program topics address current issues related to linking majors to occupational fields, interviewing, speaker panels, resume writing and job search strategies.

For more information or to schedule an appointment, call (269) 387-2745. The office is located on first floor of Ellsworth Hall. [www.broncojobs.wmich.edu](http://www.broncojobs.wmich.edu).

**Children's Place Learning Center**

The Children's Place Learning Center, located in the middle of campus at 2210 Wilbur, is open from 7:00 a.m. to 5:30 p.m. weekdays. The convenient location and flexible care schedules make the center an attractive child-care option for WMU faculty, staff, and students. Children 15 months to 11 years old may be enrolled full-time, part-time or hourly. Breakfast, lunch, and snacks are included in the tuition and are provided by WMU's Dining Services Department. A full vegetarian menu is available each day.

The Children's Place philosophy emphasizes child-initiated learning within a culturally diverse community. The program nurtures and supports the development of children by providing developmentally appropriate activities which address each child's need for fun, creativity, active play, communication skills, problem solving, social interaction, rest and nutrition. The program is licensed by the State of Michigan. For more information and an application call (269) 387-2277.

**Disabled Student Resources and Services**

Disabled Student Resources and Services assists Western Michigan University students with disabilities as they seek to find effective accommodations, maximize their abilities and gain independence. DSRS offers advocacy, registration assistance, readers/scribes for tests and other classroom accommodations, textbooks in alternate formats, accessibility information, handi-van transportation, adaptive equipment, and referral to other campus and community agencies.

The office can be reached by calling (269) 387-2116.

**Housing**

Western Michigan University students may live on or off campus. Two alternatives exist on-campus, Residence Halls and WMU Apartments, and both deliver tremendous value to their residents. The success rate in meeting the diverse needs of their residents is very high and improvements are constantly being made. For these reasons, students should carefully consider the benefits of on-campus housing when choosing where to live. The listed rental fees are complete. They include all utilities, cable TV, and in most cases, many extra benefits not available off-campus.
Your residence hall application will be sent upon admission to Western Michigan University. An apartment application may be submitted before you are officially admitted to the University. The application date is the basis for assignment and the probability of an assignment increases with early application. Admission to the University or submitting a contract for a housing assignment does not guarantee a space will be available. Requests received after capacity are placed on a waiting list.

**WMU Residence Halls**

For information contact the Residence Life Office, 3510 Faunce Student Services Building, 269-387-4735. Website: [www.reslife.wmich.edu](http://www.reslife.wmich.edu)

**WMU Apartments**

Make inquiries directly to the WMU Apartments Office, 3510 Faunce Student Services Building, Western Michigan University, Kalamazoo, MI 49008-5079 or telephone: 800-882-9819 or 269-387-2175 or fax 269-387-2880. Website: [www.wmich.edu/apartment](http://www.wmich.edu/apartment)

**Community Living**

The Office of Community Living, a unit of Residence Life, provides services, programs and education to empower students with the skills and information for living off campus. To aid students searching for rental housing and roommates an online database is available: [www.ocl.wmich.edu](http://www.ocl.wmich.edu).

Recognizing the significance of an adequate housing environment, the rental listing program is supplemented with conflict resolution and educational programs as well as tenant/landlord services. For additional information regarding off-campus housing contact Community Living, Room 3510 Faunce Student Services Building, Telephone: 269-387-2336; FAX: 269-387-4786. Website: [www.ocl.wmich.edu](http://www.ocl.wmich.edu).

**Office of Information Technology**

The Office of Information Technology (OIT) provides computing, data, telephone and cable services to WMU students. This includes providing a Bronco NetID (computing account) that is the student's primary source for accessing WMU online services through the GoWMU portal ([http://gowmu.wmich.edu](http://gowmu.wmich.edu)). A Bronco NetID also provides electronic communications services such as e-mail, file space, and a personal Web site.

OIT is located on the third floor of the University Computing Center. Telephone (269) 387-5430. Web site: [http://www.wmich.edu/oit](http://www.wmich.edu/oit)

**International Programs and Services**

Western Michigan University annually hosts some two thousand international students and has a long tradition of international involvement across all colleges. Commitment to continued expansion of our international dimension is included in the university mission statement. The "international" key on the university's World Wide Web home page will take you to a comprehensive directory of international programs and services. Offices that administer international programs and services are conveniently located together in Ellsworth Hall.

**Diether H. Haenicke Institute for Global Education**

B200 Ellsworth Hall
Western Michigan University
Kalamazoo MI 49008-5245
Telephone: (269) 387-3985; FAX (269) 387-0630
[http://www.wmich.edu/hcenter](http://www.wmich.edu/hcenter)
The Haenicke Institute collaborates with colleges, departments, and interdisciplinary programs to promote global, international, and area studies throughout Western Michigan University. The Institute houses designated centers and offices devoted to international education.

Office of International Student and Scholar Services

Ms. Rebecca Solomon, Director
A411 Ellsworth Hall
Western Michigan University
Kalamazoo MI 49008-5176
Telephone: (269) 387-5865; FAX (269) 387-5899
http://www.wmich.edu/oiss

The Office of International Student and Scholar Services handles admissions and special needs for international students. Services include:

- Processing of applications for admission
- Immigration advising
- Orientation program for newly arrived international students
- Assistance with housing arrangements
- Coordination of international student organizations and activities
- Liaison between international students and financial sponsors
- Personal and social counseling

International students interested in seeking admission to Western Michigan University should contact the Office of International Student and Scholar Services for application materials. (Application forms and an application status inquiry procedure also are available online.)

Career English Language Center for International Students (CELCIS)

Ms. Joyce Lew, Director
B0021 Ellsworth Hall
Western Michigan University
Kalamazoo MI 49008-5182
Telephone: (269) 387-4800; FAX (269) 387-4806
http://www.wmich.edu/oia/celcis

The Career English Language Center for International Students (CELCIS) provides intensive English language instruction for prospective students who need further training in order to qualify for admission to Western Michigan University. Holders of F-1 visas in the CELCIS program must be enrolled full-time; resident aliens and holders of F-2 visas may attend CELCIS programs on a part-time basis.

CELCIS classes at various levels include: speaking and listening comprehension, grammar, academic reading and vocabulary building, academic writing, and research paper writing. Extra-curricular activities include monthly social hours, conversation partners, home visits, and various social, sport, and cultural programs.

CELCIS operates four terms per year: two fifteen-week terms (fall and winter), and two seven-week terms (spring and summer). University Testing and Evaluation Services offers the institutional TOEFL at the conclusion of each term. CELCIS issues the Certificate of Eligibility for a visa (Form I-20 or IAP-66) specifically for admission to CELCIS programs. Admission to CELCIS does not imply admission to the Graduate College or to a degree program.

Contact the CELCIS office for application materials. (Materials also are available online.)
Office of Study Abroad (OSA)

Mr. Brett Berquist, Senior International Officer and Director
B200 Ellsworth Hall
Western Michigan University
Kalamazoo MI 49008-5245
Telephone: (269) 387-5890; FAX (269) 387-0630
http://www.wmich.edu/studyabroad

The Office of Study Abroad (OSA) operates a large number of foreign study programs varying in length from a few weeks to a full academic year. These programs include a growing number of graduate internship and field study programs. OSA offers financial assistance for studying abroad at advanced levels in foreign languages offered at WMU, and for beginning study of languages not available at WMU as part of programs of study at institutions outside the United States.

Graduate students who undertake study abroad programs, or conduct individualized research, field studies, internships or other experiences outside the United States that carry WMU academic credit, and/or under the direct auspices of WMU faculty, must register with the Office of Study Abroad.

In addition to competitive financial aid programs, OSA provides a number of important services to WMU students preparing to study, intern, or do research outside the United States. Services include orientation programs, insurance procedures, and current information about conditions in countries of destination. OSA maintains an extensive research and information base on programs offered by other colleges and universities. The office also serves as a contact point between WMU students overseas and the university.

Division of Multicultural Affairs

The Division of Multicultural Affairs, formerly known as the Division of Minority Affairs, promotes a supportive environment for racial/ethnic minority students by providing a range of services and programs that have a positive impact on their academic success and quality of life.

To enhance diversity in the community, the Division initiates and coordinates cultural programming and facilitates opportunities for learning and personal development for all students at Western Michigan University. The Division's activities are designed to define and positively react to minority students' needs and impact their environment. By doing so, students are ensured the greatest opportunity for a successful and relevant educational experience.

For information, call 269-387-4420 or visit the office in Ellsworth Hall or visit the website www.multicultural.wmich.edu

Parking and Vehicle Registration

Detailed regulations concerning the use of motor vehicles on campus is available from the Department of Public Safety's Parking Services. All students are eligible to park a motor vehicle on University property; however, they must first register their motor vehicle, motorcycle, and/or moped with the Parking Services and pay a registration fee. Information concerning parking regulations, parking permits, and parking violations can be obtained by visiting Parking Services located at 2507 West Michigan Avenue (at the corner of West Michigan and Knollwood) or by telephoning 387-4609 during normal University business hours. Visit our web page at www.parking.wmich.edu for complete rules, sticker prices, and online registration.

Police

Located at 511 Monroe, off the 1300 block of West Michigan Ave., the Department of Public Safety is open 24 hours a day, providing a full range of police services through the use of a uniformed patrol division, a detective division, and a communications center. The Department of Public Safety is responsible for investigating all crimes and accidents occurring on University property and is committed to providing an environment conducive to the education of the students at Western
Michigan University. Towards that goal, the department's various divisions and bureaus have coordinated their efforts to create and maintain a feeling of security and safety within the University community. Information can be obtained by visiting the office, telephoning 387-5555 or 911 in an emergency.

**Publications**

Western Herald, WMU's student newspaper, is published Mondays, Tuesdays, Wednesdays, and Thursdays during the fall and spring semesters, Mondays and Thursdays during the summer I session, and Wednesdays during the summer II session. The Western Herald is made available to students partially through support from the general fund of Western Michigan University. All positions on the paper are filled by students with the exception of the general manager/advisor.

Western News is the official publication for administration, faculty, and staff members. It is published every other Thursday during fall and spring semesters and the Summer I session by the Office of University Relations. That office also produces WMU—the Western Michigan University Magazine four times each year for alumni, donors, and other friends of the University.

**Radio**

WMUK is Western's public radio broadcasting service, operating at 102.1 on the FM dial with a power of 50,000 watts and serves an area 80 miles in radius; this area includes most of the southwestern quarter of the state.

WMUK(FM) provides a cultural extension of the University through its broadcasts of campus, community, and area events. Through the satellite-linked National Public Radio network of stations, WMUK provides listeners with outstanding programming in the fine and popular arts, news, and information from around the world. WMUK has built an enviable reputation in classical, bluegrass, and jazz music programming, as well as programming for Spanish-speaking audiences.

WMUK(FM) is a charter member of NPR, the National Public Radio network of over 500 non-commercial radio stations.

WIDR-FM, a 100-watt station operated by students, broadcasts on 89.1. Facilities of WIDR-FM are located in 1501 Faunce Student Services Building. WIDR-FM offers a unique opportunity for Western Michigan University students to gain experience in programming, promotion, and station operation. For more information, please visit the website at [www.widr.org](http://www.widr.org).

**Sindecuse Health Center**

The Sindecuse Health Center is a student-oriented medical facility that exists to assist the University community members to achieve and maintain their optimal health status. As a student attending Western Michigan University, you have access to high-quality, convenient health care through our many professional services. Our entire staff works as a team to assist you with your health care and health education needs. For a complete explanation of services, visit the Center's website at [www.sindecuse.com](http://www.sindecuse.com).

**Important Phone Numbers**

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<thead>
<tr>
<th>Service</th>
<th>Phone Number</th>
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<tbody>
<tr>
<td>Appointments</td>
<td>387-3290</td>
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<tr>
<td>Information</td>
<td>387-3287</td>
</tr>
<tr>
<td>Insurance Information</td>
<td>387-3266</td>
</tr>
<tr>
<td>Pharmacy</td>
<td>387-3301</td>
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<tr>
<td>Health Promotion/Health Info</td>
<td>387-3263</td>
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<tr>
<td>Sports Medicine Clinic</td>
<td>387-3248</td>
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<tr>
<td>HIV Antibody Testing</td>
<td>387-4HIV</td>
</tr>
<tr>
<td>Social Work</td>
<td>387-4623</td>
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Speech, Language and Hearing Services

The Van Riper Language, Speech, and Hearing Clinic is a service program provided by the Department of Speech Pathology and Audiology for persons with communication disorders. It is located in the Unified Clinics at University Medical and Health Sciences Center, 1000 Oakland Drive. Students may take advantage of diagnostic and therapeutic services by contacting the Clinic for an appointment. Telephone: 387-8047.

Student Activities and Leadership Programs

The mission of the Student Activities & Leadership Programs is to enhance student learning and leadership development by engaging students in educationally purposeful academic and diverse co-curricular experiences.

Student Activities & Leadership Programs has over 300 registered student organizations at WMU representing a diverse range of interests. We welcome you as a valued member of our community and are excited to be a part of your learning and personal development.

For detailed information, visit the website at www.salp.wmich.edu or visit the office, 2420 Faunce Student Services Building.

Student Directory

The WMU Faculty/Staff/Student Telephone Directory is published annually by University Relations (Office of). It is distributed during early November, without charge, to all students in residence halls and family housing units, and is available at the Information Center in the Seibert Administration Building.

Individual listings in the WMU Student Directory contain the following information:

1. Name
2. Curriculum
3. Local address and telephone number
4. Home address

Students wishing to exclude any or all of the above information from the WMU Student Directory (printed and electronic) must fill out a Directory Exclusion Form in Room 3210, Seibert Administration Building, during the first five days of classes fall semester. During spring, summer I, and summer II terms, students may restrict this information to academic use by filling out the Directory Exclusion Form during the first five days of classes.

Substance Abuse Services

University Substance Abuse Services, located in the Sindecuse Health Center, provides an outpatient treatment and prevention program for Western Michigan University students concerned with their use, misuse, or abuse of alcohol and other mood-altering substances. Under the auspices of the University Counseling and Testing Center, Division of Student Affairs, the program offers information, assessment, training, counseling and supportive therapy, referral and follow-up services to individuals and groups. Also offered are didactic groups to those students seriously interested in exploring their relationship with mood altering drugs (alcohol, marijuana, stimulants, narcotics, depressants and barbiturates) as well as groups for adult children of alcoholics.

University Substance Abuse Services is licensed by the State of Michigan Department of Consumer Resources and is directed by a nationally certified substance abuse therapist and professor of counseling. All services are free, unless they are court ordered, and completely confidential as required by state and federal law. Students are encouraged to make an appointment through the Sindecuse Health Center reception area or by calling 387-3290.
University Counseling and Testing Center

Many important decisions and situations will confront students while they are at Western Michigan University. They will need to make decisions regarding courses, curricula, and career exploration. They may become involved in social and personal situations that leave them feeling confused and upset. In addition, it may be likely that the inherent stresses of university life will, at some time, interfere with academic achievement and personal growth. The University Counseling and Testing Center, located on the main floor of the Faunce Student Services Building, exists to help students deal effectively with such concerns.

The Center is staffed with professionally licensed counselors and psychologists and is accredited by the International Association of Counseling Services.

Counseling and Testing Center services consist of the following:

**Personal Counseling** to assist individuals in better understanding themselves and the emotional conflicts that may interfere with their everyday lives as students, to help them become more aware of alternative means of coping with conflicts, and to aid them in developing more satisfying and fulfilling lifestyles.

**Educational Counseling** to help students deal with conflicts concerning vocational planning and educational goals.

**Career Counseling and Testing** to provide students with the resources, skills, and experiences necessary for reasonable educational and career choices. Individual and group activities are offered to (1) increase self-understanding, including insights into one's interests, values, abilities, and skills; (2) learn how to acquire information about careers; (3) review choices, make decisions, and establish plans of action; and (4) test the feasibility of individual plans by experiencing the reality of the working world.

**The Career Exploration/Media Center** contains a wide and varied selection of printed materials with an emphasis on self-understanding, career exploration and preparation, occupational information, and job trends. Included is a section of college and university catalogs, educational guides, and computer-aided guidance and information pertinent to career awareness.

**Training and Internship Programs** for graduate students and interns from the Department of Counselor Education and Counseling Psychology, School of Social Work, and Department of Psychology are available. Included in the training experience are case consultations, supervision of treatment sessions, didactic presentations and professional growth opportunities. The American Psychological Association has accredited the Center's predoctoral internship program in professional psychology.

**National Standardized Testing** is conducted by the University Counseling and Testing Center. The following tests are regularly offered: ACT, LSAT, GRE (subject exam), MCAT, TOEFL and academic skills exams are offered as needed. Standardized testing information is available at the Center.

**Test Scanning Services** (optical scanning) for classroom exams and research data analysis is provided to the University community and greater Kalamazoo area. Information about scanning services is available; call 387-1850.

The Counseling and Testing Center is committed to the need for confidentiality in client/counselor communications. Therefore, confidentiality of client information is maintained in a manner consistent with professional standards of ethical practice and conduct and legislative requirements in the state of Michigan. Copies of the Counseling and Testing Center Policy on Confidentiality may be obtained at the Center's reception desk.

Appointments may be requested by telephone (387-1850) or by stopping at the Counseling and Testing Center (2513 Faunce Student Services Building) reception desk between 8 a.m. and 5 p.m., Monday through Friday. Website: www.uctc.wmich.edu

The Center attempts to service as many students as possible within staffing limitations.
University Libraries

Waldo Library, the main library at Western Michigan University, was built in 1958, expanded in 1967, and then extensively renovated and expanded in 1991. The Library is named after Dwight B. Waldo, the University's first president. In addition to Waldo Library, the University Libraries includes four branch libraries. The Education Library, in Sangren Hall, has over 688,000 items and receives more than 600 periodical titles. The Music and Dance Library, in the Dalton Center, houses over 38,000 books, musical scores, and periodicals, as well as over 19,400 audio and video recordings. The Archives and Regional History Collections Library, in East Hall on the East Campus, collects unique materials about the history of Southwest Michigan and the official records of the University. The Visual Resources Library, located in Sangren Hall, houses a collection of over 100,000 slides, most of which relate to the fine arts.

Each of these libraries supports teaching and research in disciplines related to the materials collected. Thus Waldo Library has resources and services supporting the University's undergraduate and graduate programs in the arts, fine arts, business, health and human services, social sciences, science, and engineering. University Libraries as a whole holds more than 3,920,000 volumes. Electronic books and journals number more than 40,000.

The major purpose of the University Libraries is to take an active role in the educational process at the University, and to provide facilities, materials, and an environment which will not only support the students' educational progress but also will encourage them to develop the habit of self-education.

Visit the Libraries' web page (http://www.wmich.edu/library) for more information about services and a listing of available databases and electronic resources.

University Recreation Programs and Facilities

Student Recreation Center
(269) 387-4732

The Student Recreation Center (SRC) is a student-oriented, multi-use facility programmed, staffed, and financed by Western Michigan University Students. Recreational, educational, and health promotion programs are provided for the benefit of all WMU students, faculty, staff, spouses, emeriti and alumni facility members. The facility includes an 8,000 square foot fitness/weight room, a recreational pool with attached swirl pool and saunas, a 45' climbing wall, indoor jogging track, basketball courts, volleyball and badminton courts, indoor tennis courts, 9 racquetball courts, aerobics room, 2 multipurpose gyms and fitness testing laboratory.

The SRC is equipped with a state-of-the-art electronic security system to help protect our student-funded facility from vandalism and to ensure that all users are properly authorized. Only ID cards belonging to individuals who have paid the facility fee may gain access and take advantage of programs and services.

Informal Recreation

Informal recreation permits individual choice of activity. Various facilities are available on a drop-in or reservation basis including basketball courts, volleyball courts, racquetball courts, tennis courts, squash court, indoor and outdoor tracks, fitness/weight room, and swimming pool. Other open recreation opportunities include badminton, table tennis, climbing wall, and wallyball. Equipment for various activities may be checked out with a valid ID card from the SRC Service Desk.

Outdoor Recreation

University Recreation also provides a lighted, competition-style outdoor track, tennis courts, soccer fields, intramural fields and a sand volleyball court. Selected outdoor equipment may be available for checkout with a valid ID card from the SRC Service Desk.
Intramural Sports

Intramural Sports are available for students, faculty, staff, and members of the SRC who are interested in competitive activities. The program offers both team and individual sports, including basketball, volleyball, soccer, softball, ice hockey, flag football, tennis, racquetball, in-line hockey, and much more. Intramurals provide opportunities for individuals to participate in sports experiences that will help them to develop team building and leadership skills. Opportunities for leadership are available for students who wish to officiate contests.

Fitness Programs

University Recreation offers a variety of aerobics classes to meet your fitness needs. Motivating, enthusiastic, and energy packed instructors will lead you in classes that consist of a variety of cardiovascular activity, strengthening, flexibility, and relaxation exercises designed to meet the needs of all fitness levels. Passes are necessary for admission to all classes. Additionally, completion of the Physical Activity Readiness Questionnaire (PAR-Q) is required prior to initial participation.

Fitness Weight Room

Located in the SRC, the 8,000 square foot fitness/weight room contains a full line of variable resistance weight machines and free weights, computerized exercise bicycles, stair climbers, rowers, and elliptical machines. Personal Trainers are available to instruct on proper use of the equipment and to provide exercise training guidelines to meet personal goals.

Climbing Wall

The Climbing Wall is designed to challenge and teach participants about the unique sport of indoor climbing. The wall is a top-rope system where climbers are harnessed in for safety. SRC members can come feel the excitement of scaling a 45-foot wall. Participants may also complete a climbing clinic to learn proper harnessing and belaying techniques.

For more information on services and specific days and times of programs, pick up a SRC Program Guide or call 387-4REC. Current information may also be found on the web at www.src.wmich.edu.

Veterans’ Assistance

The Office of the Registrar, on the third floor of the Administration Building certifies students under the G.I. Bill and its extensions. The Veterans’ Certification Officer will assist any person who seeks certification, or application, to the Veterans Administration under applicable programs.

Students who wish to receive V.A. benefits must annually file a "V.A. Certification Information Card" outlining plans for enrollment for the coming year. Students are certified on the basis of attendance and academic progress toward a declared degree. Address changes are also to be reported to the Veterans' Certification Officer as soon as possible.

In addition to normal scholarship standards, students receiving benefits from the Veterans Administration are advised of their additional rights and responsibilities.

The Veterans' Certification Officer may be reached in the Office of the Registrar at (269) 387-4115.

Writing Center

The Writing Center is part of the Center for Academic Support Programs. It provides writing assistance for students, faculty, staff, and other members of the WMU community.

The Writing Center exists for all WMU students (graduate and undergraduate) who choose to work on their writing. Because writing is such a complex act, students often concentrate on particular aspects of writing with each visit. They may work with
a tutor on organization or focus; they may want to hone their style or find new ways to come up with topics or ideas for
development; they may also work on the conventions of English.

To accommodate the needs of many students, the Writing Center offers two different types of appointments. Most popular is the drop-in appointment, available on Sunday evenings in the library, which allows students to see a tutor immediately. Most students, however, should schedule appointments in advance or set up a regular weekly appointment with the same tutor. Students may choose to have a report sent to their instructors detailing their visit. The Writing Center tutors are glad to work with students on their papers; however, they will not copyedit or proofread papers for educational purposes.

The Writing Center also provides workshops on writing with sources and on proofreading techniques. For answers to quick questions about writing, call the Writers' Hotline at 387-4615 or send e-mail to (writing-center@wmich.edu).

The Writing Center is located in Room 1039 Moore Hall; telephone 387-4615.
Glossary of Terms

**Academic advisor**
A faculty or professional staff member trained to help students select courses and plan programs.

**Academic dismissal**
Dismissal from a college or program for not maintaining the required grade point average (GPA). Dismissal indicates that a student is no longer a member of the University community.

**Advanced placement**
Credit granted for examination programs or for transfer work.

**Audit**
Registering for and attending class(es) regularly without being held responsible for the work required for credit. Not eligible to sit for examinations. No credit hours are earned, and full tuition must be paid. The grade "AU" appears on the record.

**Baccalaureate-level writing requirement**
An upper-division requirement for all students. Each academic department designates courses to fulfill this requirement.

**Bachelor's degree**
A degree granted after completing a specified amount of academic study beyond the completion of high school and fulfilling all graduation requirements.

**Board**
A term used for the meal plan (as in, room and board) at the University.

**Capstone course or experience**
A culminating holistic experience designed to review and more broadly understand the major issues, themes, theories, and research findings of the student's discipline, often to enable the student to examine the relationship of the discipline to other areas.

**Center**
An organizational unit formed for purposes of linkage and visibility, focused on a theme, issue, or set of skills. A Center will frequently be interdisciplinary in nature. A Center does not offer degree programs but may, on rare occasions, offer a course or courses.

**Class or credit hour load**
The number of credit hours carried by a student each semester or session. A first semester freshman may not enroll for more than eighteen hours of work except by special permission, which is seldom granted unless the curriculum demands it. This regulation applies to total credit for work taken by extension or in some other institution, in addition to credit earned in residence at Western. The normal maximum load for the Summer I or Summer II session is nine hours.

**Class standing**
A classification based on the number of credit hours earned which indicates the level of a student:

- Freshman A student credited with 0–25 hours inclusive.
- Sophomore A student credited with 26–55 hours inclusive.
- Junior A student credited with 56–87 hours inclusive.
- Senior A student credited with 88 or more hours.

**Cognate**
A course, or courses, related in some way to courses in a major. Cognates may be, and often are, courses outside the department of the degree program.
**College**
An administrative division of the University housing one or more academic departments or schools.

**College-level writing requirement**
A lower-division writing requirement for all students. On the basis of test scores a basic writing course may be required as a prerequisite.

**Concentration**
A concentration (or option or emphasis) is a thematically coherent block of courses that are more similar to one another than to others in the degree program. A concentration has a title and constitutes a significant percentage (e.g., 10%) of courses in the degree program. Concentrations (or options or emphases) may be recorded on the student transcript.

**Continuing education unit (CEU)**
Recognition for participation in a non-credit program or workshop.

**Coordinate major**
A major—often interdisciplinary—that must be taken in conjunction with another major.

**Corequisite**
A course that must be taken at the same time as another course.

**Course numbering system**
The course numbering system is limited to four digits. Undergraduate courses are numbered from 1000 through 4999. Graduate courses are numbered 6000 through 7999. Courses numbered 5000 through 5999 are for graduate and advanced undergraduate students.

<table>
<thead>
<tr>
<th>Course Numbers</th>
<th>Levels</th>
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<tr>
<td>0000–0089</td>
<td>Non-credit courses</td>
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<tr>
<td>0090–0099</td>
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<tr>
<td>1000–1999</td>
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<td>2000–2999</td>
<td>Courses primarily for Sophomores</td>
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<td>4000–4999</td>
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<tr>
<td>5000–5999</td>
<td>Courses for graduate students and advanced undergraduate students</td>
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<tr>
<td>6000–6999</td>
<td>Courses for graduate students only</td>
</tr>
<tr>
<td>7000–7999</td>
<td>Graduate seminars, theses, independent research, etc.</td>
</tr>
</tbody>
</table>

**Credit/No Credit**
A method used to evaluate performance in courses which is separate from the grade point system. Course grade does not affect GPA. "Credit" is earned for grades of "C" or better; grades of "DC" or below earn "No Credit."

Students may elect for Credit/No Credit any course approved for General Education or General Physical Education credit, as well as other courses not counting toward their major or specified in their curriculum as defined in this undergraduate catalog.

**Credit hour**
A unit of academic credit measured in semester hours or quarter hours. One credit hour usually represents one hour of class time per week. See also "semester hour."

**Credit load**
The total number of credits for which a student registers during a semester or session.

**Curriculum**
A complete program of studies, as defined by a college, leading to a baccalaureate (undergraduate) degree.
Deadline
The date by which certain information must be received by any given office or unit.

Dean's list
A public announcement at the end of fall and spring semesters, and the summer sessions, listing students who have achieved a grade point average of 3.50 in at least twelve semester hours of course work during fall and spring semesters, and at least six semester hours of work during Summer I or Summer II.

Degree student
A student who has been admitted to a degree category and is seeking a bachelor's, master's, or doctoral degree in a planned course of study.

Distribution requirement
A General Education requirement. Each undergraduate candidate must complete at least one course in each of eight (8) distribution areas:

1. Fine Arts
2. Humanities
3. United States: Cultures and Issues
4. Other Cultures and Civilizations
5. Social and Behavioral Sciences
6. Natural Science with Lab
7. Natural Science and Technology
8. Health and Well-Being

Drop
An official procedure for withdrawing from individual classes without removing registration from all classes. The deadline for the last day to drop a course without academic penalty (grade of "W" is on the transcript) is noted each semester or session in the Registration Information booklet. Students who do not follow the official procedure when dropping a class will earn the grade of "X" for that course; the "X" grade carries no honor points and affects the GPA in the same manner as an "E" or failing grade. See also "late drop."

Elective
A course which will count as credit toward a degree but is not a specific program requirement.

Emphasis
A designated group of courses within a major program.

Field experience, practicum, work experience, co-op

Field experience: Actual practice, often away from the college campus, in a practical or service situation. In a teacher education program, it is usually conducted in schools.

Practicum: 1) A course of instruction aimed at closely relating the study of theory and practical experience, both usually carried on simultaneously; 2) an academic exercise consisting of study and practical work; and 3) supervised experience in counseling or a similar activity through such procedures as role-playing, recorded interviews, abstraction, analysis, and supervisory evaluation with interviewing techniques.

Work experience, co-op, or internship: A sponsored learning experience in an occupational area for persons preparing for full-time employment, conducted in connection with a course of study, where the students spend a part of their time on an actual job in a school, business, or industry.

Cooperative education: A program for persons enrolled in a school that provides for parallel or alternating study in school with a job in industry or business, the two experiences being so planned and supervised cooperatively by the school and the employer that each contributes definitely to the students' development in their chosen occupation.
Cooperative program: An organizational pattern of instruction which involves regularly scheduled employment and which gives students an opportunity to apply classroom learning.

Full-time student
An undergraduate student who enrolls for twelve credit hours during Fall or Spring or for six credit hours during Summer I or Summer II. The University does allow full-time status to some co-op and intern classes, when it is the only class allowed a student during a semester or session. University Housing has its own regulations on the definition of hours needed to be eligible for housing contracts. Students should contact the University Housing Office for this information. The above definitions are Western Michigan University regulations and may or may not be accepted by other agencies.

Gate course
A course in fundamentals in which a student must achieve a grade of "C" or "Credit" in order to qualify for enrollment in upper division courses of a curriculum.

Good standing
A designation that signifies that a student is eligible to continue, to return, or to transfer elsewhere. It implies good academic standing; that is, an overall GPA of 2.00 or better.

Grade point
The numerical value given to letter grades. For example an "A" is equivalent to 4 points per semester hour, a "B" to 3 points and so on. No points are earned for an "E" grade. Also referred to as "honor points."

Grade point average (GPA)
A student's scholastic average computed by dividing total grade or honor points by total credit hours attempted.

Graduation audit
A formal, required evaluation of the student's academic record and program of study to determine the student's eligibility for graduation. The audit, initiated by a student's application for graduation, determines whether all University, degree, and program requirements have been met satisfactorily.

Deadlines for all degree recipients to apply for graduation are August 1 for December graduation, December 1 for April graduation, February 1 for June graduation, and February 1 for August graduation.

Students who change a graduation date need to complete a new application for graduation. No fee for the change is required. The Registrar's Office will not change a student's graduation date unless the student submits this new application for graduation.

Grant
Financial assistance awarded to a student which does not have to be repaid; usually based on need.

Guest student
A degree student from another college who is taking courses at Western Michigan University for one semester. The credits earned are usually transferred back to the student's home institution. A guest student may also wish to enroll in WMU courses for reasons other than seeking a degree. Guest student status does not constitute admission to a degree or certificate program.

Hold
A barrier placed on a student's ability to register for classes as a result of an unfulfilled monetary obligation or other action by the University.

Honors
Designation indicated on the college degree and transcript to reflect outstanding scholarship. Honors are conferred upon graduating students who have displayed a high level of performance during their university career. Recipients of honors receive their degrees:

* Cum laude—when their grade point average is 3.50 to 3.69, inclusive
*Magna cum laude*—when their grade point average is 3.70 to 3.89, inclusive

*Summa cum laude*—when their grade point average is 3.90 to 4.00, inclusive

To be eligible for honors, students must have earned at least fifty-six semester hours of credits at WMU, fifty of which, must be graded by a letter grade and computed into the final cumulative grade point average.

**Honors College (Lee Honors College)**
An academic administrative unit of the University whose mission is to design and foster curricular and co-curricular programs for the academically-talented student.

**Honors courses**
Special courses offered by Western's Lee Honors College designed to pose intellectual challenge and give personal attention to particularly able students.

**Incomplete**
A temporary course grade ("I") granted only if a student is temporarily unable to complete course requirements because of unusual circumstances beyond the control of the student.

**Independent studies or readings courses**
Independent studies or readings courses are courses in which a contract is developed between a faculty member and a student to complete research in, or readings on, a specific topic. The student is responsible for proposing the topic and contacting the appropriate faculty member.

**Independent study**
A course of study undertaken outside the classroom by a student under the supervision of one or more faculty members.

**Institute**
An organizational unit similar in nature to a Center, as defined above, but which is degree-granting. Typically an Institute will be interdisciplinary. Course work for a degree offered through an Institute may include some offered by the Institute itself but will be primarily comprised of courses in various disciplines/departments already in existence.

**Intellectual skills requirements**
The requirement that all students demonstrate entry-level competency in reading, writing, and mathematics by test or course.

**Interdisciplinary**
Designating a combination of subject matter from two or more disciplines within a course or program.

**Internship**
Work in a firm or agency related to a student's major program and/or career plans. Usually involves earning college credit and may involve receiving payment.

**Late drop**
An official procedure for withdrawing from individual classes without removing registration from all classes that takes place after the last day to drop a course without academic penalty.

**Loan**
Financial assistance to students which must be repaid. Low interest loans are available and financial need may or may not be a factor.

**Lower division**
Courses at the 1000–2000 level; freshman or sophomore standing.

**Major**
A concentration of related courses generally consisting of thirty to fifty semester hours of credit.
**Michigan residence requirements**
The requirements for identifying or establishing permanent residence in Michigan for tuition assessment purposes.

**Minor**
A concentration of courses generally consisting of a minimum of twenty semester hours of credit.

**Multi-topics or "umbrella" course**
A variable topic, variable credit course that focuses on a current or a special interest in a specific field or academic area. The course may be repeated for credit with different topics.

**Non-degree student**
A student who has been admitted as a guest student and is not currently seeking a bachelor's degree.

**Part-time student**
An undergraduate student who takes fewer than twelve hours during a semester or fewer than six hours during a session.

**Portfolio**
A collection of work (e.g., paintings, writings, etc.) which may be used to demonstrate competency in an academic area.

**Prerequisite**
A requirement, usually the completion of another course, which must be met before a student may register for a course.

**Proficiency**
A General Education requirement. Each undergraduate candidate must show proficiency in four (4) areas:

1. college-level writing
2. baccalaureate-level writing
3. college level mathematics or quantitative reasoning
4. enhanced proficiency (one of six options).

**Readmission**
An appeal procedure for a student who has been dismissed or suspended. Consult your college advising office to begin the procedure. Readmission must be sought in the area of intended study.

**Re-entry**
An enrollment procedure followed by a student who was previously enrolled in good standing at Western Michigan University but whose attendance was interrupted for two consecutive semesters, including the summer session.

**Registration**
The process of enrolling in and paying tuition and fees for courses each semester or session.

**Residence requirement**
The requirement that a minimum of 30 semester hour of course work for the bachelor's degree be completed at Western Michigan University. In addition, 10 of the last 30 credits must be completed at WMU.

**Scholarship**
Financial assistance to students awarded on the basis of academic achievement. Financial need may or may not be a factor.

**School**
A single-discipline organizational unit which has an identification in the public mind beyond that of a department. Schools may have significant subdivisions such that students will apply for admission and take degrees through the subdivision rather than through the central unit as a whole.

**Semester**
A unit of time, 15 weeks long, in the academic calendar.
Semester hour
A unit of academic credit usually meaning the pursuit of a subject for one period a week for one semester. See also "credit hour."

Senior institution
An institution of higher learning offering baccalaureate programs. Western Michigan University is a public senior institution; a minimum of sixty hours toward the bachelor's degree must be completed at a senior institution.

Session
A unit of time, 7-1/2: weeks long, in the academic calendar.

Student employment
Part-time jobs made available to students with financial need through federally-funded programs (Work-Study) and to students without need through the Student Employment Office.

Teachable major/minor
A state-approved major/minor program for teacher certification at the secondary and/or elementary level.

Transcript
A copy of a student's permanent academic record at a particular institution.

Transfer credit
Credit earned at another accredited institution and accepted towards a Western Michigan University degree. Grades earned at another institution do not transfer and hence do not affect the WMU GPA.

Transfer credit evaluation
An official statement which indicates the number and type of transfer credits awarded.

Tuition
The amount of money which must be paid for courses based on the number of credits for which the student registers.

Unit definitions
Center: An organizational unit formed for purposes of linkage and visibility, focused on a theme, issue, or set of skills. A Center will frequently be interdisciplinary in nature. A Center does not offer degree programs but may, on rare occasions, offer a course or courses.

Institute: An organizational unit similar in nature to a Center, as defined above, but which is degree-granting. Typically an Institute will be interdisciplinary. Course work for a degree offered through an Institute may include some offered by the Institute itself but will be primarily comprised of courses in various disciplines/departments already in existence.

School: A single-discipline organizational unit which has an identification in the public mind beyond that of a department. Schools may have significant subdivisions such that students will apply for admission and take degrees through the subdivision rather than through the central unit as a whole.

Unit of credit
The unit of credit is the semester hour; the number of semester hours credit given for a course generally indicates the number of periods a class meets each week.

Upper division
Classification of students with 56 or more semester hours of credit earned towards a bachelor's degree; courses at the 3000, 4000, and 5000 levels.

Withdrawal
An official procedure for withdrawing from the University for at least the remainder of the current semester or longer. The deadline for the last day to withdraw from all courses without academic penalty (grade of "W" is on the transcript) is noted each semester or session in the Registration Information booklet. Students who do not follow the official procedure when
withdrawing from the University will earn the grade of "X" for all courses; the "X" grade carries no honor points and affects the GPA in the same manner as an "E" or failing grade.
Colleges, Departments and Programs
College of Arts and Sciences

Thomas Kent
Dean

Alexander Enyedi
Associate Dean

Bassam Harik
Associate Dean

Wendy Ford
Associate Dean

Mission

The mission of the College of Arts and Sciences, in accordance with the traditional stewardship of the College, is to engender in students those skills, attitudes, and habits of mind which permit them to function responsibly in a profoundly complex and changing world. The College of Arts and Sciences at Western Michigan University offers undergraduate courses and programs of study in the humanities, the social and behavioral sciences, and the physical, biological and mathematical sciences. In addition to providing specialization in its many disciplines, the College contributes to the basic knowledge and the general liberal education of all students attending Western Michigan University.

The goals of the College for the undergraduate student, while including professional, pre-professional or vocational training, are specifically focused on developing the liberally educated adult. To this end, the College seeks to ensure that its students learn the skills necessary for critical thinking, decision making, problem solving and adapting to change; that they explore broadly in areas that will encourage understanding of their western and/or global heritage; and that they develop a respect for diversity in the world and the pluralism in this society. The College strives to encourage the growth of persons who have the self-confidence that comes with knowledge and the ability to seek out, analyze and evaluate information; persons who are prepared to make their way in a changing world, who are competent, humane and sensitive to the human condition and to the physical environment in which they live, and who, therefore, will make effective and substantial contributions to society.

The College regards classroom attendance as an essential part of the educational experience of each student. Accordingly, the College has a strong expectation that students attend class, be punctual to class, and remain in attendance for the full class period unless there is a legitimate reason to be excused.

Academic Units:

Anthropology
Biological Sciences
Chemistry
Communication
Comparative Religion
Economics
English
Foreign Languages
Geography
Geosciences
History
Mathematics
Philosophy
Physics
Political Science
Students in the Arts and Sciences Liberal Education Curriculum should see a college advisor to plan their degree programs. The staff of the College of Arts and Sciences Advising Office advises students concerning Liberal Education Curriculum requirements as well as Intellectual Skills and other University requirements. An appointment with an advisor should be scheduled during the student's first enrollment period in order to obtain information regarding requirements.

Transfer students in the Liberal Education Curriculum, after they have received their credit evaluation forms from the Admissions Office, should have their transfer courses evaluated for credit toward their Liberal Education and other college or University requirements.

The staff of the Academic Advising office will provide introductory information about the programs, majors and minors available within the College of Arts and Sciences and will make referrals to other advising facilities, such as departmental advisors, etc. Students seeking exploratory information about the programs and curricula of the College are encouraged to visit this office.

Students may stop by, or call 387-4366 for an appointment.
**Arts and Sciences Student Planned Major (SPM)**

The Student Planned Major provides students who wish to graduate from the College of Arts and Sciences the opportunity to pursue educational goals which cannot readily be accommodated in the College's disciplinary majors. The student will complete the College's Liberal Education Curriculum and work with a College Advisor plus at least two faculty advisors to create an individually tailored course of study of sufficient credit hours to meet general degree requirements. Students completing this major are eligible to receive either the B.A. or the B.S. degree depending upon the particular configuration of course work selected.

Any undergraduate student in good academic standing, with 75 or fewer semester hours earned, is eligible to enter the SPM. Students interested in this option should contact the Director of Advising in the College of Arts and Sciences. Those entering the SPM are expected to develop a written statement outlining educational goals and the proposed course of study.

**Liberal Education Curriculum (LEC)**

All students who graduate from the College of Arts and Sciences will be enrolled in the LEC curriculum.

**College Degree Requirements**

The Liberal Education Curriculum. Students who enter with the 2004 and subsequent catalogs and who will graduate through the College of Arts and Sciences will complete the Liberal Education Curriculum (LEC) described here. Students who entered under prior catalogs are encouraged to switch to the new LEC program.

Majors and Minors. Students who will graduate through the College of Arts and Sciences must have a free-standing major (i.e., not a coordinate major) in the College and a minor in Arts and Sciences or any other college in the University. Students who wish two majors do not need a minor, but should consult with a curriculum advisor.

In order to be admitted to any major in the College of Arts and Sciences, students should apply to the department or program as soon as possible and prior to completion of 35 semester hours. Transfer students with more than 35 hours should apply before matriculation. Failure to do this may mean that a student will not be permitted to enroll in major core courses. Change of curricula during the junior or senior year will be accommodated where possible. Some departments have more restrictive policies for admission to the major, as described in the departmental sections of this catalog.

The Credit/No Credit option cannot be used in courses that fulfill the critical thinking and foreign language requirements of the Liberal Education Curriculum. Use of the Credit/No Credit option for courses in major and minor programs will follow the University policy.

**Liberal Education Curriculum Requirements**

All students at Western Michigan University must satisfy the University General Education requirements. The Liberal Education Curriculum (LEC) expands these requirements as follows:

1. **Critical Thinking Requirement:**
   Students must complete a course approved for the General Education Proficiency 4c, Critical Thinking. A list of these courses can be found in the University's General Education listings elsewhere in this catalog.

2. **Foreign Language Requirement:**
   Two semesters (6-8 hours) of the same foreign language or American Sign Language, or proficiency by exam, or two credits (years) of a foreign language in high school with grade of “B” or better in final semester. Fulfillment of this requirement based on high school record will be determined by the Arts and Sciences Advising Office.
Africana Studies
Program Director
3070 Moore Hall
(269) 387-2668

Deborah H. Barnes
Amos J. Beyan
William F. Santiago-Valles

Africana Studies gathers faculty and students dedicated to the interdisciplinary study of the past and present experiences of African heritage. We engage in the critical study of the black Diasporic cultural traditions and race relations in Africa, the Caribbean basin, and especially North America, taking seriously the essential, organic role black peoples and their cultures have played in shaping the societies in which they live.

African Studies emphasizes both an interdisciplinary approach and a global perspective to the study of black history and culture. We ask students to draw on a wide range of disciplines to fulfill their concentration requirements, including literature, history, sociology, economics, anthropology, music, drama, film, and the visual arts.

Africana Studies Major (36 hours)

The Africana Studies Program offers an interdisciplinary major with two emphasis options: (1) Black Americana Studies and (2) African Studies. The major is a concentration of 36 credit hours in work from required core courses and a combination of electives. Both major options integrate a language requirement that emphasizes the importance of foreign language study. However, the Black Americans Studies option provides for studying a foreign language in the United or abroad. Students in the African Studies option are strongly encouraged to look into the study abroad opportunities available through the Africana Studies Program and the Diether H. Haenicke Institute. Students who have chosen the Africana Studies major will satisfy the baccalaureate writing requirement by successfully completing AFS 380 Special Topics in Africana Literature and Culture.

Black Americana Studies Option (36 hours)

1. Core Requirements (16 to 19 hours)

AFS 2000 - Introduction and Foundations to Africana Studies Credits: 3 hours
AFS 3000 - Black Experience: From the African Beginnings to 1865 Credits: 3 hours
AFS 3010 - Black Experience: From 1866 to the Present Credits: 3 hours
AFS 3800 - Special Topics in Africana Literature and Culture Credits: 4 hours
AFS 4650 - Internship in Africana Studies Credits: 3 to 6 hours

2. Foreign Language/Foreign Study Requirement (3 to 8 hours)

This requirement can be met in one of two ways: By earning foreign language credit through foreign study (A-S 3300-3310) or by taking at one course beyond the 101-level in any foreign language (French, German, Spanish, Portuguese, or Arabic recommended).
3. Electives (sufficient to bring major total to 36 hours)

Elective courses focusing on Africa or the African-American experience must be approved by the Africana Studies advisor from among courses offered at WMU by the Africana Studies faculty or appropriate courses in other departments.

African Studies Option (36 hours)

1. Core Requirements (13 hours)

AFS 2000 - Introduction and Foundations to Africana Studies Credits: 3 hours
AFS 3000 - Black Experience: From the African Beginnings to 1865 Credits: 3 hours
AFS 3010 - Black Experience: From 1866 to the Present Credits: 3 hours
AFS 3800 - Special Topics in Africana Literature and Culture Credits: 4 hours

2. Foreign Language/Foreign Study Requirement (3 to 8 hours)

This requirement can be met in one of two ways: By earning foreign language credit through foreign study (A-S 3300-3310) or by taking at one course beyond the 101-level in any foreign language (French, German, Spanish, Portuguese, or Arabic recommended).

3. Electives (sufficient to bring major total to 36 hours)

Elective courses focusing on the continent of Africa must be approved by the Africana Studies advisor from among courses offered at WMU. At least one of these courses must be at the 3000-level or higher. Courses may be from a variety of departments. See advisor for the list of electives.

Africana Studies Minor (18 hours)

1. Required Course (3 hours)

AFS 2000 - Introduction and Foundations to Africana Studies Credits: 3 hours

2. Required Content Courses (6 hours)

Choose one course in each content area:

Black Americana Studies Content Course

AFS 3000 - Black Experience: From the African Beginnings to 1865 Credits: 3 hours
AFS 3010 - Black Experience: From 1866 to the Present Credits: 3 hours

African Studies Content Course:

AFS 3880 - Introduction to African Civilization Credits: 3 hours
or
HIST 3880 - Introduction to African Civilization Credits: 3 hours
HIST 4880 - History of West Africa Credits: 3 hours

3. Elective Courses (9 hours)

Choose three courses from the list below:

AFS 2100 - Comparative Approaches to Forms of Black Consciousness Credits: 3 hours
AFS 2230 - African American Literature/Criticism and Culture Credits: 4 hours
AFS 3100 - The Black Woman: Historical Perspective and Contemporary Status Credits: 3 hours
AFS 3140 - The Black Community Credits: 3 hours
AFS 3150 - The Underground Railroad in the Midwest Credits: 3 hours
AFS 3300 - History and Significance of Black Pop Culture-1906 to Present Credits: 3 hours
AFS 3500 - Blacks in Michigan Credits: 3 hours
AFS 3600 - Black Woman-Black Man Relationships Credits: 3 hours
AFS 3700 - Black Historical Movements/Moments Credits: 4 hours
AFS 4000 - Blacks in the Arts Credits: 3 hours
AFS 4100 - Bridging the African Diaspora in the New Millennium: An Interdisciplinary Approach Credits: 3 hours
ANTH 1500 - Race, Biology, and Culture Credits: 3 hours
ANTH 3410 - Cultures of Africa Credits: 3 hours
ANTH 3470 - Ethnicity/Multiculturalism Credits: 3 hours
ART 3640 - African Art Credits: 3 hours
ECON 3880 - African Economies Credits: 3 hours
ENGL 2230 - Black American Literature Credits: 4 hours
ENGL 3140 - African Literature Credits: 3 hours
GEOG 3860 - Sub-Saharan Africa: Man, Environments, Resources Credits: 3 hours
HIST 3280 - African-American History and Culture Credits: 3 hours
HIST 3880 - Introduction to African Civilization Credits: 3 hours
HIST 4360 - Topics in African-American History Credits: 3 hours
HIST 4880 - History of West Africa Credits: 3 hours
HIST 4890 - Topics in African History Credits: 1 to 3 hours
   Credits: 3 hours
PSCI 3000 - Urban Politics in the United States Credits: 3 hours
PSCI 3410 - The Politics of Sub-Saharan Africa Credits: 4 hours
REL 3040 - African Religions Credits: 4 hours
   Credits: 3 hours
REL 3070 - The Islamic Tradition Credits: 4 hours
   Credits: 3 hours
SOC 3140 - Ethnic Relations Credits: 3 hours
THEA 1050 - Introduction to African-American Theatre Credits: 3 hours
The anthropology program is designed to provide students with an understanding of the human condition in its plurality through the integration of historical, cultural, linguistic, and biological perspectives. Through course offerings, students will broaden their familiarity with diverse ways of life past and present; gain knowledge of human adaptation and variation from our earliest ancestors to modern peoples; and be exposed to perspectives and methods that challenge multiple forms of social inequality. The anthropology faculty places an emphasis on anthropology as a critical social science. Students will also have opportunities to participate in various field programs here and abroad and will receive preparation for graduate study in anthropology.

All major and minor programs must be approved by one of the department's undergraduate advisors. Students are expected to meet with their advisor at least once every semester, preferably prior to selecting courses for the following semester. Students applying to graduate school in anthropology are encouraged to meet with their advisor two semesters before they plan to graduate for assistance in selecting appropriate programs.

**Anthropology Major (34 hours)**

Anthropology Course Requirements
A major in anthropology consists of a minimum of 34 hours of anthropology courses and must include:

1. Courses
   - ANTH 2100 - Introduction to Archaeology Credits: 3 hours
   - ANTH 2400 - Principles of Cultural Anthropology Credits: 3 hours
   - ANTH 2500 - Introduction to Biological Anthropology Credits: 4 hours

2. One writing intensive course in anthropology as designated in the catalog

3. Six (6) additional hours of course work at the 4000-level or above

4. No more than three (3) hours of course work at the 1000-level

5. A grade of "C" or better in every anthropology class counted toward the major

Additional Information
A student with a major in anthropology is strongly encouraged to take a broad range of courses in all three subdisciplines of anthropology: archaeology, cultural anthropology, and biological anthropology.

Baccalaureate Writing Requirement
Students who have chosen the anthropology major will satisfy the Baccalaureate Writing Requirement by successfully completing one of the following courses:
ANTH 4390 - Issues in South American Ethnography Credits: 3 hours
ANTH 4400 - Ethnography Credits: 3 hours
ANTH 4500 - Primate Behavior and Ecology Credits: 3 hours

Anthropology Minor (21 hours)

A minor in anthropology consists of a minimum of 21 hours of anthropology courses and must include:

Requirements
• Six (6) hours of course work at the 4000-level or above
• No more than six (6) hours of course work at the 1000-level
• A grade of “C” or better in every anthropology class counted toward the minor

ANTH 2400 - Principles of Cultural Anthropology Credits: 3 hours

One of the Following
ANTH 1100 - Lost Worlds and Archaeology Credits: 3 hours or
ANTH 2100 - Introduction to Archaeology Credits: 3 hours

One of the Following
ANTH 1500 - Race, Biology, and Culture Credits: 3 hours or
ANTH 2500 - Introduction to Biological Anthropology Credits: 4 hours

Additional Information
No more than twelve (12) hours of anthropology classes may be transferred for the major; no more than nine (9) hours of anthropology classes may be transferred for the minor.

Biological Sciences
David P. Cowan, Interim Chair
Todd Barkman
Bruce Bejcek
Christine Byrd
William Cobern
Alexander J. Enyedi
Karim Essani
Robert Eversole
Chris Fisher
John R. Geiser
Leonard C. Ginsberg
Pamela Hoppe
Charles Ide
John A. Jellies
Donald A. Kane
David Karowe
Steve Kohler
Cindy L. Linn
Stephen B. Malcolm
Charles Mackenzie
Jay C. Means
Kathy Onderline
Hector D. Quemada
Wendy Ransom-Hodgkins
David Reinhold
An understanding of the biological sciences is essential, if we are to solve the pressing social, environmental, and economic problems of our times. The Department of Biological Sciences offers major and minor programs designed to provide today's student with effective and up-to-date knowledge and training in various areas of the life sciences, including medical aspects of human biology.

The Biology Major explores the broad spectrum of the life sciences with opportunities to study botany, zoology, ecology, and physiology. Students completing this major should be prepared for one or more of the following goals: (1) graduate study toward an advanced degree in the Biological Sciences, i.e. M.S., or Ph.D.; (2) employment in state or federal government service, industry, laboratory or technical work; (3) advanced study at the professional level.

The Biomedical Sciences Major is designed to explore the human, molecular, and cellular aspects of the life sciences, with the opportunity to study cell biology, genetics, microbiology, molecular biology, neurobiology, and physiology.

The specific objectives of the Biomedical Sciences major include: (1) providing basic training for employment in clinics and basic research laboratories, industrial laboratories, as well as state and federal agencies; (2) producing highly qualified students for advanced training at the graduate-professional levels, i.e., M.S., Ph.D., M.D., D.D.S., D.O.M., D.P.M., or D.V.M.; and (3) pre-professional training for such clinical areas as physician assistant, pharmacy, and physical therapy. For additional career options, see the Undergraduate Advisor.

Students interested in pursuing a teaching career in the biological sciences should follow the special guidelines for the Biology Major-Secondary Education Curriculum section below.

A Minor in Biological Sciences is also available, as well as in the Secondary Education Curriculum.

All major and minor programs are to be pursued under the direction of and with the approval of the Undergraduate Advisor. Students interested in a major or minor should contact the Undergraduate Advisor in Room 3447 Wood Hall, (269-387-5617) during freshman or transfer orientation and regularly thereafter. Courses taken without the approval of the Undergraduate Advisor may not be acceptable for major or minor credit.

In addition to planning your program with the Undergraduate Advisor, we also urge you to consult with the Preprofessional Advisor (in the College of Arts and Sciences) at an early stage, to determine any special requirements or variations from the above that may pertain to particular medical or dental schools to which you are planning to apply for admission.

Students must satisfy prerequisites before enrolling in a course. Those who fail to earn a "C" or better grade in a departmental prerequisite course will be denied admission to enroll in the next class. Enrollment will not be honored if it is found that proper prerequisites have not been met.

Self-instructional courses offered by Extended University Programs may not be used for credit toward any departmental major or minor. Only departmental courses in which a grade of "C" or better is obtained may be counted towards a major or minor in Biological Sciences.

Transfer Students

A minimum of 15 hours of course work in the Biology Major, the Secondary Education Biology Major, and the Biomedical Sciences Major must be earned at Western Michigan University. At least 12 hours in the Biological Sciences Minor must be earned at Western Michigan University. Transfer students should consult with the Undergraduate Advisor in Room 3447 Wood Hall (269-387-5617), before registering for classes.
**Biology Major (22 hours)**

A Major in Biology consists of a minimum of 32 credits of Biological Sciences courses, as well as cognates in chemistry, physics and mathematics. This course work includes two introductory courses, four intermediate level courses, two advanced interest courses, and a capstone experience. Only three credit hours may be BIOS 4980 and only four hours may be BIOS 4990.

**Introductory Course Requirements**

BIOS 1500 - Molecular and Cellular Biology Credits: 4 hours
BIOS 1510 - Organismal Biology Credits: 4 hours

**Intermediate Level Courses**

BIOS 2500 - Genetics Credits: 3 hours
BIOS 3010 - Ecology Credits: 5 hours

Select Either

BIOS 2020 - Botany Credits: 4 hours or
BIOS 3120 - Microbiology Credits: 5 hours

Select Either

BIOS 3190 - Plant Physiology Credits: 4 hours or
BIOS 3500 - Human Physiology for Majors Credits: 5 hours

**Two Advanced Interest Courses from the Following:**

BIOS 3120 - Microbiology Credits: 5 hours
BIOS 4270 - Systematic Botany Credits: 4 hours
BIOS 4300 - Evolution Credits: 3 hours
BIOS 4390 - Animal Behavior Credits: 3 hours
BIOS 4410 - Invertebrate Zoology Credits: 3 hours
BIOS 4420 - Entomology Credits: 3 hours
BIOS 4560 - Tropical Biology Credits: 3 hours
BIOS 4980 - Readings in Biological Sciences Credits: 1 to 3 hours
BIOS 4990 - Independent Research in Biological Sciences Credits: 1 to 4 hours
BIOS 5240 - Microbial Genetics Credits: 3 hours
BIOS 5250 - Microbial Ecology Credits: 3 hours
BIOS 5340 - Virology Credits: 3 hours
BIOS 5360 - Immunology Credits: 4 hours
BIOS 5470 - Ornithology Credits: 3 hours
BIOS 5490 - Field Ecology Credits: 3 hours
BIOS 5590 - Neurobiology Credits: 4 hours
BIOS 5600 - Toxicology Credits: 3 hours
BIOS 5740 - Developmental Biology Credits: 4 hours
BIOS 5970 - Topics in Biological Sciences Credits: 3 to 4 hours

**Capstone Experience**

BIOS 4980 - Readings in Biological Sciences Credits: 1 to 3 hours
BIOS 4990 - Independent Research in Biological Sciences Credits: 1 to 4 hours
BIOS 5240 - Microbial Genetics Credits: 3 hours
BIOS 5250 - Microbial Ecology Credits: 3 hours
BIOS 5260 - Molecular Biology Laboratory Credits: 3 hours
BIOS 5265 - Proteins as Biological Machines Credits: 3 hours
BIOS 5270 - Cancer Biology Credits: 3 hours
BIOS 5340 - Virology Credits: 3 hours
BIOS 5440 - Global Change Ecology Credits: 3 hours
BIOS 5445 - Human Ecology Credits: 3 hours
BIOS 5450 - Chemical Ecology Credits: 3 hours
BIOS 5455 - Plant-Herbivore Interactions Credits: 3 hours
BIOS 5460 - Molecular Phylogenetics and Evolution Credits: 3 hours
BIOS 5535 - Freshwater Ecology Credits: 4 hours
BIOS 5593 - Biological Basis of Learning and Memory Credits: 3 hours
BIOS 5595 - Biology of Sensory Systems Credits: 3 hours
BIOS 5700 - General Pathology Credits: 4 hours
BIOS 5740 - Developmental Biology Credits: 4 hours
BIOS 5970 - Topics in Biological Sciences Credits: 3 to 4 hours

Baccalaureate Writing Requirement
Students who have chosen the Biology major can satisfy the Baccalaureate Writing Requirement by successfully completing:
BIOS 3010 - Ecology Credits: 5 hours
BIOS 3190 - Plant Physiology Credits: 4 hours
BIOS 3500 - Human Physiology for Majors Credits: 5 hours

Cognate Requirements

Chemistry
CHEM 1100 - General Chemistry I Credits: 3 hours and
CHEM 1110 - General Chemistry Laboratory I Credits: 1 hour
CHEM 1120 - General Chemistry II Credits: 3 hours and
CHEM 1130 - General Chemistry Laboratory II Credits: 1 hour
CHEM 3550 - Introductory Biochemistry Credits: 3 hours with
CHEM 3560 - Introductory Biochemistry Laboratory Credits: 1 hour
CHEM 3700 - Introduction to Organic Chemistry Credits: 3 hours with
CHEM 3710 - Introduction to Organic Chemistry Lab Credits: 1 hour or
CHEM 3750 - Organic Chemistry I Credits: 3 hours with
CHEM 3760 - Organic Chemistry Lab I Credits: 1 hour and
CHEM 3770 - Organic Chemistry II Credits: 3 hours with
CHEM 3780 - Organic Chemistry Lab II Credits: 1 hour

Math
MATH 1220 - Calculus I Credits: 4 hours or
MATH 2000 - Calculus with Applications Credits: 4 hours and
STAT 2600 - Elementary Statistics Credits: 4 hours or
STAT 3660 - Introduction to Statistics Credits: 4 hours

Physics
2 semesters with labs. In addition, the following course is recommended for those who plan to pursue advanced degrees in Biology, Botany, and Zoology (especially in the areas of ecology and field biology):
GEOS 1300 - Physical Geology Credits: 4 hours

Biology Major - Secondary Education Curriculum (37 hours)
A major in secondary education (SED) consists of a minimum of 37 hours. The major includes two introductory courses, seven intermediate level courses, one advanced interest course, and a methods course, SCI 4040. Three credit hours of BIOS 4980 and/or 4990 may be used as the advanced interest course.

Introductory Courses
BIOS 1500 - Molecular and Cellular Biology Credits: 4 hours
BIOS 1510 - Organismal Biology Credits: 4 hours

Intermediate Level Courses
BIOS 2020 - Botany Credits: 4 hours
BIOS 2300 - Cell Biology Credits: 3 hours
BIOS 2500 - Genetics Credits: 3 hours
BIOS 3010 - Ecology Credits: 5 hours
A Microbiology Course
BIOS 2320 - Microbiology and Infectious Diseases Credits: 4 hours
BIOS 3120 - Microbiology Credits: 5 hours

A Physiology Course
BIOS 2400 - Human Physiology Credits: 4 hours or
BIOS 3190 - Plant Physiology Credits: 4 hours or
BIOS 3500 - Human Physiology for Majors Credits: 5 hours

One Advanced Interest Course from the Following:
BIOS 4270 - Systematic Botany Credits: 4 hours
BIOS 4300 - Evolution Credits: 3 hours
BIOS 4390 - Animal Behavior Credits: 3 hours
BIOS 4410 - Invertebrate Zoology Credits: 3 hours
BIOS 4420 - Entomology Credits: 3 hours
BIOS 4560 - Tropical Biology Credits: 3 hours
BIOS 4980 - Readings in Biological Sciences Credits: 1 to 3 hours
BIOS 4990 - Independent Research in Biological Sciences Credits: 1 to 4 hours
BIOS 5240 - Microbial Genetics Credits: 3 hours
BIOS 5250 - Microbial Ecology Credits: 3 hours
BIOS 5340 - Virology Credits: 3 hours
BIOS 5360 - Immunology Credits: 4 hours
BIOS 5470 - Ornithology Credits: 3 hours
BIOS 5490 - Field Ecology Credits: 3 hours
BIOS 5740 - Developmental Biology Credits: 4 hours
BIOS 5970 - Topics in Biological Sciences Credits: 3 to 4 hours (minimum 3 hours)

Required Methods Course
SCI 4040 - Teaching of Secondary Science Credits: 3 hours

Baccalaureate Writing Requirement
Students who have chosen the Biology major in Secondary Education can satisfy the Baccalaureate Writing Requirement by successfully completing:
BIOS 3010 - Ecology Credits: 5 hours
BIOS 3190 - Plant Physiology Credits: 4 hours
BIOS 3500 - Human Physiology for Majors Credits: 5 hours

Cognate Requirements
MATH, 8 hours, including a calculus course and a statistics course.
CHEM 1100 - General Chemistry I Credits: 3 hours and
CHEM 1110 - General Chemistry Laboratory I Credits: 1 hour
CHEM 1120 - General Chemistry II Credits: 3 hours and
CHEM 1130 - General Chemistry Laboratory II Credits: 1 hour
CHEM 3700 - Introduction to Organic Chemistry Credits: 3 hours with
CHEM 3710 - Introduction to Organic Chemistry Lab Credits: 1 hour or
CHEM 3750 - Organic Chemistry I Credits: 3 hours with
CHEM 3760 - Organic Chemistry Lab I Credits: 1 hour and
CHEM 3770 - Organic Chemistry II Credits: 3 hours with
CHEM 3780 - Organic Chemistry Lab II Credits: 1 hour
PHYS 1130 - General Physics I Credits: 4 hours and
PHYS 1140 - General Physics I Laboratory Credits: 1 hour
PHYS 1150 - General Physics II Credits: 4 hours and
PHYS 1160 - General Physics II Laboratory Credits: 1 hour

Biomedical Sciences Major (34 hours)
A major in Biomedical Sciences (BMS) consists of a minimum of 34 credits of course work. This course work includes two introductory courses, four intermediate level courses, two advanced interest courses, and a capstone experience. Only three credit hours may be BIOS 4980 and only four hours may be BIOS 4990.

**Introductory Courses**

BIOS 1500 - Molecular and Cellular Biology Credits: 4 hours  
BIOS 1510 - Organismal Biology Credits: 4 hours

**Intermediate Level Courses**

BIOS 2110 - Human Anatomy Credits: 4 hours  
BIOS 2300 - Cell Biology Credits: 3 hours  
BIOS 2500 - Genetics Credits: 3 hours  
BIOS 3120 - Microbiology Credits: 5 hours  
BIOS 3500 - Human Physiology for Majors Credits: 5 hours

**Two Advanced Interest Courses from the Following:**  
Minimum 6 hours; only 3 hours may be 4980 or 4990  
BIOS 5070  
BIOS 4300 - Evolution Credits: 3 hours  
BIOS 4980 - Readings in Biological Sciences Credits: 1 to 3 hours  
BIOS 4990 - Independent Research in Biological Sciences Credits: 1 to 4 hours  
BIOS 5240 - Microbial Genetics Credits: 3 hours  
BIOS 5250 - Microbial Ecology Credits: 3 hours  
BIOS 5260 - Molecular Biology Laboratory Credits: 3 hours  
BIOS 5265 - Proteins as Biological Machines Credits: 3 hours  
BIOS 5270 - Cancer Biology Credits: 3 hours  
BIOS 5340 - Virology Credits: 3 hours  
BIOS 5440 - Global Change Ecology Credits: 3 hours  
BIOS 5445 - Human Ecology Credits: 3 hours  
BIOS 5450 - Chemical Ecology Credits: 3 hours  
BIOS 5455 - Plant-Herbivore Interactions Credits: 3 hours  
BIOS 5460 - Molecular Phylogenetics and Evolution Credits: 3 hours  
BIOS 5535 - Freshwater Ecology Credits: 4 hours  
BIOS 5593 - Biological Basis of Learning and Memory Credits: 3 hours  
BIOS 5595 - Biology of Sensory Systems Credits: 3 hours  
BIOS 5700 - General Pathology Credits: 4 hours  
BIOS 5740 - Developmental Biology Credits: 4 hours  
BIOS 5970 - Topics in Biological Sciences Credits: 3 to 4 hours

3 hours must come from:  
BIOS 4980 - Readings in Biological Sciences Credits: 1 to 3 hours  
BIOS 4990 - Independent Research in Biological Sciences Credits: 1 to 4 hours  
BIOS 5240 - Microbial Genetics Credits: 3 hours  
BIOS 5250 - Microbial Ecology Credits: 3 hours  
BIOS 5260 - Molecular Biology Laboratory Credits: 3 hours  
BIOS 5340 - Virology Credits: 3 hours  
BIOS 5470 - Ornithology Credits: 3 hours  
BIOS 5700 - General Pathology Credits: 4 hours  
BIOS 5740 - Developmental Biology Credits: 4 hours  
BIOS 5970 - Topics in Biological Sciences Credits: 3 to 4 hours

**Capstone Experience**

BIOS 4980 - Readings in Biological Sciences Credits: 1 to 3 hours  
BIOS 4990 - Independent Research in Biological Sciences Credits: 1 to 4 hours  
BIOS 5240 - Microbial Genetics Credits: 3 hours  
BIOS 5250 - Microbial Ecology Credits: 3 hours
BIOS 5260 - Molecular Biology Laboratory Credits: 3 hours
BIOS 5265 - Proteins as Biological Machines Credits: 3 hours
BIOS 5270 - Cancer Biology Credits: 3 hours
BIOS 5340 - Virology Credits: 3 hours
BIOS 5440 - Global Change Ecology Credits: 3 hours
BIOS 5445 - Human Ecology Credits: 3 hours
BIOS 5450 - Chemical Ecology Credits: 3 hours
BIOS 5455 - Plant-Herbivore Interactions Credits: 3 hours
BIOS 5460 - Molecular Phylogenetics and Evolution Credits: 3 hours
BIOS 5535 - Freshwater Ecology Credits: 4 hours
BIOS 5593 - Biological Basis of Learning and Memory Credits: 3 hours
BIOS 5595 - Biology of Sensory Systems Credits: 3 hours
BIOS 5700 - General Pathology Credits: 4 hours
BIOS 5740 - Developmental Biology Credits: 4 hours
BIOS 5970 - Topics in Biological Sciences Credits: 3 to 4 hours

Baccalaureate Writing Requirement
Students who have chosen the Biomedical Sciences major can satisfy the Baccalaureate Writing Requirement by successfully completing BIOS 3500

Cognate Requirements

Chemistry
CHEM 1100 - General Chemistry I Credits: 3 hours and
CHEM 1110 - General Chemistry Laboratory I Credits: 1 hour
CHEM 1120 - General Chemistry II Credits: 3 hours and
CHEM 1130 - General Chemistry Laboratory II Credits: 1 hour
CHEM 3550 - Introductory Biochemistry Credits: 3 hours and
CHEM 3560 - Introductory Biochemistry Laboratory Credits: 1 hour
CHEM 3750 - Organic Chemistry I Credits: 3 hours and
CHEM 3760 - Organic Chemistry Lab I Credits: 1 hour
CHEM 3770 - Organic Chemistry II Credits: 3 hours and
CHEM 3780 - Organic Chemistry Lab II Credits: 1 hour

Math
MATH 1220 - Calculus I Credits: 4 hours or
MATH 2000 - Calculus with Applications Credits: 4 hours and
STAT 2600 - Elementary Statistics Credits: 4 hours or
STAT 3660 - Introduction to Statistics Credits: 4 hours

Physics
2 semesters with labs.

Biological Sciences Minor (20 hours)
The Biological Sciences Minor consists of a minimum of 20 credits of biological science courses. Twelve of these credits must be from 2000 or higher level courses.

Cognate Requirements
Cognate requirements are:
CHEM 1100 - General Chemistry I Credits: 3 hours
CHEM 1110 - General Chemistry Laboratory I Credits: 1 hour

Minors in Health Related Fields
Minors in health related fields can take the following courses to fulfill a minor:
BIOS 1050 - Environmental Biology Credits: 3 hours
BIOS 1120 - Principles of Biology Credits: 3 hours
BIOS 1910 - Introduction to Human Anatomy and Biology Credits: 4 hours or
BIOS 2110 - Human Anatomy Credits: 4 hours
BIOS 2320 - Microbiology and Infectious Diseases Credits: 4 hours
BIOS 2400 - Human Physiology Credits: 4 hours

And One Advanced Elective:
BIOS 5070
or
BIOS 5310 - Biology of Aging Credits: 3 hours

Minors Interested in Other Areas of Biology
Minors interested in other areas of biology are advised to take the following, in order to have a greater selection of courses:
BIOS 1500 - Molecular and Cellular Biology Credits: 4 hours
BIOS 1510 - Organisnal Biology Credits: 4 hours

Biology Minor - Secondary Education Curriculum (24 hours)
The Biology Minor-SED curriculum consists of a minimum of 24 hours of course work in the Biological Sciences.

Requirements
BIOS 1500 - Molecular and Cellular Biology Credits: 4 hours
BIOS 1510 - Organisnal Biology Credits: 4 hours
BIOS 2020 - Botany Credits: 4 hours
BIOS 2500 - Genetics Credits: 3 hours
BIOS 3010 - Ecology Credits: 5 hours
SCI 4040 - Teaching of Secondary Science Credits: 3 hours

A Physiology Course
BIOS 2400 - Human Physiology Credits: 4 hours or
BIOS 3190 - Plant Physiology Credits: 4 hours or
BIOS 3500 - Human Physiology for Majors Credits: 5 hours

Cognate Requirements Include:
CHEM 1100 - General Chemistry I Credits: 3 hours and
CHEM 1110 - General Chemistry Laboratory I Credits: 1 hour
CHEM 1120 - General Chemistry II Credits: 3 hours and
CHEM 1130 - General Chemistry Laboratory II Credits: 1 hour
MATH 1180 - Precalculus Mathematics Credits: 4 hours or
MATH 1220 - Calculus I Credits: 4 hours or
MATH 2000 - Calculus with Applications Credits: 4 hours

Chemistry
Michael J. Barcelona, Chair
Steven B. Bertman
John E. Chateauneuf
David L. Huffman
James Kiddle
Dongil Lee
Jay C. Means
John B. Miller
Yirong Mo
Students majoring in chemistry may prepare for a career in industrial laboratory work, high school teaching, or graduate work in departments of chemistry, biochemistry, medical or dental colleges. The course offerings for the undergraduate are structured to give a broad but thorough grounding in the elements of chemistry. The chemistry curriculum should be fortified by a minor in physics, mathematics, or biological sciences.

The Chemistry Department is accredited by the American Chemical Society. Students who follow the American Chemical Society certification course sequence below are considered professional chemists by the American Chemical Society. These students are eligible for direct membership senior grade in the Society immediately upon graduation. Students who plan to work for the larger chemical companies or to attend graduate school should follow this degree program.

**Majors and Minors**

Students are required to declare their intent to be a major or minor before completing their credit hour requirements. This is done by filing a declaration of major/minor slip with the advisor.

To qualify as a major or minor in chemistry from Western Michigan University, the student, including the transfer student, must complete a minimum of their last 14 credit hours (major) or 7 credit hours (minor) in the Chemistry Department. The courses taken for credit must include at least one which contains a laboratory experience. Students who plan to attend graduate school should take a minimum number of courses under the credit/no credit option.

Students must earn a grade of "C" or better in any courses that are to be used as prerequisites for other courses.

Students who have chosen a Chemistry major will satisfy the Baccalaureate-Level Writing Requirement by successfully completing CHEM 4360 Physical Chemistry Laboratory I.

**LEC Chemistry Major (34 hours)**

The Arts and Sciences curriculum (LEC) Chemistry Major requires 34 hours in chemistry, including the basic sequence through Physical Chemistry as in the A.C.S. certified program and two 3- or 4-hour courses at the 5000-level, chosen from at least two areas of chemistry.

**Secondary Education Chemistry Major (33 hours)**

The Secondary Education Chemistry Major requires 33 hours of chemistry courses as described in the LEC Chemistry Major in the College of Arts and Sciences, including a minimum of 4 hours of Physical Chemistry.

**Biochemistry Major (35 hours)**

The Biochemistry Major is designed to meet the requirements for a chemistry background for the preprofessional degree leading to health science areas such as medicine, dentistry, veterinary medicine, nutrition, clinical chemistry, toxicology, pharmacology, molecular biology, etc. A minimum of 35 chemistry credit hours must be selected according to the following:

**Freshman Year**

- BIOS 1500 - Molecular and Cellular Biology Credits: 4 hours
- BIOS 1510 - Organismal Biology Credits: 4 hours
- CHEM 1100 - General Chemistry I Credits: 3 hours
- CHEM 1110 - General Chemistry Laboratory I Credits: 1 hour
- CHEM 1120 - General Chemistry II Credits: 3 hours
CHEM 1130 - General Chemistry Laboratory II Credits: 1 hour  
MATH 1220 - Calculus I Credits: 4 hours  
MATH 1230 - Calculus II Credits: 4 hours

Sophomore Year:  
CHEM 3750 - Organic Chemistry I Credits: 3 hours  
CHEM 3760 - Organic Chemistry Lab I Credits: 1 hour  
CHEM 3770 - Organic Chemistry II Credits: 3 hours  
CHEM 3780 - Organic Chemistry Lab II Credits: 1 hour  
MATH 2720 - Multivariate Calculus and Matrix Algebra Credits: 4 hours  
PHYS 2050 - Mechanics and Heat Credits: 4 hours  
PHYS 2060 - Mechanics and Heat Laboratory Credits: 1 hour  
PHYS 2070 - Electricity and Light Credits: 4 hours  
PHYS 2080 - Electricity and Light Laboratory Credits: 1 hour

Junior Year:  
BIOS 2500 - Genetics Credits: 3 hours  
BIOS 3120 - Microbiology Credits: 5 hours  
CHEM 2250 - Quantitative Analysis Credits: 3 hours  
CHEM 2260 - Quantitative Analysis Laboratory Credits: 1 hour  
CHEM 4300 - Physical Chemistry I Credits: 3 hours  
CHEM 4360 - Physical Chemistry Laboratory I Credits: 2 hours

Senior Year:  
CHEM Elective, 5000 Level  
CHEM 5500 - Biochemistry I Credits: 3 hours  
CHEM 5510 - Biochemistry I Laboratory Credits: 2 hours  
CHEM 5540 - Biochemistry II Credits: 3 hours

Chemistry Requirements  
The student must take one of the following courses to complete the required 34 hours of chemistry:  
CHEM 4310 - Physical Chemistry II Credits: 3 hours  
CHEM 5200 - Instrumental Methods in Chemistry Credits: 3 hours  
CHEM 5280 - Chemical Separations Credits: 3 hours  
CHEM 5700 - Advanced Organic Chemistry and Spectroscopy Credits: 3 hours

Biological Sciences Minor  
To complete an optional biological sciences minor, the student must take any two of the following courses:  
BIOS 5200 - Human Genetics  
BIOS 3500 - Human Physiology for Majors Credits: 5 hours  
BIOS 5240 - Microbial Genetics Credits: 3 hours  
BIOS 5360 - Immunology Credits: 4 hours

Additional Comments:  
The student would have to enroll in CHEM 2250 in the fall term of the junior year and CHEM 4360 in the Spring term since CHEM 2250 is a prerequisite for CHEM 4360.  
It is recommended that the additional chemistry course needed to complete the major and the two additional biology courses needed to complete the biology minor (if the student wishes to do this) be taken in the senior year.

Business - Oriented Chemistry Major  
The Business-Oriented Chemistry Major is available to provide chemical understanding to the level needed by students who intend to prepare for careers in non-laboratory functions of chemical or related industry and distribution of its products and technology. Such careers are principally found in management and sales areas, as well as some aspects of government service.
Requirements
Those who elect this major are required to complete a minor in either General Business - (18 hrs.), Management (18 hrs.), or Marketing - (18–19 hrs.) in the Haworth College of Business and must include a course in writing:

Chemistry Requirements (35 hours minimum)
This chemistry major must include a minimum of 35 chemistry credit hours as follows:
CHEM 1100 - General Chemistry I Credits: 3 hours
CHEM 1110 - General Chemistry Laboratory I Credits: 1 hour
CHEM 1120 - General Chemistry II Credits: 3 hours
CHEM 1130 - General Chemistry Laboratory II Credits: 1 hour
CHEM 2250 - Quantitative Analysis Credits: 3 hours
CHEM 2260 - Quantitative Analysis Laboratory Credits: 1 hour
CHEM 3550 - Introductory Biochemistry Credits: 3 hours
CHEM 3750 - Organic Chemistry I Credits: 3 hours
CHEM 3760 - Organic Chemistry Lab I Credits: 1 hour
CHEM 3770 - Organic Chemistry II Credits: 3 hours
CHEM 3780 - Organic Chemistry Lab II Credits: 1 hour
CHEM 4300 - Physical Chemistry I Credits: 3 hours
CHEM 4310 - Physical Chemistry II Credits: 3 hours
CHEM 4360 - Physical Chemistry Laboratory I Credits: 2 hours
CHEM 5070 - Ethical Chemical Practice Credits: 3 hours
CHEM 5200 - Instrumental Methods in Chemistry Credits: 3 hours

Geochemistry Major (68 hours) (Chemistry)
The Geosciences and Chemistry Departments offer a program of study leading to a major in geochemistry. Students choosing this major will not be required to complete an additional minor. The geochemistry major is designed to meet the needs of students preparing for a professional career in geochemistry or environmental chemistry. Students contemplating a geochemistry major should contact the Geosciences Department as early as possible for advising.

Geosciences Core (19 hours)
GEOS 1300 - Physical Geology Credits: 4 hours
GEOS 1310 - Historical Geology Credits: 4 hours
GEOS 1320 - Integrated Earth System Studies Credits: 3 hours Credits: 4 hours
GEOS 3350 - Mineralogy Credits: 4 hours
GEOS 4600 - Geologic Communications Credits: 1 hour
GEOS 5550 - Introduction to Geochemistry Credits: 3 hours

Chemistry Core (12 hours)
CHEM 1100 - General Chemistry I Credits: 3 hours
CHEM 1110 - General Chemistry Laboratory I Credits: 1 hour
CHEM 1120 - General Chemistry II Credits: 3 hours
CHEM 1130 - General Chemistry Laboratory II Credits: 1 hour
CHEM 2250 - Quantitative Analysis Credits: 3 hours
CHEM 2260 - Quantitative Analysis Laboratory Credits: 1 hour

Math Core (8 hours)
MATH 1220 - Calculus I Credits: 4 hours
MATH 1230 - Calculus II Credits: 4 hours

Geosciences Electives (Choose at least 9 hours)
An approved field course (up to 3 hours total)
GEOS 3360 - Optical Mineralogy Credits: 3 hours
GEOS 4350 - Sedimentation and Stratigraphy Credits: 4 hours fulfills the baccalaureate-level writing requirement
GEOS 4400 - Petrology and Petrography Credits: 3 hours
GEOS 5020 - Problems in Geology and Earth Science Credits: 1 to 3 hours (Specifically Stable Isotopes)
GEOS 5060 - Introduction to Soils Credits: 3 hours
GEOS 5120 - Principles of Hydrogeology Credits: 3 hours
GEOS 5280 - Principles and Practices of Ground-water Sampling and Monitoring Credits: 1 hour
GEOS 5450 - Hazardous Waste Remediation Credits: 3 hours

Chemistry Electives (Choose at least 9 hours)
CHEM 3700 - Introduction to Organic Chemistry Credits: 3 hours
CHEM 3710 - Introduction to Organic Chemistry Lab Credits: 1 hour
CHEM 3750 - Organic Chemistry I Credits: 3 hours
CHEM 3760 - Organic Chemistry Lab I Credits: 1 hour
CHEM 3770 - Organic Chemistry II Credits: 3 hours
CHEM 3780 - Organic Chemistry Lab II Credits: 1 hour
CHEM 4300 - Physical Chemistry I Credits: 3 hours
CHEM 4310 - Physical Chemistry II Credits: 3 hours
CHEM 4360 - Physical Chemistry Laboratory I Credits: 2 hours fulfills the baccalaureate-level writing requirement
CHEM 4370 - Physical Chemistry Laboratory II Credits: 1 hour
CHEM 5090 - Topics in Chemistry Credits: 3 hours
CHEM 5200 - Instrumental Methods in Chemistry Credits: 3 hours
CHEM 5250 - Techniques in Water Analysis Credits: 2 hours
CHEM 5500 - Biochemistry I Credits: 3 hours

Math and General Science Electives (Choose at least 11 hours) (hours cannot all be in the same department)
BIOS 1500 - Molecular and Cellular Biology Credits: 4 hours
BIOS 1510 - Organismal Biology Credits: 4 hours
MATH 2720 - Multivariate Calculus and Matrix Algebra Credits: 4 hours
MATH 3740 - Differential Equations and Linear Algebra Credits: 4 hours
PHYS 2050 - Mechanics and Heat Credits: 4 hours
PHYS 2060 - Mechanics and Heat Laboratory Credits: 1 hour
PHYS 2070 - Electricity and Light Credits: 4 hours
PHYS 2080 - Electricity and Light Laboratory Credits: 1 hour
STAT 3640 - Statistical Methods Credits: 4 hours

Notes: Either CHEM 3700/3710 or CHEM 3750-3780 will count toward the major; an outside geology field camp is strongly recommended.

American Chemical Society Certified Major
In order to complete an American Chemical Society Certified major, the following would be the expected minimum schedule of chemistry and prerequisite courses:

Freshman Year:
CHEM 1100 - General Chemistry I Credits: 3 hours
CHEM 1110 - General Chemistry Laboratory I Credits: 1 hour
CHEM 1120 - General Chemistry II Credits: 3 hours
CHEM 1130 - General Chemistry Laboratory II Credits: 1 hour
MATH 1220 - Calculus I Credits: 4 hours
MATH 1230 - Calculus II Credits: 4 hours

Sophomore Year:
CHEM 3750 - Organic Chemistry I Credits: 3 hours
CHEM 3760 - Organic Chemistry Lab I Credits: 1 hour
CHEM 3770 - Organic Chemistry II Credits: 3 hours
CHEM 3780 - Organic Chemistry Lab II Credits: 1 hour
MATH 2720 - Multivariate Calculus and Matrix Algebra Credits: 4 hours
PHYS 2050 - Mechanics and Heat Credits: 4 hours
PHYS 2060 - Mechanics and Heat Laboratory Credits: 1 hour

120
PHYS 2070 - Electricity and Light Credits: 4 hours
PHYS 2080 - Electricity and Light Laboratory Credits: 1 hour

Junior Year:
CHEM 2250 - Quantitative Analysis Credits: 3 hours
CHEM 2260 - Quantitative Analysis Laboratory Credits: 1 hour
CHEM 4300 - Physical Chemistry I Credits: 3 hours
CHEM 4310 - Physical Chemistry II Credits: 3 hours
CHEM 4360 - Physical Chemistry Laboratory I Credits: 2 hours

Senior Year:
CHEM 4370 - Physical Chemistry Laboratory II Credits: 1 hour
CHEM 5150 - Inorganic Chemistry Credits: 3 hours
CHEM 5200 - Instrumental Methods in Chemistry Credits: 3 hours
CHEM 5510 - Biochemistry I Laboratory Credits: 2 hours
CHEM 5540 - Biochemistry II Credits: 3 hours
CHEM 5750 - Advanced Chemical Synthesis Credits: 2 hours

Select Either
Students electing to enroll in CHEM 3550 must also complete an additional 3- or 4-hour 5000-level chemistry elective, or an appropriate mathematics or physics course, as approved by the Chemistry advisor.
CHEM 3550 - Introductory Biochemistry Credits: 3 hours or
CHEM 5500 - Biochemistry I Credits: 3 hours

Chemistry Minor (20 hours)

Requirements
A minimum chemistry minor will contain at least 20 hours. Chemistry minors in secondary education are required to complete one year of physics before student teaching. Courses accepted for the minor are:

CHEM 1100 - General Chemistry I Credits: 3 hours
CHEM 1110 - General Chemistry Laboratory I Credits: 1 hour
CHEM 1120 - General Chemistry II Credits: 3 hours
CHEM 1130 - General Chemistry Laboratory II Credits: 1 hour
CHEM 2250 - Quantitative Analysis Credits: 3 hours
CHEM 2260 - Quantitative Analysis Laboratory Credits: 1 hour
CHEM 3550 - Introductory Biochemistry Credits: 3 hours
CHEM 3560 - Introductory Biochemistry Laboratory Credits: 1 hour
CHEM 3700 - Introduction to Organic Chemistry Credits: 3 hours
CHEM 3710 - Introduction to Organic Chemistry Lab Credits: 1 hour
CHEM 3750 - Organic Chemistry I Credits: 3 hours
CHEM 3760 - Organic Chemistry Lab I Credits: 1 hour
CHEM 3770 - Organic Chemistry II Credits: 3 hours
CHEM 3780 - Organic Chemistry Lab II Credits: 1 hour
CHEM 4300 - Physical Chemistry I Credits: 3 hours
CHEM 4310 - Physical Chemistry II Credits: 3 hours
CHEM 4360 - Physical Chemistry Laboratory I Credits: 2 hours
CHEM 4370 - Physical Chemistry Laboratory II Credits: 1 hour
CHEM 5250 - Techniques in Water Analysis Credits: 2 hours will be accepted for Hydrogeology majors

Additional Information
Other specialized chemistry programs can be developed through the undergraduate chemistry advisor.
Communication

Steven Rhodes, Director
Heather Addison
Julie Apker
Sandra Borden
Sue Ellen Christian
Rebekah Farrugia
Leigh A. Ford
Wendy S. Ford
Richard Gershon
James Gilchrist
Keith Hearit
Richard Junger
Joseph Kayany
Marilyn Kritzman
Steven Lipkin
Jennifer Machiorlatti
Peter Northouse
Paul Nwulu
Mark Orbe
Kathleen Propp
Jocelyn Steinke
Paul Yelsma

Mission Statement

The School of Communication is committed to the research and advanced study of the art and science of communication in a way that integrates theory and practice. In our scholarship and teaching we seek to promote a culture that values diverse perspectives and emphasizes the ethical implications of communication.

Communication Programs

Communication is the principal mode for establishing and maintaining human relationships. It consists of those processes by which society is made possible, by which people develop and exchange ideas, solve problems, and work cooperatively in attaining common objectives. Effective communication is an educational imperative for all human beings.

The School of Communication is dedicated to meeting the personal and professional communication objectives of our students. Seven major areas of concentration are available: Communication Studies; Film, Video, and Media Studies; Interpersonal Communication; Journalism; Organizational Communication; Public Relations; and Telecommunications and Information Management. These major areas of concentration reflect the primary divisions in the discipline, with required courses to ensure adequate preparation in specific fields. The concentration areas and accompanying upper-level requirements provide appropriate guidance to assure that programs of study are academically sound.

Three minors - Minor in Communication, Minor in Secondary Education Communication, and Minor in Journalism - are also offered. However, students may complete only one program (major or minor) in the School of Communication.

Communication majors and minors may choose to participate in the American Humanics certificate program. This program is designed to prepare students for leadership in nonprofit organizations. Students qualify for the certificate by taking courses in their major and minor which meet the American Humanics competency requirements, by taking the required American Humanics courses, and by meeting the American Humanics extra-curricular requirements. For details, please see the American Humanics description in the College of Arts and Sciences Interdisciplinary Programs section of this catalog. Details are also available from the Communication undergraduate advisor and from the American Humanics director.

The study of communication is important to virtually every profession that involves working with people, making it an excellent major, minor or cognate for communication-related jobs in education, business, government agencies, health care
professions, social services, industry, and other public and private organizations. Communication is central to positions in public relations, corporate communication, public information management, employee communication, training and development, and radio, television, and film.

Production training facilities and professional curricular programs in television and film provide both the background knowledge and training for positions in mass media production, performance and management.

The School also encourages a close relationship between academic classes and extracurricular and co-curricular experiences. Students may become involved in a variety of activities, including community service projects, WIDR-FM radio station, video-taping of special events, film-making, and internships in a variety of organizations. Academic credit may be earned for significant participation in many of these communication activities.

Students planning to major or minor in any of the communication areas should discuss their program needs and interests with a School advisor at the earliest possible date. Call the advising office at (269) 387-3197 for advising hours. A Handbook for Majors and Minors in Communication, which describes suggested programs of study in communication, is available free of charge from the School office.

Transfer Students

Transfer students are permitted to transfer up to 15 semester credit hours for a major and up to 9 hours for a minor in communication or journalism.

Pre-Communication Major

Students planning to major in any area of communication will be admitted as a pre-communication student. This status, however, does not guarantee admission to a communication major, since more students apply for admission than can be accepted.

A student's application for admission as a major will be considered when the student has:

1. Completed 30 Hours of College Work
   Completed 30 hours of college work, at least 15 hours of which are at Western Michigan University.

2. Acceptable Overall Grade Point Average
   Achieved an overall grade point average of at 2.5 or above.

3. Completed Pre-Communication Course Requirements
   With a grade of "C" or better in each course-taking a pre-communication class not more than two times.

4. Pre-Communication Course Requirements
   The Pre-Communication Course Requirements for each of the majors are as follows:

   **Communication Studies**
   COM 1700 - Interpersonal Communication Credits: 3 hours
   COM 2000 - Introduction to Communication Theory Credits: 3 hours
   COM 2010 - Communication Inquiry Credits: 3 hours

   **Film, Video, and Media Studies**
   COM 1700 - Interpersonal Communication Credits: 3 hours
   COM 2000 - Introduction to Communication Theory Credits: 3 hours
   COM 2400 - Introduction to Media and Telecommunications Credits: 3 hours
   COM 2410 - Film Communication Credits: 3 hours
   COM 2560 - Broadcast Operations Credits: 3 hours

   **Interpersonal Communication**
COM 1700 - Interpersonal Communication Credits: 3 hours
COM 2000 - Introduction to Communication Theory Credits: 3 hours
COM 2010 - Communication Inquiry Credits: 3 hours

Journalism
COM 2000 - Introduction to Communication Theory Credits: 3 hours
COM 2400 - Introduction to Media and Telecommunications Credits: 3 hours
JRN 1000 - Foundations of Journalism Credits: 3 hours

Organizational Communication
COM 1700 - Interpersonal Communication Credits: 3 hours
COM 2000 - Introduction to Communication Theory Credits: 3 hours
COM 2800 - Introduction to Organizational Communication Credits: 3 hours

Public Relations
COM 1700 - Interpersonal Communication Credits: 3 hours
COM 2000 - Introduction to Communication Theory Credits: 3 hours
COM 2400 - Introduction to Media and Telecommunications Credits: 3 hours
COM 2800 - Introduction to Organizational Communication Credits: 3 hours

Telecommunications and Information Management
CIS 2600 - Business Programming A Credits: 3 hours
COM 2000 - Introduction to Communication Theory Credits: 3 hours
COM 2400 - Introduction to Media and Telecommunications Credits: 3 hours

GPA
If the student's overall GPA is below 2.5 or if the student has not achieved a "C" or better after completing a pre-communication class twice, the student may NOT apply to become a communication major in any of our majors.

If the student's overall GPA is 2.5 or above, and if the student has achieved a "C" or better in appropriate pre-communication courses, the student may apply to become a major in a specific area of interest.

Admission to any of our majors will be based on space available, overall grade point average, grades in pre-communication courses, and an essay that is part of the application. Hence, successful completion of pre-communication requirements does not guarantee admission. Currently, three majors have formal application processes: Film, Video, and Media Studies; Telecommunications and Information Management; and Public Relations. The deadlines for submitting the applications are September 15 for spring admission, January 15 for summer admission, and May 15 for fall admission. Applications and additional information may be obtained from the School office.

Students may not apply to any of our majors, in any combination, more than twice. If after a second application a student has not been admitted to a major, then he or she may proceed to complete the requirements for a communication minor and the student must find another major in another School.

General Program Requirements
1. All major/minor programs must be approved by a School advisor. Admission to a major in communication will be considered by a School advisor following completion of the appropriate pre-communication requirements. Declaration of a minor in communication must be made with a School advisor before the completion of nine semester hours of communication credit or journalism credit.

2. Students must earn a grade of "C" or better in all course work applied toward a major/minor program.

3. Prerequisites listed for all communication courses must be met. A course and its prerequisite cannot be taken at the same time. Students who have not completed the prerequisites with a grade of "C" or better, will be dropped from the class. All 5000-level courses require junior or senior standing, in addition to any specific prerequisites listed.
4. Petition for exceptions to any School policies should be directed to the School director.

Baccalaureate Writing Requirement

Students who have chosen to major in any of the Communication areas, with the exception of Journalism, will satisfy the Baccalaureate Writing Requirement by successfully completing one of the following courses:

COM 3350 - Leadership Credits: 3 hours
COM 3500 - Public Relations and Organizations Credits: 3 hours
COM 3580 - TV and Film Scripting Credits: 3 hours
COM 3590 - Broadcast Journalism Credits: 3 hours
COM 3700 - Interpersonal Communication II Credits: 3 hours
COM 3720 - Introduction to General Semantics Credits: 3 hours
COM 4410 - Documentary in Film and Television Credits: 3 hours
COM 4480 - Telecommunications Management Credits: 3 hours
COM 4500 - Public Relations Program Development Credits: 3 hours

Journalism Majors

Students who have chosen to major in Journalism will satisfy the Baccalaureate Writing Requirement by successfully completing:

JRN 4100 - Specialized Reporting Credits: 3 hours

Communication Studies Major (36 hours)

1. Pre-Communication Requirements (9 hours)
   COM 1700 - Interpersonal Communication Credits: 3 hours
   COM 2000 - Introduction to Communication Theory Credits: 3 hours
   COM 2010 - Communication Inquiry Credits: 3 hours

2. Upper-level Communication Studies Requirements (18 hours)

Select Two Courses from the Following Group:
   COM 3320 - Group Problem Solving Credits: 3 hours
   COM 3700 - Interpersonal Communication II Credits: 3 hours Baccalaureate-level Writing Requirement
   COM 3720 - Introduction to General Semantics Credits: 3 hours Baccalaureate-level Writing Requirement
   COM 4300 - Leadership Credits: 3 hours Baccalaureate-level Writing Requirement
   COM 4320 - Group Communication Theory Credits: 3 hours
   COM 4720 - Nonverbal Communication Credits: 3 hours
   COM 4750 - Family Communication Credits: 3 hours
   COM 4790 - Female/Male Interaction Credits: 3 hours
   COM 4830 - Interviewing Credits: 3 hours

Select Two Courses from the Following Group:
   COM 2800 - Introduction to Organizational Communication Credits: 3 hours
   COM 3050 - Special Topics in Communication Credits: 3 hours
   COM 3350 - Leadership Credits: 3 hours Baccalaureate-level Writing Requirement
   COM 3500 - Public Relations and Organizations Credits: 3 hours Baccalaureate-level Writing Requirement
   COM 4300 - Persuasion and Social Influence Credits: 3 hours
   COM 4740 - Intercultural Communication Credits: 3 hours
   COM 4770 - Communication Ethics Credits: 3 hours
   COM 4840 - Health Communication Credits: 3 hours

Select Two Courses from the Following Group:
   COM 3050 - Special Topics in Communication Credits: 3 hours
COM 3070 - Freedom of Expression Credits: 3 hours  
COM 3420 - The International Film Industry Credits: 3 hours  
COM 4430 - Media Theory and Social Change Credits: 3 hours  
COM 4440 - Mass Communication, News, and Public Affairs Credits: 3 hours  
COM 4480 - Telecommunications Management Credits: 3 hours  
COM 5510 - Methods of Media Analysis Credits: 3 hours  
COM 5540 - Communication Technology Credits: 3 hours

3. Communication Electives (9 hours)  
Nine hours of electives in Communication, six of which may be selected from any courses offered by the School and three hours selected from upper-level (3000 or higher) courses in the School. Courses outside the School may be used with prior permission of the School of Communication Advisor.

All course prerequisites must be met to enroll in upper-level courses. Grade requirement: A minimum grade of "C" is required in all courses to be applied toward the major.

**Film, Video, and Media Studies Major (36 hours)**

1. Pre-Communication Requirements (12 hours)  
COM 1700 - Interpersonal Communication Credits: 3 hours  
COM 2000 - Introduction to Communication Theory Credits: 3 hours  
COM 2400 - Introduction to Media and Telecommunications Credits: 3 hours  
COM 2410 - Film Communication Credits: 3 hours

2. Film, Video, and Media Studies Core Requirements (9 hours)  
At least one course from the following list  
COM 3050 - Special Topics in Communication Credits: 3 hours  
COM 3070 - Freedom of Expression Credits: 3 hours  
COM 3410 - Film Modes and Genres Credits: 3 hours  
COM 3420 - The International Film Industry Credits: 3 hours  
COM 3430 - American Film History Credits: 3 hours  
COM 3430 - Documentary in Film and Television Credits: 3 hours  
COM 3430 - American Film History Credits: 3 hours  
COM 3440 - Mass Communication, News, and Public Affairs Credits: 3 hours  
COM 4450 - Media Criticism Credits: 3 hours  
COM 4550 - International Telecommunications Credits: 3 hours  
COM 5510 - Methods of Media Analysis Credits: 3 hours

At least one course must be taken from the following list  
COM 2570 - Radio Programming and Production Credits: 3 hours  
COM 3550 - Small Format Video Production Credits: 3 hours  
COM 3560 - Film Production Credits: 3 hours  
COM 3570 - TV Studio Production Credits: 3 hours  
COM 3580 - TV and Film Scripting Credits: 3 hours  
Baccalaureate-level Writing Requirement must be met by taking this course.  
COM 3590 - Broadcast Journalism Credits: 3 hours  
Baccalaureate-level Writing Requirement must be met by taking this course.  
COM 4570 - Advanced Video Production Credits: 3 hours  
COM 5550 - Multi-Media Production Credits: 3 hours

**Baccalaureate Writing Requirement**  
If COM 3580 or 3590 are not selected as a core requirement, you must select one of the School's other writing-intensive courses as an elective in order to meet the university's baccalaureate writing requirement  
COM 3350 - Leadership Credits: 3 hours
COM 3500 - Public Relations and Organizations Credits: 3 hours
COM 3700 - Interpersonal Communication II Credits: 3 hours
COM 3720 - Introduction to General Semantics Credits: 3 hours
COM 4410 - Documentary in Film and Television Credits: 3 hours
COM 4480 - Telecommunications Management Credits: 3 hours
COM 4500 - Public Relations Program Development Credits: 3 hours

3. Film, Video, and Media Studies Electives (9 hours)

Three courses from the following list are also included in the Core Requirements list; courses listed under Film, Video, & Media Studies Core Requirements, but not taken to fulfill the core requirements, may be taken as Film, Video, & Media Studies Electives.

AFS 3400 - African and African-American Cinema Credits: 3 hours
ANTH 3010 - Anthropology through Film Credits: 3 hours
ARAB 2750 - Life and Culture of the Arabs Credits: 3 hours
COM 2560 - Broadcast Operations Credits: 3 hours
COM 3420 - The International Film Industry Credits: 3 hours
COM 3430 - American Film History Credits: 3 hours
COM 3540 - Interactive Media Credits: 3 hours
COM 3980 - Independent Study Communication Credits: 1 to 6 hours Requires approval by an advisor of specific topic - no more than 6 total hours in any combination of 3980/4990.
COM 4410 - Documentary in Film and Television Credits: 3 hours Baccalaureate-level Writing Requirement must be met by taking this course.
COM 4770 - Communication Ethics Credits: 3 hours
COM 4990 - Internship Credits: 1 to 6 hours
ENGL 2100 - Film Interpretation Credits: 4 hours
ENGL 3680 - Playwriting Credits: 3 hours
ENGL 4100 - Special Topics in Literature Credits: 4 hours (in Film Studies)
FREN 5100 - Studies in French and Francophone Culture Credits: 3 hours
FREN 5600 - Advanced Readings in French Credits: 3 hours
GER 5600 - Studies in German Literature Credits: 3 hours
HIST 3150 - Popular Art and Architecture in America Credits: 3 hours
IMAG 1500 - Introduction to Imaging Credits: 4 hours
IMAG 1570 - Imaging Systems Credits: 3 hours
IMAG 2150 - Introduction to Ink Credits: 4 hours
PSCI 3110 - American Politics and the Media Credits: 3 hours
SPAN 4100 - Studies in Hispanic Culture Credits: 3 hours
SPAN 5600 - Studies in Spanish Literatures Credits: 3 hours

4. Communication Electives (6 hours)
Six hours of electives in Communication, three of which may be selected from any courses offered by the School and three hours selected from upper-level (3000 or higher) courses in the School. Courses outside the School may be used with prior permission of the School of Communication Advisor.

All course prerequisites must be met to enroll in upper-level courses. Grade requirement: A minimum grade of "C" is required in all courses to be applied toward the major.

**Interpersonal Communication Major (36 hours)**

1. Pre-Communication Requirements (9 hours)
COM 1700 - Interpersonal Communication Credits: 3 hours
COM 2000 - Introduction to Communication Theory Credits: 3 hours
COM 2010 - Communication Inquiry Credits: 3 hours
2. Communication Core Requirements (3 hours)
COM 1040 - Public Speaking Credits: 3 hours

3. Upper-level Interpersonal Communication Requirements (15 hours) The following two courses are required (6 hours)
COM 3320 - Group Problem Solving Credits: 3 hours
COM 3700 - Interpersonal Communication II Credits: 3 hours Baccalaureate-level Writing Requirement

Select three of the following courses (9 hours)
COM 3050 - Special Topics in Communication Credits: 3 hours
COM 3070 - Freedom of Expression Credits: 3 hours
COM 3720 - Introduction to General Semantics Credits: 3 hours Baccalaureate-level Writing Requirement
COM 4300 - Persuasion and Social Influence Credits: 3 hours
COM 4320 - Group Communication Theory Credits: 3 hours
COM 4720 - Nonverbal Communication Credits: 3 hours
COM 4740 - Intercultural Communication Credits: 3 hours
COM 4750 - Family Communication Credits: 3 hours
COM 4770 - Communication Ethics Credits: 3 hours
COM 4790 - Female/Male Interaction Credits: 3 hours
COM 4840 - Health Communication Credits: 3 hours

4. Interpersonal Electives (9 hours)
Nine hours of electives in Communication, six of which may be selected from any courses offered by the School and three hours selected from upper-division (3000 or higher) courses in the School. Courses outside the School may be used with prior permission of the School of Communication Advisor.

All course prerequisites must be met to enroll in upper-level courses. Grade requirement: A minimum grade of "C" is required in all courses to be applied toward the major.

Baccalaureate-Level Writing Requirement
Baccalaureate-level Writing Requirement must be met by taking one of the courses indicated.

Organizational Communication Major (36 hours)
All course prerequisites must be met to enroll in upper-level courses. Grade requirement: A minimum grade of "C" is required in all courses to be applied toward the major.

1. Pre-Communication Requirements (9 hours)
COM 1700 - Interpersonal Communication Credits: 3 hours
COM 2000 - Introduction to Communication Theory Credits: 3 hours
COM 2800 - Introduction to Organizational Communication Credits: 3 hours

2. Organizational Communication Core Requirements (12 hours)
COM 1040 - Public Speaking Credits: 3 hours
COM 2010 - Communication Inquiry Credits: 3 hours
COM 3350 - Leadership Credits: 3 hours Baccalaureate-level Writing Requirement
COM 4800 - Applied Topics in Organizational Communication Credits: 3 hours Students may take up to 6 hours of COM 4800 credit provided the topics are different.

3. Organizational Communication Electives (9 hours)
Three courses from the following group are required:
COM 2400 - Introduction to Media and Telecommunications Credits: 3 hours
COM 3050 - Special Topics in Communication Credits: 3 hours
COM 3070 - Freedom of Expression Credits: 3 hours
COM 3320 - Group Problem Solving Credits: 3 hours
COM 3500 - Public Relations and Organizations Credits: 3 hours Baccalaureate-level Writing Requirement
COM 3540 - Interactive Media Credits: 3 hours
COM 3720 - Introduction to General Semantics Credits: 3 hours Baccalaureate-level Writing Requirement
COM 4300 - Persuasion and Social Influence Credits: 3 hours
COM 4320 - Group Communication Theory Credits: 3 hours
COM 4400 - Public Relations Case Studies Credits: 3 hours
COM 4480 - Telecommunications Management Credits: 3 hours Baccalaureate-level Writing Requirement
COM 4500 - Public Relations Program Development Credits: 3 hours Baccalaureate-level Writing Requirement
COM 4740 - Intercultural Communication Credits: 3 hours
COM 4770 - Communication Ethics Credits: 3 hours
COM 4790 - Female/Male Interaction Credits: 3 hours
COM 4800 - Applied Topics in Organizational Communication Credits: 3 hours
COM 4830 - Interviewing Credits: 3 hours
COM 4840 - Health Communication Credits: 3 hours
COM 5540 - Communication Technology Credits: 3 hours

4. Communication Electives (6 hours)
Six hours of electives in Communication, three of which may be selected from any courses offered by the School and three hours selected from upper-division (3000 or higher) courses in the School. Courses outside the School may be used with prior permission of the School of Communication Advisor.

Baccalaureate Writing Requirement
Baccalaureate-level Writing Requirement must be met by taking one of the courses marked.

Public Relations Major (42 to 46 hours)

1. Pre-Communication Requirements (12 hours)
COM 1700 - Interpersonal Communication Credits: 3 hours
COM 2000 - Introduction to Communication Theory Credits: 3 hours
COM 2400 - Introduction to Media and Telecommunications Credits: 3 hours
COM 2800 - Introduction to Organizational Communication Credits: 3 hours

2. Public Relations core requirements (12 hours)
COM 2010 - Communication Inquiry Credits: 3 hours
COM 3500 - Public Relations and Organizations Credits: 3 hours Baccalaureate-level Writing Requirement
COM 4500 - Public Relations Program Development Credits: 3 hours Baccalaureate-level Writing Requirement
JRN 1000 - Foundations of Journalism Credits: 3 hours

3. Public Relations Electives (12 to 14 hours)
Select at least four of the following courses
COM 2410 - Film Communication Credits: 3 hours
COM 2560 - Broadcast Operations Credits: 3 hours
COM 2570 - Radio Programming and Production Credits: 3 hours
COM 3050 - Special Topics in Communication Credits: 3 hours
COM 3320 - Group Problem Solving Credits: 3 hours
COM 3350 - Leadership Credits: 3 hours
COM 3540 - Interactive Media Credits: 3 hours
COM 3550 - Small Format Video Production Credits: 3 hours
COM 3560 - Film Production Credits: 3 hours
COM 3570 - TV Studio Production Credits: 3 hours
COM 3580 - TV and Film Scripting Credits: 3 hours Baccalaureate-level Writing Requirement
COM 3590 - Broadcast Journalism Credits: 3 hours Baccalaureate-level Writing Requirement
COM 4300 - Persuasion and Social Influence Credits: 3 hours
COM 4400 - Public Relations Case Studies Credits: 3 hours
4. Communication Electives (6 to 8 hours)
Six hours of electives in Communication, three of which may be selected from any courses offered by the School and three
hours selected from upper-level (3000 or higher) courses in the School. Courses outside the School may be used with prior
written permission of the School of Communication advisor.

All course prerequisites must be met to enroll in upper-level courses. Grade requirement: A minimum grade of “C” is
required in all courses to be applied toward the major.

Telecommunications and Information Management Major (TMBJ) (36 hours)
Telecommunications and Information Management (TMBJ) is an interdisciplinary major offered through the School of
Communication, College of Arts and Sciences, and the School of Business Information Systems, Haworth College of
Business.

The major prepares students for a variety of telecommunications and data communication subdisciplines, including
telephony, data base management, network operations, cable television, satellite communication and Internet communication.
The focus of the major is to give students a well balanced education in a variety of business and technical management
issues.

The major offers a 21st century approach to the study of telecommunications and information technology by combining
people and resources across the greater WMU campus. Students graduating as a TMLJ major will receive a Bachelor of Arts
(BA) from the College of Arts and Sciences or a Bachelor of Business Administration (BBA) from the Haworth College of
Business (TMBJ).

Admission requirements:
Students will be required to formally apply and will be admitted on a selective basis. Students applying to the major from
both Business Information Systems and Communication must have a minimum gpa of 2.50 and meet with the appropriate
program advisor in either the School of Communication or the School of Business Information Systems. Priority seating will
be given to declared TMLJ majors in all required and elective courses identified with the major.

Business Students:
Students who have completed at least 42 overall semester hours, the Pre-Business curriculum requirements, and the Pre-
TMLJ major requirements (BUS 2700, COM 2400, and CIS 2600) may apply. To graduate, students must meet the minimum
requirement of 50% of their course work in the Haworth College of Business. For more information about the admission
procedure, see the program advisor in the School of Business Information Systems.

Communication Students:
Students who complete the Pre-Communication major requirements may apply for the interdisciplinary major in
Telecommunications and Information Management. To graduate, students must meet all College of Arts and Sciences
curriculum requirements. See a Communication advisor for more information.
Program Requirements

Pre-Major Courses (9 hours)
CIS 2600 - Business Programming A Credits: 3 hours
COM 2400 - Introduction to Media and Telecommunications Credits: 3 hours

Select Either:
BUS 2700 - Information and Communication Infrastructure Credits: 3 hours (Required of Haworth College of Business students)
or
COM 2000 - Introduction to Communication Theory Credits: 3 hours (Required of Arts and Sciences students)

Required Core Courses (21 hours)
CIS 3260 - LAN Administration Credits: 3 hours
CIS 3600 - Systems Analysis and Design Credits: 3 hours
CIS 4600 - Business Database Applications Credits: 3 hours
CIS 4990 - Enterprise Project Credits: 3 hours
COM 4480 - Telecommunications Management Credits: 3 hours
COM 5410 - Telecommunications Law and Policy Credits: 3 hours
COM 5540 - Communication Technology Credits: 3 hours

Electives (6 hours)
CIS 3660 - Computer Networking Credits: 3 hours
CIS 4640 - Business Data Mining Credits: 3 hours
COM 3050 - Special Topics in Communication Credits: 3 hours Satellite and Wireless Communication
COM 4550 - International Telecommunications Credits: 3 hours

Select Either:
CIS 3900 - Business Web Architecture Credits: 3 hours or
COM 3540 - Interactive Media Credits: 3 hours

Select Either:
CIS 4100 - Internship Credits: 1 to 4 hours Credits: 3 hours
or
COM 4990 - Internship Credits: 1 to 6 hours Credits: 3 hours

Notes:
All course requirements must be met to enroll in upper-level courses. A minimum grade of "C" is required in all courses applied toward the major. The baccalaureate-level writing requirement for Arts and Sciences students is COM 4480; for Haworth College of Business students, BUS 3700.

Communication Minor (18 hours)

Requirements
A communication minor requires 18 semester hours of Communication courses, including the courses listed below and 6 hours of additional communication electives. Minors should recognize that registration in some Communication courses may be limited to declared majors for whom those courses are required. A minimum grade of "C" is required in all courses applied toward the minor.

COM 1040 - Public Speaking Credits: 3 hours
COM 1700 - Interpersonal Communication Credits: 3 hours
COM 2000 - Introduction to Communication Theory Credits: 3 hours
COM 2400 - Introduction to Media and Telecommunications Credits: 3 hours
Communication Minor, Secondary Education (21 hours)

This minor requires an application and is restricted to Pre-Education or Secondary Education students majoring in English who have an overall GPA of 2.5.

Requirements

Elective in Communication Credits: 3 hours

COM 1040 - Public Speaking Credits: 3 hours
COM 1700 - Interpersonal Communication Credits: 3 hours
COM 2000 - Introduction to Communication Theory Credits: 3 hours
COM 3320 - Group Problem Solving Credits: 3 hours
COM 3340 - Argumentation and Debate Credits: 3 hours
COM 5600 - Teaching Communication Credits: 3 hours

Comparative Religion

Brian C. Wilson, Chair
Stephen G. Covell
David Ede
Mustafa Mirzeler
Rudolf Siebert
Kevin Wanner

Religion courses are designed to give students (1) an understanding of the nature and role of religion in human societies, both past and present, both non-Western and Western, (2) a grasp of the various methods used by scholars to describe and explain religion, to assess achievements of these methods, and to develop new methods for increasing their knowledge of religious thought and practice, and (3) an opportunity for raising questions about the present and future significance of religious thought and practice.

Many courses in the department are approved for General Education, and students can extend their general education to include knowledge of religious thought and practice and to relate their knowledge of religion to their knowledge derived from other disciplines in the University.

The departmental major and minor are a good preparation for graduate study in religion and for a vocation associated with religion.

Recognizing the growing demand for graduates with cross-cultural experiences and second language abilities, the Department of Comparative Religion strongly encourages students majoring and minoring in Comparative Religion to participate in Western's semester or year long study abroad program. Interested students should contact the chairperson of Comparative Religion and the Office of International Affairs as early as possible upon their arrival at Western Michigan University.

Baccalaureate Writing Requirement

Students who have chosen the Religion major will satisfy the Baccalaureate Writing Requirement by successfully completing REL 3000 Writing About Religion.
Religion Major (28 hours)

Program Requirements
A major in religion consists of a minimum of 28 hours and includes one course in the field of Historical Studies, and two courses from the remaining three fields (Constructive Studies, Methodological Studies, Comparative Studies). Two of these courses may be at the 4000/5000 level. As well as the following course:
REL 1000 - Religions of the World Credits: 4 hours
REL 2000 - Introduction to Religion Credits: 4 hours

Religion Minor (16 hours)

Program Requirements
A minor in religion consists of a minimum of 16 hours. One course is recommended in the field of Historical Studies; the remaining course should be taken in any of the remaining fields. As well as the following courses:
REL 1000 - Religions of the World Credits: 4 hours
REL 2000 - Introduction to Religion Credits: 4 hours

Courses by Topic - Religion

Introductory Studies
REL 1000 - Religions of the World Credits: 4 hours
REL 2000 - Introduction to Religion Credits: 4 hours

Historical Studies
REL 3010 - Buddhist Traditions Credits: 4 hours
REL 3020 - Religion in the Indian Tradition Credits: 4 hours
REL 3030 - Chinese Religion Credits: 4 hours
REL 3040 - African Religions Credits: 4 hours
REL 3050 - The Christian Tradition Credits: 4 hours
REL 3060 - The Jewish Tradition Credits: 4 hours
REL 3070 - The Islamic Tradition Credits: 4 hours
REL 3080 - Japanese Religion Credits: 4 hours
REL 3140 - African-American Religion to 1865 Credits: 4 hours
REL 3150 - African-American Religion in the 20th Century Credits: 4 hours
REL 5000 - Historical Studies in Religion Credits: 2 to 4 hours

Comparative Studies In Religion
REL 3110 - Myth and Ritual Credits: 4 hours
REL 3130 - Religion in America Credits: 4 hours
REL 5100 - Morphological and Phenomenological Studies in Religion Credits: 2 to 4 hours
REL 5110 - Women in Religion Credits: 3 hours

Methodological Studies In Religion
REL 3200 - The Philosophy of Religion Credits: 4 hours
REL 3230 - Religion and Revolution Credits: 4 hours
REL 3240 - Psychological Elements in Religion Credits: 4 hours
REL 5200 - Methodological Studies in Religion Credits: 2 to 4 hours
REL 5210 - The Teaching of Religion in the Public School Credits: 2 hours

Constructive Studies In Religion
REL 3320 - Religion and Social Ethics Credits: 4 hours
REL 3340 - Religion in Modern Society Credits: 4 hours
REL 4980 - Independent Study Credits: 1 to 6 hours
Economics
William S. Kern, Interim Chair
Donald L. Alexander
Eskander Alvi
Sisay Asefa
Bassam E. Harik
Matthew L. Higgins
Emily P. Hoffman
Kevin M. Hollenbeck
Wei-Chiao Huang
James Hueng
Jean Kimmel
Donald J. Meyer
Christine Moser
Debasri Mukherjee
Jon R. Neill
Susan Pozo
Michael Ryan
Edward Van Wesep
Mark V. Wheeler
Huizhong Zhou

Economists study fundamental problems arising from scarcity such as how to manage resources efficiently, how to organize individual and social efforts to improve standards of living, and how to avoid excessive unemployment and inflation. They also apply rational decision-making procedures to complex questions. Economists analyze policies in such specific areas as international trade; money and credit; government finance; industrial organization; labor and other resources; and economic development.

You may select economics as a field of study in order to obtain preprofessional training for business, law, journalism, public administration, foreign service, teaching, and social work; to prepare for graduate work in economics; and/or to gain an understanding of the economy as an essential part of the modern world. Several courses are designed to contribute to General Education by providing basic understanding of the U.S. economy, as well as other economies throughout the world.

A career as a professional economist typically requires graduate study and a master's or doctoral degree in economics.

Economics is a prestigious major or minor that is appreciated by prospective employers who recognize it as a demanding curriculum. The undergraduate advisor of the department will assist students in selecting courses suited to their needs in fulfilling the minor and major requirements.

The honors program of the Department of Economics is designed for the student who possesses special talents and abilities and who is particularly interested in exploiting them to the fullest extent. Students wishing to participate in this program should consult the Chair of the department.
Economics Major (30 hours)

Requirements
A major in economics consists of a minimum of 30 hours of credit in the department. The following are required courses for majors:

ECON 2010 - Principles of Microeconomics Credits: 3 hours
ECON 2020 - Principles of Macroeconomics Credits: 3 hours
ECON 4020 - Introductory Economic Statistics Credits: 3 hours
ECON 4030 - Intermediate Microeconomics Credits: 3 hours
ECON 4060 - Intermediate Macroeconomics Credits: 3 hours
ECON 4090 - Econometrics Credits: 3 hours

Calculus
Majors should choose the remainder of their economics courses in consultation with the undergraduate advisor. A major in economics is also required to take one semester of calculus as a cognate course.
MATH 1220 - Calculus I Credits: 4 hours or
MATH 2000 - Calculus with Applications Credits: 4 hours

Mathematics
Those who intend to do graduate work in economics are advised to take additional mathematics courses, such as:
MATH 1230 - Calculus II Credits: 4 hours
MATH 2720 - Multivariate Calculus and Matrix Algebra Credits: 4 hours
MATH 3740 - Differential Equations and Linear Algebra Credits: 4 hours

Baccalaureate Writing Requirement
Students who have chosen the Economics major will satisfy the Baccalaureate Writing Requirement by successfully completing ECON 4840 Comparative Economic Systems.

Economics Minor (15 hours)
A minor in economics consists of a minimum of 15 hours in the department.

Courses By Topic - Economics

Principles and General Theory
ECON 1000 - Economics for Elementary Education Credits: 3 hours
ECON 1070 - Economic Issues in the U.S. Today Credits: 3 hours
ECON 1080 - Contemporary International Economic Issues Credits: 3 hours
ECON 1090 - History of Modern Economic Society Credits: 3 hours
ECON 2010 - Principles of Microeconomics Credits: 3 hours
ECON 2020 - Principles of Macroeconomics Credits: 3 hours
ECON 3010 - Economic Issues: Variable Topics Credits: 3 hours
ECON 4000 - Managerial Economics Credits: 3 hours
ECON 4020 - Introductory Economic Statistics Credits: 3 hours
ECON 4030 - Intermediate Microeconomics Credits: 3 hours
ECON 4060 - Intermediate Macroeconomics Credits: 3 hours
ECON 4090 - Econometrics Credits: 3 hours
ECON 5030 - Economic Computing Credits: 3 hours
ECON 5040 - Mathematics for Economists Credits: 3 hours
ECON 5050 - History of Economic Thought Credits: 3 hours

Labor and Resource Economics
ECON 3090 - Women and the Economy Credits: 3 hours
ECON 3100 - Labor Economics Credits: 3 hours
ECON 3180 - The Economics of Medical Care Credits: 3 hours
ECON 3190 - Environmental Economics Credits: 3 hours

Money, Credit and Finance
ECON 3200 - Money and Banking Credits: 3 hours
ECON 3240 - Public Finance Credits: 3 hours

Industrial Organization and Public Control
ECON 3040 - The Organization of Industries Credits: 3 hours
ECON 3450 - Business, Government, and Society Credits: 3 hours

International Economics
ECON 3800 - International Economics Credits: 3 hours
ECON 3850 - Central and East European and Central Asian Economies Credits: 3 hours
ECON 3870 - Studies in Asian Economies Credits: 3 hours
ECON 3880 - African Economies Credits: 3 hours
ECON 3890 - Latin American Economies Credits: 3 hours
ECON 4840 - Comparative Economic Systems Credits: 3 hours
ECON 5880 - Economic Development Credits: 3 hours

Special Studies
ECON 5910 - Guest Economist Seminar Credits: 1 hour
ECON 5920 - Guest Economist Seminar Credits: 1 hour
ECON 5980 - Readings in Economics Credits: 1 to 3 hours

English

W. Arnold Johnston, Chair
Elizabeth Amidon
Thomas Bailey
Patricia Bills
Beth Bradburn
Ellen Brinkley
Jonathan E. Bush
JD Dolan
Margaret Dupuis
Stuart Dybek
Philip Egan
Nancy Eimers
Anthony Ellis
Eileen Evans
Steve Feffer
Jaimy Gordon
Paul Johnston
Katherine Joslin
Richard Katrovas
Thomas Kent
Cynthia Klekar
Todd Kuchta
Jil Larson
Casey McKittrick
Lisa Minnick
Christopher C. Nagle
The Department of English serves students in two principal ways: In developing their power to communicate and express themselves and in enhancing their ability to participate in and understand the experiences of other people, real and imaginary, past and present.

Courses and programs offered by our department - in writing, English language, and literature (including film) - enable students to concentrate in English, complement their other studies, or simply explore and sample the disciplines of language and literature. As a department we are traditionally engaged in training teachers and preparing students for graduate study. We are equally concerned with serving those students preparing for the many professions in which humane perceptions and the skills of communication, especially writing, are important.

Special Note to Non-Majors

The Department of English offers many courses, including a variety of writing courses, suitable for students not majoring in English: 1050 Thought and Writing, 1070 Good Books, 1100 Literary Interpretation, 2110 Myth and Folk Literature, 1120 Literary Classics, 1500 Literature and Other Arts, 2100 Film Interpretation, 2220 Literatures and Cultures of the United States, 223 Black American Literature, 2520 Shakespeare, 2660 Writing Fiction and Poetry, 2820 Children's Literature, 3050 Practical Writing, 3070 Literature In Our Lives, 3080 Quest for Self, 3110 Our Place In Nature, 3120 Western World Literature, 3130 Asian Literature, 3140 African Literature, 3150 The English Bible as Literature, and certain advanced courses that may be appropriate to the interests and background of the student. Many of these English courses may be used to satisfy General Education requirements.

English advisors will help any student select courses in writing, English language, or literature which will be useful in General Education or as background for a career. Advisors' offices are on the sixth floor of Sprau Tower (phone 387-2575).

Major and Minor Requirements

The requirements for the English majors (listed below) allow students some choices in their courses of study. As soon as students decide to major in English they should confer with one of the English advisors, who can help plan the major. All major programs must be approved by an English advisor. Minor slips are required for all minors. Students minoring in English should see the advisor as soon as possible after they begin work on the minor.

A minimum of 34 hours is required for a major in English, 20 hours are required for a minor, and 21 hours for students in the Elementary Education curriculum. Students are urged, however, to take as many additional hours as they can. In particular, students planning to teach or attend graduate school should consider taking additional work in preparation.

Only courses in which a grade of "C" or better is earned may be applied to an English major or minor. Moreover, all majors and minors in the Department of English need to earn at least a 2.5 grade point average in the major or minor to graduate.
Foreign Language Requirement: Eight semesters hours of a foreign language with a grade of "C" or better, or two years of foreign language in high school with a minimum grade of "B-" in the second semester of the second year, or appropriate score on a placement exam. The department recommends as much additional work in the language as students can manage. Students planning to do graduate work beyond the M.A. ought to develop competence in at least one foreign language.

Special Note to Transfer Students. All transfer students majoring or minoring in English should consult with one of the department's undergraduate advisors (387-2575) about transferring credit in English courses from other colleges. An early conference will enable students to avoid duplication of courses and possible loss of transfer credit and may enable them to bypass some of the department's basic requirements as listed below. It is departmental policy to accept no more than 20 hours of transferred credit toward a major and no more than 12 hours of transferred credit toward a minor.

Baccalaureate Writing Requirement:

Students who have chosen an English major will satisfy the Baccalaureate Writing Requirement by successfully completing one of the following courses:

- ENGL 3050 Practical Writing
- ENGL 4150 Practical Literary Criticism
- ENGL 4400 Studies in Verse
- ENGL 4420 Studies in Drama
- ENGL 4440 Studies in the Novel
- ENGL 4520 Shakespeare Seminar

**English Major - Practical Writing Emphasis (34 hours)**

1. Required Entry-level Course (4 hours)
   ENGL 1100 - Literary Interpretation Credits: 4 hours (Prerequisite: grade of "B" in ENGL 1050, or equivalent)

2. Required Courses (18 hours)
   - ENGL 3050 - Practical Writing Credits: 4 hours
   - ENGL 3620 - Readings in Creative Non-Fiction Credits: 3 hours
   - ENGL 3700 - Writing Creative Non-Fiction Credits: 3 hours
   - ENGL 4620 - Advanced Writing Credits: 4 hours
   - ENGL 4640 - Professional Writing Credits: 4 hours

3. Literature and English Language Courses (10 to 12 hours)
   A. Two courses chosen from among the following:
      - ENGL 3200 - American Literature I Credits: 3 hours
      - ENGL 3210 - American Literature II Credits: 3 hours
      - ENGL 3300 - British Literature I Credits: 3 hours
      - ENGL 3310 - British Literature II Credits: 3 hours
      - ENGL 3710 - Structures of Modern English Credits: 4 hours
      - ENGL 3720 - Development of Modern English Credits: 4 hours
      - ENGL 4720 - American Dialects Credits: 4 hours
   B. One course chosen from the following:
      - ENGL 4150 - Practical Literary Criticism Credits: 4 hours
      - ENGL 4400 - Studies in Verse Credits: 4 hours
      - ENGL 4420 - Studies in Drama Credits: 4 hours
      - ENGL 4440 - Studies in the Novel Credits: 4 hours
      - ENGL 4520 - Shakespeare Seminar Credits: 4 hours
4. Electives
At least one additional English Department course at the 2000, 3000, 4000, or 5000 level to complete the major. The following courses cannot be used for this purpose: ENGL 1000, 1050, 1070, 1110, 1120, 3070, 3080, 3110, or 4800.

5. Foreign Language Requirement
Minimum of two semesters of a modern or classical foreign language at the college level with a grade of "C" or better, or two years of such study at the high school level with a minimum grade of "B-" in the second semester of the second year. One year at the high school level coupled with the second semester of the same language at the college level is also satisfactory.

**English Major - Creative Writing Emphasis (34 hours)**

1. Required Entry-level Course (4 hours)
ENGL 1100 - Literary Interpretation Credits: 4 hours

2. A. Required Writing Courses (14 hours)
ENGL 2660 - Writing Fiction and Poetry Credits: 4 hours
ENGL 5660 - Creative Writing Workshop Credits: 4 hours

B. Plus six (6) hours of credit from the following courses. Any of these courses may be repeated one time for credit.
ENGL 3660 - Advanced Fiction Writing Credits: 3 hours
ENGL 3670 - Advanced Poetry Writing Credits: 3 hours
ENGL 3680 - Playwriting Credits: 3 hours
ENGL 3700 - Writing Creative Non-Fiction Credits: 3 hours

3. Literature and English Language Courses (13 to 14 hours)

A. Two of the following courses:
ENGL 3200 - American Literature I Credits: 3 hours
ENGL 3210 - American Literature II Credits: 3 hours
ENGL 3300 - British Literature I Credits: 3 hours
ENGL 3310 - British Literature II Credits: 3 hours

B. One of the following courses:
ENGL 4400 - Studies in Verse Credits: 4 hours
ENGL 4420 - Studies in Drama Credits: 4 hours
ENGL 4440 - Studies in the Novel Credits: 4 hours

C. One Additional Course
One additional English Department literature or English language course at the 2000, 3000, or 5000 levels.

4. Electives
At least one additional English Department course at the 2000, 3000, 4000, or 5000 levels to complete the major. The following courses cannot be used for this purpose: ENGL 1000, 1050, 1070, 1110, 1120, 3070, 3080, 3110, or 4800.

5. Foreign Language Requirement
Minimum of two semesters of a modern or classical foreign language at the college level with a grade of "C" or better, or two years of such study at the high school level with a minimum grade of "B-" in the second semester of the second year. One year at the high school level coupled with the second semester of the same language at the college level is also satisfactory.
English Major - Secondary Education Curriculum (30 hours)
30 hours plus 8-hour Professional Component

1. Required Entry-level Course (4 hours)
ENGL 1100 - Literary Interpretation Credits: 4 hours

2. Required Courses (24 to 26 hours) Choose one course from each category

A. British Literature (3 hours)
ENGL 2520 - Shakespeare Credits: 4 hours
ENGL 3300 - British Literature I Credits: 3 hours
ENGL 3310 - British Literature II Credits: 3 hours

B. American Literature (3 hours)
ENGL 3200 - American Literature I Credits: 3 hours
ENGL 3210 - American Literature II Credits: 3 hours

C. Adolescent Literature (3 hours)
ENGL 3840 - Adolescent Literature Credits: 3 hours

D. Multicultural American Literature (3-4 hrs.) (See Note Below)
ENGL 2220 - Literatures and Cultures of the United States Credits: 4 hours
ENGL 2230 - Black American Literature Credits: 4 hours
ENGL 5830 - Multi-Cultural Literature for Adolescents Credits: 3 hours

E. World Literature (3 hours) (See Note Below)
ENGL 3120 - Western World Literature Credits: 3 hours
ENGL 3130 - Asian Literature Credits: 3 hours
ENGL 3140 - African Literature Credits: 3 hours
ENGL 5390 - Post-colonial Literature Credits: 3 hours

F. English Language (4 hours)
ENGL 3710 - Structures of Modern English Credits: 4 hours
ENGL 3720 - Development of Modern English Credits: 4 hours
ENGL 4720 - American Dialects Credits: 4 hours
ENGL 5740 - Grammar in Teaching Writing Credits: 4 hours

3. Advanced Studies in English (6 to 8 hours) Choose one of the following courses:
One elective course from 4000- or 5000-level, but not one taken to fulfill categories above
ENGL 4150 - Practical Literary Criticism Credits: 4 hours
ENGL 4400 - Studies in Verse Credits: 4 hours
ENGL 4420 - Studies in Drama Credits: 4 hours
ENGL 4440 - Studies in the Novel Credits: 4 hours

4. Professional Component (4 hours plus 4 hours for professional requirement)
ENGL 4790 - Writing in the Secondary School Credits: 4 hours
ENGL 4800 - Teaching Literature in the Secondary Schools Credits: 4 hours (*Note: ENGL 4800 is required for certification, but does not count toward required minimum 34 hrs. required for English major)

5. Foreign Language Requirement
Minimum of two semesters of the same modern or classical foreign language at the college level with a grade of "C" or better, or two years of study at the high school level with a minimum grade of "B-" in the second semester of the second year. One year at the high school level coupled with the second semester of the same language at the college level is also satisfactory.
**Note:** When approved as a cognate by the departmental advisor, SPAN 2750 Latino Writing/Latino Culture can be used to meet requirement D above; LANG 3750 Foreign Literature in Translation or any foreign language literature class at or above the 3000-level can meet requirement E above.

**English Major - Liberal Education Curriculum (34 hours)**

1. Required Entry-level Course (4 hours)
   ENGL 1100 - Literary Interpretation Credits: 4 hours

2. Required Courses (27 to 28 hours)
   A. Three of the following four:
      ENGL 3200 - American Literature I Credits: 3 hours
      ENGL 3210 - American Literature II Credits: 3 hours
      ENGL 3300 - British Literature I Credits: 3 hours
      ENGL 3310 - British Literature II Credits: 3 hours
   B. One of the following three:
      ENGL 3710 - Structures of Modern English Credits: 4 hours
      ENGL 3720 - Development of Modern English Credits: 4 hours
      ENGL 4720 - American Dialects Credits: 4 hours
   C. Two courses at the 4000 level, including at least one of the following four:
      Students who use ENGL 4720 to satisfy requirement 2.B. may not use that course to satisfy this requirement.
      ENGL 4150 - Practical Literary Criticism Credits: 4 hours
      ENGL 4400 - Studies in Verse Credits: 4 hours
      ENGL 4420 - Studies in Drama Credits: 4 hours
      ENGL 4440 - Studies in the Novel Credits: 4 hours
   D. At least two of the following courses:
      Students who use ENGL 4520 to satisfy requirement 3.C. may not use that course to satisfy this requirement.
      ENGL 4520 - Shakespeare Seminar Credits: 4 hours
      ENGL 5220 - Studies in American Literature Credits: 3 hours
      ENGL 5300 - Medieval Literature Credits: 3 hours
      ENGL 5320 - English Renaissance Literature Credits: 3 hours
      ENGL 5340 - Restoration and 18th-Century Literature Credits: 3 hours
      ENGL 5360 - Romantic Literature Credits: 3 hours
      ENGL 5370 - Victorian Literature Credits: 3 hours
      ENGL 5380 - Modern Literature Credits: 3 hours
      ENGL 5550 - Studies in Major Writers Credits: 3 hours

3. Elective Courses
   At least one additional English Department course at the 2000, 3000, 4000, or 5000 levels to complete the major, unless an elective course has already been taken under #2 above. The following courses cannot be used for this purpose: ENGL 1000, 1050, 1070, 1110, 1120, 3070, 3080, 3110 or 4800.

4. Foreign Language Requirement
   Minimum of two semesters of a modern or classical foreign language at the college level with a grade of "C" or better, or two years of such study at the high school level with a minimum grade of "B-" in the second semester of the second year. One year at the high school level coupled with the second semester of the same language at the college level is also satisfactory.
Practical Writing Minor (20 hours)

1. Required Entry-level Course (4 hours)
   ENGL 1100 - Literary Interpretation Credits: 4 hours

2. Required Courses (14 hours)
   ENGL 3050 - Practical Writing Credits: 4 hours
   ENGL 3620 - Readings in Creative Non-Fiction Credits: 3 hours
   ENGL 3700 - Writing Creative Non-Fiction Credits: 3 hours
   ENGL 4620 - Advanced Writing Credits: 4 hours

3. Literature Courses (3 hours) One course chosen from among the following:
   ENGL 3120 - Western World Literature Credits: 3 hours
   ENGL 3130 - Asian Literature Credits: 3 hours
   ENGL 3140 - African Literature Credits: 3 hours
   ENGL 3150 - The English Bible as Literature Credits: 3 hours
   ENGL 3200 - American Literature I Credits: 3 hours
   ENGL 3210 - American Literature II Credits: 3 hours
   ENGL 3300 - British Literature I Credits: 3 hours
   ENGL 3310 - British Literature II Credits: 3 hours

English Minor with Writing Emphasis (20 hours)

1. Required Entry-Level Courses (8 hours)
   ENGL 1100 - Literary Interpretation Credits: 4 hours
   ENGL 2660 - Writing Fiction and Poetry Credits: 4 hours

2. Literature Course (3 hours) One course chosen from among the following:
   ENGL 3200 - American Literature I Credits: 3 hours
   ENGL 3210 - American Literature II Credits: 3 hours
   ENGL 3300 - British Literature I Credits: 3 hours
   ENGL 3310 - British Literature II Credits: 3 hours

3. Advanced Writing Courses (6 to 8 hours) (ENGL 3660, 3670, 3680, and 3700 may be repeated one time for credit.)
   ENGL 3050 - Practical Writing Credits: 4 hours
   ENGL 3660 - Advanced Fiction Writing Credits: 3 hours
   ENGL 3670 - Advanced Poetry Writing Credits: 3 hours
   ENGL 3680 - Playwriting Credits: 3 hours
   ENGL 3700 - Writing Creative Non-Fiction Credits: 3 hours
   ENGL 4620 - Advanced Writing Credits: 4 hours

4. Electives
   At least one additional English Department course. The following courses cannot be used for this purpose: ENGL 1000, 1050, 1070, 1110, 1120, 3070, 3080, 3110, or 4800.

Language Arts Minor - Elementary Education Curriculum (26-28 hours)
In addition to the 20-credit hour Language Arts Concentration in the College of Education, students must take:

1. One course from among the following (3 to 4 hours)
   ENGL 3740 - Language in the Elementary School Credits: 3 hours
   ENGL 3770 - Language and Learning in Multilingual Classrooms Credits: 3 hours
   ENGL 3840 - Adolescent Literature Credits: 3 hours
   ENGL 4720 - American Dialects Credits: 4 hours
ENGL 4840 - Multi-Cultural American Literature for Children Credits: 4 hours

2. One literature class (3 to 4 hours) One course chosen from among the following:
AFS 2230 - African American Literature/Criticism and Culture Credits: 4 hours
ENGL 1070 - Good Books Credits: 4 hours
ENGL 1100 - Literary Interpretation Credits: 4 hours
ENGL 1120 - Literary Classics Credits: 4 hours
ENGL 1500 - Literature and Other Arts Credits: 4 hours
ENGL 2110 - Folklore and Mythology Credits: 4 hours
ENGL 2220 - Literatures and Cultures of the United States Credits: 4 hours
ENGL 2230 - Black American Literature Credits: 4 hours
ENGL 3120 - Western World Literature Credits: 3 hours
ENGL 3820 - Literature for the Young Child Credits: 4 hours If not taken to fulfill another requirement for the Language Arts Concentration or the Language Arts Minor.
ENGL 3830 - Literature for the Intermediate Reader Credits: 4 hours If not taken to fulfill another requirement for the Language Arts Concentration or the Language Arts Minor.
ENGL 3840 - Adolescent Literature Credits: 3 hours If not taken to fulfill another requirement for the Language Arts Concentration or the Language Arts Minor.
ENGL 4840 - Multi-Cultural American Literature for Children Credits: 4 hours If not taken to fulfill another requirement for the Language Arts Concentration or the Language Arts Minor.
ENGL 5820 - Studies in Children's Literature Credits: 3 hours
ENGL 5830 - Multi-Cultural Literature for Adolescents Credits: 3 hours

**English Minor - Secondary Education Curriculum (20 hours)**

1. Required Entry-level Course (4 hours)
ENGL 1100 - Literary Interpretation Credits: 4 hours (Prerequisite: Grade of "B" or better in ENGL 1050 or equivalent)

2. Required Advanced Courses (9 to 11 hours)

A. One of the following British Literature courses:
ENGL 2520 - Shakespeare Credits: 4 hours
ENGL 3300 - British Literature I Credits: 3 hours
ENGL 3310 - British Literature II Credits: 3 hours

B. One of the following courses:
ENGL 3200 - American Literature I Credits: 3 hours
ENGL 3210 - American Literature II Credits: 3 hours

C. One course in multicultural American literature and/or language, selected from the following:
ENGL 2220 - Literatures and Cultures of the United States Credits: 4 hours Credits: 3 hours
ENGL 2230 - Black American Literature Credits: 4 hours
ENGL 4720 - American Dialects Credits: 4 hours
ENGL 5830 - Multi-Cultural Literature for Adolescents Credits: 3 hours

3. Professional Component (8 hours)
ENGL 4790 - Writing in the Secondary School Credits: 4 hours
ENGL 4800 - Teaching Literature in the Secondary Schools Credits: 4 hours or
ENGL 5740 - Grammar in Teaching Writing Credits: 4 hours
English Minor - Liberal Education Curriculum (20 hours)

1. Required Entry-level Course (4 hours)
   ENGL 1100 - Literary Interpretation Credits: 4 hours

2. Literature Courses (9 hours) Three courses chosen from among the following:
   ENGL 3200 - American Literature I Credits: 3 hours
   ENGL 3210 - American Literature II Credits: 3 hours
   ENGL 3300 - British Literature I Credits: 3 hours
   ENGL 3310 - British Literature II Credits: 3 hours

3. Electives
   At least two additional English Department courses, one of which must be at the 3000 or 4000 level. The following courses cannot be used for this purpose: ENGL 1000, 1050, 1070, 1110, 1120, 3070, 3080, 3110, or 4800.

Foreign Languages

Cynthia Running-Johnson, Chair
Jeffrey Angles
Peter Blickle
Vincent Desroches
Olivia Gabor
Rand H. Johnson
Peter W. Krawutschke
David Kutzko
Mustafa Mughazy
Dasha Nisula
Molly Recchia
Viviane Ruellot
Xiaojun Wang
Lindsey Wilhite

The Department of Foreign Languages offers undergraduate instruction in Arabic, Chinese, French, German, Greek, Italian, Japanese, Latin, and Russian, including course work in culture, literature, linguistics, and pedagogy.

Students (either entering or advanced) who wish to continue in a language they have studied in high school or learned through travel or residence abroad must take the online placement exam if they have studied French or German. For placement in other languages, students should contact the departmental advisor of the language in question or the Department Chair.

Native speakers of a given language must consult with a departmental advisor before registering for courses.

Students who complete a major or minor may be eligible for retroactive credit based on the level at which they began their coursework. Questions about this matter should be referred to the advisor for the language.

Students who will graduate from the College of Arts and Sciences must fulfill that college's foreign language requirement. Other colleges or specific departments may also have a foreign language requirement. Students who have questions about this matter should consult their advisor.

Many language students study abroad as part of the undergraduate program. Western has a number of excellent study abroad programs. Students interested in receiving credit for foreign study must consult with the advisor in the appropriate language well in advance of such study in order to plan properly and to obtain approval.
All students interested in pursuing a language major or minor should consult with an advisor as early as possible.

**Majors and Minors**

As soon as students decide to major or minor in a foreign language, they should confer with the advisor for that language in order to plan their program. Major slips are required for all majors. Minor slips are required for all minors.

Only courses in which a grade of "C" or better is obtained can be counted toward a major or minor.

For students majoring or minoring in a modern foreign language, a course in modern European, Asian, or Middle Eastern history is desirable. For Latin majors and minors, a course in Roman history is recommended. A student in the Liberal Education curriculum may apply eight (8) credits toward a Latin major by taking both GREK 1000 and GREK 1010. A student in the Secondary Education curriculum may apply four (4) credits toward a Latin major by taking both GREK 1000 and GREK 1010.

Teaching certification is approved for majors or minors in secondary and middle school and junior high school education for the following languages: French, German, Latin (secondary only), and Russian (minor only). A language methods course is required for all teaching majors and minors in the foreign languages. Exceptions to the patterns may be granted only by departmental permission.

**Baccalaureate Writing Requirement for Majors**

Students who have chosen to major in French or German will satisfy the Baccalaureate Writing Requirement by successfully completing LANG 3750 Foreign Literature in English Translation.

Students who have chosen to major in Latin will satisfy the Baccalaureate Writing Requirement by successfully completing ENGL 3050 Practical Writing.

**Residency Requirement for Majors and Minors in French or German**

Majors in French must take at least four courses (of the total required for the major) at Western Michigan University. One of these must be a 5000-level class. Minors in French must take at least three courses (of the total required for the minor) at the 2000-level or above at Western Michigan University.

Majors or minors in German must take at least the last two courses in their German program at Western Michigan University (LANG 5580 may not be used to fulfill this requirement). Students who have completed their work at other institutions and who wish to be certified for teaching German must complete at least three courses in German at Western Michigan University (LANG 558 may not be one of these)

**Foreign Credits**

Credits for language study at a foreign university may be granted on official proof that the students has completed the course work successfully.

**Chinese Minor**

The minor in Chinese requires the completion of twenty-three hours including 1000-level, 2000-level, and the following or their equivalent:

- CHIN 3160 - Chinese Composition Credits: 3 hours
- CHIN 3170 - Chinese Conversation Credits: 4 hours

Completion of the following courses beyond 2000-level is an option.

- CHIN 4770 - Foreign Study Credits: Variable
- CHIN 5500 - Independent Study in Chinese Credits: 1 to 3 hours
French Major: Non-teaching
The non-teaching French major requires a choice between two content areas, Literature & Culture or Linguistics & Culture.

Literature and Culture content area
Students focusing on the Literature & Culture content area must take thirty-six hours beyond 1000-level to include
FREN 2000 - Intermediate French I Credits: 4 hours
FREN 2010 - Intermediate French II Credits: 4 hours
FREN 3160 - Introduction to Advanced French Studies Credits: 4 hours
FREN 3220 - Life and Culture in France Credits: 3 hours or
FREN 3230 - Life and Culture in the Francophone World Credits: 3 hours
FREN 3250 - Close Reading In French Credits: 3 hours
FREN 4520 - Reading and Writing in French Credits: 3 hours
FREN 4530 - Themes in French/Francophone Culture Credits: 3 hours
And one 5000-level literature or culture course.

The following courses cannot be counted toward the major: FREN 2750, 4000, 4010, 5000, 5010, LANG 3750

Linguistics and Culture content area
Students focusing on the Linguistics and Culture content area must take thirty-six hours beyond 1000-level to include
FREN 2000 - Intermediate French I Credits: 4 hours
FREN 2010 - Intermediate French II Credits: 4 hours
FREN 3160 - Introduction to Advanced French Studies Credits: 4 hours
FREN 3220 - Life and Culture in France Credits: 3 hours or
FREN 3230 - Life and Culture in the Francophone World Credits: 3 hours
FREN 3250 - Close Reading In French Credits: 3 hours
FREN 3260 - Introduction to the Study of French Linguistics Credits: 3 hours
FREN 4530 - Themes in French/Francophone Culture Credits: 3 hours
FREN 4900 - Studies in French Linguistics Credits: 3 hours
FREN 5100 - Studies in French and Francophone Culture Credits: 3 hours or
FREN 5200 - Topics in French Linguistics and Language Science Credits: 3 hours

The following courses cannot be counted toward the major: FREN 2750, 4000, 4010, 5000, 5010, LANG 3750

French Major: Education Curriculum (36 hours)
Thirty-six hours beyond 1000-level to include
FREN 2000 - Intermediate French I Credits: 4 hours
FREN 2010 - Intermediate French II Credits: 4 hours
FREN 3160 - Introduction to Advanced French Studies Credits: 4 hours
FREN 3220 - Life and Culture in France Credits: 3 hours
FREN 3230 - Life and Culture in the Francophone World Credits: 3 hours
FREN 3250 - Close Reading In French Credits: 3 hours
FREN 3260 - Introduction to the Study of French Linguistics Credits: 3 hours
FREN 4520 - Reading and Writing in French Credits: 3 hours or
FREN 4530 - Themes in French/Francophone Culture Credits: 3 hours
FREN 5100 - Studies in French and Francophone Culture Credits: 3 hours or
FREN 5280 - French Literature from the Middle Ages to the Revolution Credits: 3 hours or
FREN 5290 - French Literature from the Revolution to the Present Credits: 3 hours or
FREN 5600 - Advanced Readings in French Credits: 3 hours
LANG 5580 - Modern Language Instruction (in French, German, Spanish, or other language) Credits: 3 hours

Elective course:
Minimum 3 hours in French at the 3000-level or above.

The following courses cannot be counted toward the major: FREN 2750, nor 4000, nor 4010, nor LANG 3750
Additional Information
Minimum total credits for French major - Education curriculum: 36

French Minor: Non-teaching
Twenty-four hours beyond the 1000-level to include
FREN 2000 - Intermediate French I Credits: 4 hours
FREN 2010 - Intermediate French II Credits: 4 hours
FREN 3160 - Introduction to Advanced French Studies Credits: 4 hours
FREN 3170 - French Conversation Credits: 4 hours

The following courses cannot be counted toward the minor: FREN 2750, 4000, 4010, 5000, and 5010.

Cannot be Included: The following course cannot be included in this minor: LANG 5580

French Minor: Education Curriculum
Thirty hours beyond 1000-level to include
FREN 2000 - Intermediate French I Credits: 4 hours
FREN 2010 - Intermediate French II Credits: 4 hours
FREN 3160 - Introduction to Advanced French Studies Credits: 4 hours
FREN 3170 - French Conversation Credits: 4 hours
LANG 5580 - Modern Language Instruction (in French, German, Spanish, or other language) Credits: 3 hours

The following courses cannot be counted toward the minor: FREN 275, 4000, 4010, 5000, and 5010

German Major: Education Curriculum
Thirty-five hours beyond 1000-level to include
GER 2000 - Intermediate German I Credits: 4 hours
GER 2010 - Intermediate German II Credits: 4 hours
GER 3160 - German Composition Credits: 3 hours
GER 3170 - German Conversation Credits: 3 hours
GER 3220 - German Life and Culture Credits: 3 hours
GER 3250 - Introduction to the Study of German Literature Credits: 3 hours
GER 4520 - Advanced German Composition Credits: 3 hours
GER 4530 - Advanced German Conversation Credits: 3 hours

Six hours of 5000-level German Courses

The following courses cannot be counted toward the major: GER 4000, 4010, 5000, nor 5010.

German Major: Non-teaching
Thirty-two hours beyond 1000-level to include
GER 2000 - Intermediate German I Credits: 4 hours
GER 2010 - Intermediate German II Credits: 4 hours
GER 3160 - German Composition Credits: 3 hours
GER 3170 - German Conversation Credits: 3 hours
GER 3220 - German Life and Culture Credits: 3 hours
GER 3250 - Introduction to the Study of German Literature Credits: 3 hours
GER 4520 - Advanced German Composition Credits: 3 hours
GER 4530 - Advanced German Conversation Credits: 3 hours

And six hours of 5000-level German courses
The following courses cannot be counted toward the major: GER 4000, 4010, 5000, nor 5010

The following course cannot be included in this major: LANG 5580

**German Minor: Non-teaching**
Twenty-three hours beyond the 1000-level to include
GER 2000 - Intermediate German I Credits: 4 hours
GER 2010 - Intermediate German II Credits: 4 hours
GER 3160 - German Composition Credits: 3 hours
GER 3170 - German Conversation Credits: 3 hours
GER 3220 - German Life and Culture Credits: 3 hours
GER 3250 - Introduction to the Study of German Literature Credits: 3 hours
GER 4520 - Advanced German Composition Credits: 3 hours or
GER 4530 - Advanced German Conversation Credits: 3 hours

The following courses cannot be counted toward the minor: GER 4000, 4010, 5000, nor 5010

The following course cannot be included in this minor: LANG 5580

**German Minor: Education Curriculum**
Twenty-nine hours beyond the 1000-level to include
LANG 5580
GER 2000 - Intermediate German I Credits: 4 hours
GER 2010 - Intermediate German II Credits: 4 hours
GER 3160 - German Composition Credits: 3 hours
GER 3170 - German Conversation Credits: 3 hours
GER 3220 - German Life and Culture Credits: 3 hours
GER 3250 - Introduction to the Study of German Literature Credits: 3 hours
GER 4520 - Advanced German Composition Credits: 3 hours or
GER 4530 - Advanced German Conversation Credits: 3 hours
And one 5000-level literature course

The following courses cannot be counted toward the minor: GER 4000, 4010, 5000, nor 5010.

**Japanese Minor**
The minor in Japanese requires the completion of twenty-three hours, including 1000-level (basic) courses or equivalent.

**Latin Major**
Thirty hours including the following:
LAT 1000 - Basic Latin I Credits: 4 hours
LAT 1010 - Basic Latin II Credits: 4 hours and
LAT 2000 - An Introduction to the Study of Latin Literature Credits: 4 hours or equivalent

Remaining hours from 2010 to 5600, including
LANG 3500 - Classical Greek and Roman Mythology Credits: 3 hours or
LANG 3750 - Foreign Literature in English Translation: Views of Humanity Credits: 3 hours (Classical Literature in English Translation)

May also be included: GREK 1000 - Basic Greek I Credits: 4 hours and GREK 1010 - Basic Greek II Credits: 4 hours
Teaching majors must include the following: LAT 3240 - Latin Literature Credits: 4 hours and LAT 5570 - Teaching of Latin Credits: 3 hours

**Latin Minor**
Twenty hours including the following:
- LAT 1000 - Basic Latin I Credits: 4 hours and
- LAT 1010 - Basic Latin II Credits: 4 hours
- LAT 2000 - An Introduction to the Study of Latin Literature Credits: 4 hours or equivalent

Remaining hours from 2010 to 5600 and may include LANG 3500 - Classical Greek and Roman Mythology Credits: 3 hours or LANG 3750 - Foreign Literature in English Translation: Views of Humanity Credits: 3 hours (Classical Literature in English Translation)

Teaching minors must include:
Which does not yield credit hours toward the Latin minor.
- LAT 5570 - Teaching of Latin Credits: 3 hours

**Russian Minor**
Twenty-three hours including 1000-level (basic) courses or equivalent;

Remaining hours from RUSS 2000-5000 series.

Teaching minors must elect LANG 5580 - Modern Language Instruction (in French, German, Spanish, or other language) Credits: 3 hours

**Geography**
Benjamin Ofori-Amoah, Chair
Kathleen Baker
James Biles
Elen M. C. Cutrim
Lisa M. DeChano
David G. Dickason
Charles Emerson
Chansheng He
David S. Lemberg, Associate Chair
Eldor C. Quandt
Joseph P. Stoltman
Gregory Veeck
Jordan Yin

Modern geography provides understanding of the physical and socio-cultural systems of planet earth. Specialized majors prepare students for careers in urban and regional planning, environmental analysis and resource management, geographic information science, tourism, and geographic education. Geographic information science is a new and rapidly growing field that uses computerized databases linked to maps (cartography) and aerospace images (from satellite scans and aerial photography) to monitor, analyze, and manage government, business, and environmental issues.

Students should complete at least 12 hours of geography courses and have junior or senior standing before enrolling in 5000-level courses. Students should consult with a geography advisor early in their major to plan their program of study. Additional information is also available from the geography website, brochures, and department bulletin boards. All majors in the Department of Geography satisfy the baccalaureate-level writing requirement by completing successfully GEOG 3030.
Geography Major (32 hours)
This is a liberal arts major that combines well with other College of Arts and Sciences majors and minors. By making choices about the course they take, students may pursue a specialized study plan, prepare for careers related to geography, or plan for further study after graduation.

Students are encouraged to consider one of the following:
(1) Complete a study abroad experience;
(2) pursue guided independent study;
(3) participate in a professional internship: GEOG 4120 - Professional Practice Credits: 2 to 6 hours

Required Core (14 hours)
GEOG 1050 - Physical Geography Credits: 4 hours
GEOG 2050 - Human Geography Credits: 3 hours
GEOG 2650 - Map, Chart and Air Photo Reading Credits: 3 hours
GEOG 3030 - Geographic Inquiry Credits: 4 hours Prerequisite: A course in statistics (STAT 1600, 2160, 2600, or 3660 or equivalent)

Electives (18 hours)
Students are to select 18 hrs. of course work in the areas identified below in consultation with the geography advisor:

At least two courses in Systematic Geography (see list below)
At least one course in Regional Geography (see list below)
At least one course in Geographic Methods (see list below)

Geography Major - Urban and Regional Planning (32 hours)
Students prepare for planning careers with private consulting firms and/or city, township, county, or regional governments. This program prepares for careers in small-to-medium size planning agencies. A professional internship is strongly recommended: GEOG 4120 - Professional Practice Credits: 2 to 6 hours

Required Core (20 hours)
GEOG 1050 - Physical Geography Credits: 4 hours
GEOG 2050 - Human Geography Credits: 3 hours
GEOG 2650 - Map, Chart and Air Photo Reading Credits: 3 hours
GEOG 3030 - Geographic Inquiry Credits: 4 hours Prerequisite: A course in statistics (STAT 1600, 2160, 2600, or 3660 or equivalent)
GEOG 3560 - Introduction to City and Regional Planning Credits: 3 hours
GEOG 5560 - Studies in Urban and Regional Planning Credits: 3 hours

Electives (12 hours)
The remaining 12 hrs. of the major should be selected from the following courses:

At least one GIS course about the 200-level is recommended.
GEOG 2440 - Economic Geography Credits: 3 hours
GEOG 3610 - Population: The Crowding World Credits: 3 hours
GEOG 3800 - United States and Canada Credits: 3 hours
GEOG 4120 - Professional Practice Credits: 2 to 6 hours
GEOG 5010 - Introduction to Geographic Information Systems Credits: 4 hours
GEOG 5440 - Studies in Economic Geography Credits: 2 to 3 hours
GEOG 5550 - Contemporary Issues in Resources Management Credits: 3 hours
GEOG 5570 - Environmental Impact Assessment Credits: 3 hours
GEOG 5670 - Spatial Analysis Credits: 4 hours
GEOG 5690 - Intermediate Geographic Systems Credits: 4 hours
GEOG 5700 - Cities and Urban Systems Credits: 3 to 4 hours
GEOG 5820 - Remote Sensing of the Environment Credits: 4 hours

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GEOG 5970 - Readings in Geography Credits: 1 to 3 hours

Note: The following majors or minors are recommended with this major: Earth Science, English (Practical Writing), Economics, Environmental Studies, Geology, History, Hydrogeology, Political Science, Public Administration, Public History, Real Estate, Recreation, and Sociology.

Geography Major - Environmental Analysis and Resource Management (32 hours)
A variety of environmental careers exist in business and government. Students prepare for particular career paths by the curricular choices they make. Students should consult with geography faculty or the geography advisor about the courses they choose.

Required Core (17 hours)
GEOG 1050 - Physical Geography Credits: 4 hours
GEOG 2050 - Human Geography Credits: 3 hours
GEOG 2650 - Map, Chart and Air Photo Reading Credits: 3 hours
GEOG 3030 - Geographic Inquiry Credits: 4 hours Prerequisite: A course in statistics (STAT 1600, 2160, 2600, or 3660)
GEOG 3500 - Conservation and Environmental Management Credits: 3 hours

Electives (15 hours)
In the remaining 15 hrs. of course work, students are encouraged to take at least one geographic Methods course, preferably GEOG 5010 - Introduction to Geographic Information Systems Credits: 4 hours
GEOG 5570 - Environmental Impact Assessment Credits: 3 hours or
GEOG 5820 - Remote Sensing of the Environment Credits: 4 hours

Remaining hours in the major are elective, but students should select from
GEOG 2440 - Economic Geography Credits: 3 hours
GEOG 3110 - Geography of Michigan Credits: 3 hours
GEOG 3800 - United States and Canada Credits: 3 hours
GEOG 4120 - Professional Practice Credits: 2 to 6 hours
GEOG 5210 - Studies in Climatology and Meteorology Credits: 3 hours
GEOG 5530 - Water Resources Management Credits: 3 hours
GEOG 5540 - Outdoor Recreation: Resources and Planning Credits: 3 hours
GEOG 5550 - Contemporary Issues in Resources Management Credits: 3 hours
GEOG 5570 - Environmental Impact Assessment Credits: 3 hours or
GEOG 5660 - Field Geography Credits: 2 to 4 hours
No more than one regional geography class should be taken.

Note: The following majors or minors are recommended with this major: Anthropology, Biology, Chemistry, Earth Science, English (Practical Writing), Environmental Studies, Geology, History, Hydrogeology, Journalism, Political Science, Public History, Public Administration, Sociology, or Statistics.

Geography Major - Geographic Information Science (32 hours)
Geographic Information Science (GIS) is a new and rapidly growing career field. Many business and governments are adopting GIS to target their markets and clients, and monitor and manage their own activities. This is a computer-intensive field. Students should have completed their computer literacy proficiency before beginning this major.

Required Core (20 hours)
GEOG 1050 - Physical Geography Credits: 4 hours
GEOG 2050 - Human Geography Credits: 3 hours
GEOG 2650 - Map, Chart and Air Photo Reading Credits: 3 hours
GEOG 3030 - Geographic Inquiry Credits: 4 hours Prerequisite: A course in statistics (STAT 1600, 2160, 2600, or 3660 or equivalent)
GEOG 5010 - Introduction to Geographic Information Systems Credits: 4 hours Credits: 3 hours
GEOG 5820 - Remote Sensing of the Environment Credits: 4 hours Credits: 3 hours

Electives (12 hours)
In the remaining 12 hrs. of course work, students should complete at least two of the following courses:
Remaining hours are elective, but students should not take more than one regional geography course.
GEOG 4120 - Professional Practice Credits: 2 to 6 hours
GEOG 5660 - Field Geography Credits: 2 to 4 hours
GEOG 5670 - Spatial Analysis Credits: 4 hours
GEOG 5690 - Intermediate Geographic Systems Credits: 4 hours or

Note: Students intent on a wider array of career opportunities should also develop proficiency in a computer language, preferably Visual Basic or C++. The following majors or minors recommended with this major are: Anthropology, Biology, Chemistry, Computer Information Systems, Computer Science, Earth Science, Environmental Studies, Geology, History, Hydrogeology, Journalism, Political Science, Public History, Public Administration, Sociology, or Statistics.

Geography Major - Secondary Education (32 hours)
Effective teaching of modern geography in schools is currently attracting significant attention by curriculum planners. This major is designed to develop a teacher corps more skilled in contemporary geography, consistent with Michigan teacher certification standards and national geography education objectives.

Required Core (20 hours)
GEOG 1050 - Physical Geography Credits: 4 hours
GEOG 2050 - Human Geography Credits: 3 hours
GEOG 2650 - Map, Chart and Air Photo Reading Credits: 3 hours
GEOG 3030 - Geographic Inquiry Credits: 4 hours
GEOG 3800 - United States and Canada Credits: 3 hours
GEOG 3800 - United States and Canada Credits: 3 hours
GEOG 3800 - United States and Canada Credits: 3 hours
GEOG 4600 - Geography/Social Studies Teaching in Middle and High School Credits: 3 hours Prerequisite: A course in statistics (STAT 1600, 2160, 2600, or 3660 or equivalent)

Electives (12 hours)
Students should select courses with either a physical science or a social science emphasis.

For the physical science emphasis, students must take 12 hours including GEOG 2250 - Introduction to Meteorology and Climatology Credits: 4 hours
And select the remaining four from:
GEOG 1000 - World Ecological Problems and Man Credits: 4 hours
GEOG 3500 - Conservation and Environmental Management Credits: 3 hours
GEOG 5010 - Introduction to Geographic Information Systems Credits: 4 hours
GEOG 5530 - Water Resources Management Credits: 3 hours
GEOG 5550 - Contemporary Issues in Resources Management Credits: 3 hours
GEOG 5570 - Environmental Impact Assessment Credits: 3 hours
GEOG 5690 - Intermediate Geographic Systems Credits: 4 hours or
GEOG 5820 - Remote Sensing of the Environment Credits: 4 hours

For the social science emphasis, students must take 12 hours selected from
GEOG 3750
GEOG 1020 - World Geography Through Media and Maps Credits: 3 hours
GEOG 2440 - Economic Geography Credits: 3 hours
GEOG 3110 - Geography of Michigan Credits: 3 hours
GEOG 3610 - Population: The Crowding World Credits: 3 hours
GEOG 3810 - South America Credits: 3 hours
GEOG 3820 - Mexico and the Caribbean Credits: 3 hours
GEOG 3860 - Sub-Saharan Africa: Man, Environments, Resources Credits: 3 hours
GEOG 3890 - Monsoon Asia Credits: 3 hours
GEOG 3900 - China, Japan, and Korea: Lands and Cultures Credits: 3 hours
GEOG 3960 - Intermediate Geographic Systems Credits: 4 hours
GEOG 5700 - Cities and Urban Systems Credits: 3 to 4 hours or
GEOG 5820 - Remote Sensing of the Environment Credits: 4 hours

Minor
Students who wish to develop a social studies teaching emphasis recognized in Michigan must complete either a Secondary Education History minor or a Secondary Education Political Science minor.

Minimum Requirements
In addition, they must complete a minimum of four additional courses, including:
ECON 2010 - Principles of Microeconomics Credits: 3 hours and
ECON 2020 - Principles of Macroeconomics Credits: 3 hours

Two of the Following:
And two courses in either of the following academic disciplines in which they do NOT minor:
HIST 2100 - American History to 1877 Credits: 3 hours and
HIST 2110 - American History since 1877 Credits: 3 hours or
PSCI 2000 - National Government Credits: 3 hours and
PSCI 2020 - State and Local Government Credits: 4 hours

Note: Some of these course may also be used to meet General Education requirements.

Other valuable teaching minor options to combine with a Secondary Education Geography major are: 1) Mathematics Minor-Secondary Teaching Option; or 2) Earth Science Education Minor.

Tourism And Travel Major (33-36 hours)
The Tourism major is designed for students planning to pursue careers in the tourism industry. Application is required for acceptance to the major. An application form is available from the Tourism Adviser, Department of Geography, Mailstop 5424, Wood Hall, Western Michigan University, 1903 W. Michigan, Kalamazoo, MI 49008. The major is composed of 21 credit hours of required core courses; 3 elective courses; and one of the following-a professional internship, a research experience, or a study abroad experience.

Required
GEOG 1000 - World Ecological Problems and Man Credits: 4 hours or
GEOG 1050 - Physical Geography Credits: 4 hours
GEOG 2050 - Human Geography Credits: 3 hours
GEOG 3100 - Principles of Tourism I Credits: 4 hours
GEOG 4080 - Principles of Tourism II Credits: 4 hours
GEOG 4440 - Professional Development Credits: 2 hours

At least three courses from the following list:
GEOG 1020 - World Geography Through Media and Maps Credits: 3 hours
GEOG 2440 - Economic Geography Credits: 3 hours
GEOG 2650 - Map, Chart and Air Photo Reading Credits: 3 hours
GEOG 3800 - United States and Canada Credits: 3 hours
GEOG 3810 - South America Credits: 3 hours
GEOG 3820 - Mexico and the Caribbean Credits: 3 hours
GEOG 3830 - Western and Southern Europe Credits: 3 hours
GEOG 3890 - Monsoon Asia Credits: 3 hours
GEOG 3900 - China, Japan, and Korea: Lands and Cultures Credits: 3 hours
GEOG 5010 - Introduction to Geographic Information Systems Credits: 4 hours
GEOG 5540 - Outdoor Recreation: Resources and Planning Credits: 3 hours
GEOG 5560 - Studies in Urban and Regional Planning Credits: 3 hours

In consultation with the Tourism Adviser, majors are required to select one of the following non-classroom options:
A-S 3300 - Study Abroad-WMU Programs Credits: 3 to 6 hours
A-S 3310 - Study Abroad-Non-WMU Programs Credits: 3 to 6 hours
GEOG 4120 - Professional Practice Credits: 2 to 6 hours Credits: 3 to 4 hours
GEOG 5970 - Readings in Geography Credits: 1 to 3 hours Credits: 3 hours

Minor
Majors should choose a minor in the Haworth College of Business or in the College of Arts & Sciences in the following areas: Foreign Languages, Spanish, Communication, Journalism, English (Practical Writing), History, Public History, or International Studies.

Geography Minor - Secondary Education (22 hours)

Requirements
GEOG 1050 - Physical Geography Credits: 4 hours
GEOG 2050 - Human Geography Credits: 3 hours
GEOG 2650 - Map, Chart and Air Photo Reading Credits: 3 hours
GEOG 3800 - United States and Canada Credits: 3 hours
GEOG 4600 - Geography/Social Studies Teaching in Middle and High School Credits: 3 hours

Additional Requirements
Students should take two additional courses (six hours) to complete the minor.

Geography Minor (20 hours)

Requirements
GEOG 1050 - Physical Geography Credits: 4 hours or
GEOG 2050 - Human Geography Credits: 3 hours and
GEOG 2650 - Map, Chart and Air Photo Reading Credits: 3 hours

Remaining (13 to 14 hours)
Students select the remaining 13-14 hours usually with a minimum of one systematic geography, one regional geography, and one geographic methods course. Students may also elect to emphasize urban and regional planning, environmental analysis and resource management, or GIS in their minor.

Courses By Topic –

Systematic Geography
GEOG 1000 - World Ecological Problems and Man Credits: 4 hours
GEOG 1020 - World Geography Through Media and Maps Credits: 3 hours
GEOG 1050 - Physical Geography Credits: 4 hours
GEOG 2040 - National Park Landscapes Credits: 3 hours
GEOG 2050 - Human Geography Credits: 3 hours
GEOG 2250 - Introduction to Meteorology and Climatology Credits: 4 hours
GEOG 2440 - Economic Geography Credits: 3 hours
GEOG 3060 - Atmospheric Environment and Society Credits: 3 hours
GEOG 3500 - Conservation and Environmental Management Credits: 3 hours
GEOG 3560 - Introduction to City and Regional Planning Credits: 3 hours
GEOG 3610 - Population: The Crowding World Credits: 3 hours
GEOG 4080 - Principles of Tourism II Credits: 4 hours
GEOG 5210 - Studies in Climatology and Meteorology Credits: 3 hours
GEOG 5440 - Studies in Economic Geography Credits: 2 to 3 hours
GEOG 5450 - Studies in Human Geography Credits: 2 to 3 hours
GEOG 5530 - Water Resources Management Credits: 3 hours
GEOG 5540 - Outdoor Recreation: Resources and Planning Credits: 3 hours
GEOG 5550 - Contemporary Issues in Resources Management Credits: 3 hours
GEOG 5560 - Studies in Urban and Regional Planning Credits: 3 hours
GEOG 5570 - Environmental Impact Assessment Credits: 3 hours
GEOG 5700 - Cities and Urban Systems Credits: 3 to 4 hours

Regional Geography
GEOG 3090 - Studies in Regional Geography Credits: 2 to 3 hours
GEOG 3110 - Geography of Michigan Credits: 3 hours
GEOG 3800 - United States and Canada Credits: 3 hours
GEOG 3810 - South America Credits: 3 hours
GEOG 3820 - Mexico and the Caribbean Credits: 3 hours
GEOG 3830 - Western and Southern Europe Credits: 3 hours
GEOG 3840 - The Post-Soviet States Credits: 3 hours
GEOG 3850 - The Pacific Realm Credits: 3 hours
GEOG 3860 - Sub-Saharan Africa: Man, Environments, Resources Credits: 3 hours
GEOG 3870 - The Middle East and North Africa Credits: 3 hours
GEOG 3890 - Monsoon Asia Credits: 3 hours
GEOG 3900 - China, Japan, and Korea: Lands and Cultures Credits: 3 hours

Geographic Methodology and Research
GEOG 2650 - Map, Chart and Air Photo Reading Credits: 3 hours
GEOG 3030 - Geographic Inquiry Credits: 4 hours
GEOG 3100 - Principles of Tourism I Credits: 4 hours
GEOG 4120 - Professional Practice Credits: 2 to 6 hours
GEOG 4600 - Geography/Social Studies Teaching in Middle and High School Credits: 3 hours
GEOG 5010 - Introduction to Geographic Information Systems Credits: 4 hours
GEOG 5660 - Field Geography Credits: 2 to 4 hours
GEOG 5670 - Spatial Analysis Credits: 4 hours
GEOG 5680 - Quantitative Methodology Credits: 3 hours
GEOG 5690 - Intermediate Geographic Systems Credits: 4 hours
GEOG 5820 - Remote Sensing of the Environment Credits: 4 hours
GEOG 5970 - Readings in Geography Credits: 1 to 3 hours

Geosciences
Mohamed Sultan, Chair
David Barnes
Daniel Cassidy
Ronald B. Chase
G. Michael Grammer
Johnson R. Haas
Duane Hampton
Alan E. Kelew
Michelle Kominz
Carla Koretsky
R. V. Krishnamurthy
Heather Petcovik
William A. Sauck
Christopher J. Schmidt

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**Geology Major (Minimum 38 to 39 hours)**

<table>
<thead>
<tr>
<th>Required Courses</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>GEOS 1300 - Physical Geology</td>
<td>4</td>
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<tr>
<td>GEOS 1310 - Historical Geology</td>
<td>4</td>
</tr>
<tr>
<td>GEOS 3350 - Mineralogy</td>
<td>4</td>
</tr>
<tr>
<td>GEOS 3360 - Optical Mineralogy</td>
<td>3</td>
</tr>
<tr>
<td>GEOS 4300 - Structural Geology</td>
<td>3</td>
</tr>
<tr>
<td>GEOS 4350 - Sedimentation and Stratigraphy</td>
<td>4</td>
</tr>
<tr>
<td>GEOS 4390 - Geologic Mapping</td>
<td>3 or A field course at another university</td>
</tr>
<tr>
<td>GEOS 4400 - Petrology and Petrography</td>
<td>3</td>
</tr>
<tr>
<td>GEOS 4600 - Geologic Communications</td>
<td>1</td>
</tr>
<tr>
<td>GEOS 5600 - Introduction to Applied Geophysics</td>
<td>3</td>
</tr>
</tbody>
</table>

Choose two electives from the following:
- GEOS 4320 - Geomorphology: 3 hours
- GEOS 4330 - Invertebrate Paleontology: 4 hours
- GEOS 5120 - Principles of Hydrogeology: 3 hours

**Additional Information**

A minimum of a “C” is required in each of the required Geology courses, and a “C” average in all cognate courses.

**Baccalaureate Writing Requirement**

Students who have chosen the Geology major will satisfy the Baccalaureate Writing Requirement by successfully completing one of the following courses:
- GEOS 4320 - Geomorphology: 3 hours
- GEOS 4350 - Sedimentation and Stratigraphy: 4 hours

**Cognate Required Courses**

- BIOS 1120 - Principles of Biology: 3 hours or
- BIOS 1500 - Molecular and Cellular Biology: 4 hours or as arranged by advisor
- CHEM 1100 - General Chemistry I: 3 hours and
- CHEM 1110 - General Chemistry Laboratory I: 1 hour
- CHEM 1120 - General Chemistry II: 3 hours and
- CHEM 1130 - General Chemistry Laboratory II: 1 hour
- CS 1000 - Fluency With Information Technology: 3 hours

Select Either:
- MATH 1220 - Calculus I: 4 hours or
- MATH 1700 - Calculus I, Science and Engineering: 4 hours

Select Either:
- MATH 1230 - Calculus II: 4 hours or
- MATH 1710 - Calculus II, Science and Engineering: 4 hours

Select Either:
- PHYS 1130 - General Physics I: 4 hours
- PHYS 1140 - General Physics I Laboratory: 1 hour and
- PHYS 1150 - General Physics II: 4 hours
- PHYS 1160 - General Physics II Laboratory: 1 hour
  OR
- PHYS 2050 - Mechanics and Heat: 4 hours
- PHYS 2060 - Mechanics and Heat Laboratory: 1 hour and
- PHYS 2070 - Electricity and Light: 4 hours
- PHYS 2080 - Electricity and Light Laboratory: 1 hour
Additional Information
Some modification of these requirements may be made in consultation with the student's departmental advisor.

Note: Geology majors should elect minors in mathematics, computer science, chemistry, physics, or biology. Students electing one of the above minors must still complete all other cognate required courses. Students not electing one of the above minors may elect the group science minor for Geology majors.

Suggested four-year program of study for Geology majors including all required cognate courses.

**Freshman Year**

*Fall*
- GEOS 1300 - Physical Geology Credits: 4 hours
- MATH 1220 - Calculus I Credits: 4 hours or
- MATH 1700 - Calculus I, Science and Engineering Credits: 4 hours

Additional Information
- (Students with insufficient high school mathematics may have to take MATH 1180 prior to 1220 or 1700.)

*Spring*
- BIOS 1120 - Principles of Biology Credits: 3 hours or
- BIOS 1500 - Molecular and Cellular Biology Credits: 4 hours
- GEOS 1310 - Historical Geology Credits: 4 hours
- MATH 1230 - Calculus II Credits: 4 hours or
- MATH 1710 - Calculus II, Science and Engineering Credits: 4 hours

**Sophomore Year**

- CHEM 1100 - General Chemistry I Credits: 3 hours and
- CHEM 1110 - General Chemistry Laboratory I Credits: 1 hour
- CHEM 1120 - General Chemistry II Credits: 3 hours and
- CHEM 1130 - General Chemistry Laboratory II Credits: 1 hour
- GEOS 3350 - Mineralogy Credits: 4 hours
- GEOS 4330 - Invertebrate Paleontology Credits: 4 hours

**Junior Year**

- CS 1000 - Fluency With Information Technology Credits: 3 hours
- GEOS 3360 - Optical Mineralogy Credits: 3 hours
- GEOS 4300 - Structural Geology Credits: 3 hours
- GEOS 4400 - Petrology and Petrography Credits: 3 hours

Select Either
- PHYS 1130 - General Physics I Credits: 4 hours and
- PHYS 1140 - General Physics I Laboratory Credits: 1 hour or
- PHYS 2050 - Mechanics and Heat Credits: 4 hours and
- PHYS 2060 - Mechanics and Heat Laboratory Credits: 1 hour

Select Either
- PHYS 1150 - General Physics II Credits: 4 hours and
- PHYS 1160 - General Physics II Laboratory Credits: 1 hour or
- PHYS 2070 - Electricity and Light Credits: 4 hours and
- PHYS 2080 - Electricity and Light Laboratory Credits: 1 hour

**Summer I**
- Field Course in Geology
Senior Year
GEOS 4320 - Geomorphology Credits: 3 hours
GEOS 4350 - Sedimentation and Stratigraphy Credits: 4 hours
GEOS 5600 - Introduction to Applied Geophysics Credits: 3 hours

Earth Science Education: Major (35 hours)
The Earth Science education major and minor are designed for students preparing to teach in the elementary and secondary schools. No grade below a "C" will be accepted in the required courses. All majors must complete a minimum of one semester each of college physics and college chemistry.

Required Courses

Electives Credits: 3 hours
- GEOG 2250 - Introduction to Meteorology and Climatology Credits: 4 hours
- GEOS 1300 - Physical Geology Credits: 4 hours
- GEOS 1310 - Historical Geology Credits: 4 hours
- GEOS 3010 - Minerals and Rocks Credits: 4 hours
- GEOS 3220 - Ocean Systems Credits: 3 hours
- GEOS 4380 - Field Studies in Geology Credits: 3 hours
- PHYS 1030 - Sky and Solar System Laboratory Credits: 1 hour
- PHYS 1040 - Introduction to the Sky and Solar System Credits: 3 hours
- PHYS 1060 - Introduction to Stars and Galaxies Credits: 3 hours
- SCI 4040 - Teaching of Secondary Science Credits: 3 hours

Required Cognate Courses

One course in chemistry and one course in physics required.
- CHEM 1100 - General Chemistry I Credits: 3 hours and
- CHEM 1110 - General Chemistry Laboratory I Credits: 1 hour and
- PHYS 1070 - Elementary Physics Credits: 4 hours and
- PHYS 1080 - Elementary Physics Laboratory Credits: 1 hour or
- PHYS 1130 - General Physics I Credits: 4 hours and
- PHYS 1140 - General Physics I Laboratory Credits: 1 hour

Baccalaureate Writing Requirement
Students who have chosen the Earth Science Education major will satisfy the Baccalaureate Writing Requirement by successfully completing one of the following courses:
- ES 3950 - School and Society Credits: 3 hours
- GEOS 4320 - Geomorphology Credits: 3 hours
- GEOS 4350 - Sedimentation and Stratigraphy Credits: 4 hours

Earth Science Major (36 hours)
The earth science major and minor program is a flexible course of instruction for students desiring a broad understanding of the earth and environmental processes. The program is interdisciplinary in nature and offers students an opportunity to select approved courses from several science departments, including Geosciences, Engineering, Biological Sciences, Geography, Chemistry, and Physics. Courses are selected in consultation with the earth science advisor to design programs that are tailored to the individuals' needs and professional objectives. Elective courses must be approved by the advisor.

Required Courses
- GEOS 1300 - Physical Geology Credits: 4 hours
- GEOS 1310 - Historical Geology Credits: 4 hours
- GEOS 1320 - Integrated Earth System Studies Credits: 3 hours
- GEOS 3010 - Minerals and Rocks Credits: 4 hours
GEOS 4380 - Field Studies in Geology Credits: 3 hours
GEOS 4600 - Geologic Communications Credits: 1 hour

Electives
Seventeen (17) hours must be selected in consultation with the advisor. A minimum of six (6) elective hours for the major must be taken in the Geosciences Department.

Required Cognate Courses For The Major

A College-Level Chemistry Course
CHEM 1100 - General Chemistry I Credits: 3 hours
CHEM 1110 - General Chemistry Laboratory I Credits: 1 hour

A College-Level Physics Course
PHYS 1070 - Elementary Physics Credits: 4 hours
PHYS 1080 - Elementary Physics Laboratory Credits: 1 hour

And

MATH 1180 - Precalculus Mathematics Credits: 4 hours

Baccalaureate Writing Requirement
Students who have chosen the Earth Science Major will satisfy the Baccalaureate Writing Requirement by successfully completing one of the following courses:
GEOS 4320 - Geomorphology Credits: 3 hours
GEOS 4350 - Sedimentation and Stratigraphy Credits: 4 hours

Hydrogeology Major (75-79 hours)
The hydrogeology major gives individuals a strong background in math and the sciences, focusing on geology and hydrogeology. This major prepares students to enter graduate programs and the job market as hydrogeologists.

Required Core

Required Courses
A minimum of a “C” grade is required in the following courses.

GEOS 1300 - Physical Geology Credits: 4 hours
GEOS 1310 - Historical Geology Credits: 4 hours
GEOS 1320 - Integrated Earth System Studies Credits: 3 hours
GEOS 3350 - Mineralogy Credits: 4 hours
GEOS 4350 - Sedimentation and Stratigraphy Credits: 4 hours
GEOS 4600 - Geologic Communications Credits: 1 hour
GEOS 5060 - Introduction to Soils Credits: 3 hours
GEOS 5120 - Principles of Hydrogeology Credits: 3 hours
GEOS 5250 - Surface Geophysics Credits: 1 hour
GEOS 5450 - Hazardous Waste Remediation Credits: 3 hours

Hydrogeology Summer Field Courses:
GEOS 5230 - Hazardous Waste Operation and Emergency Response Credits: 1 hour
GEOS 5240 - Remediation Design and Implementation Credits: 1 hour
GEOS 5250 - Surface Geophysics Credits: 1 hour (waived if 5640 is taken)
GEOS 5260 - Principles and Practices of Aquifer Testing Credits: 1 hour
GEOS 5270 - Principles of Well Drilling and Installation Credits: 1 hour
GEOS 5280 - Principles and Practices of Ground-water Sampling and Monitoring Credits: 1 hour
Choose three courses, including at least two from the list below:

- GEOS 4300 - Structural Geology Credits: 3 hours
- GEOS 4320 - Geomorphology Credits: 3 hours
- GEOS 4390 - Geologic Mapping Credits: 3 hours Or Geology field course taken elsewhere up to 6 hours
- GEOS 5090 - Surface Water Hydrology Credits: 3 hours
- GEOS 5360 - Glacial Geology Credits: 3 hours
- GEOS 5550 - Introduction to Geochemistry Credits: 3 hours
- GEOS 5600 - Introduction to Applied Geophysics Credits: 3 hours
- GEOS 5640 - Field Geophysics Credits: 3 hours

**Required Supporting Courses**

- CHEM 1100 - General Chemistry I Credits: 3 hours
- CHEM 1110 - General Chemistry Laboratory I Credits: 1 hour
- CHEM 1120 - General Chemistry II Credits: 3 hours
- CHEM 1130 - General Chemistry Laboratory II Credits: 1 hour
- PHYS 2050 - Mechanics and Heat Credits: 4 hours
- PHYS 2060 - Mechanics and Heat Laboratory Credits: 1 hour
- PHYS 2070 - Electricity and Light Credits: 4 hours
- PHYS 2080 - Electricity and Light Laboratory Credits: 1 hour

Instead
- MATH 1220 - Calculus I Credits: 4 hours or
- MATH 1700 - Calculus I, Science and Engineering Credits: 4 hours

And Either
- MATH 1230 - Calculus II Credits: 4 hours or
- MATH 1710 - Calculus II, Science and Engineering Credits: 4 hours

**Supporting Tool Skills**—choose two courses from the list below (6 credits):

- CHEM 3700 - Introduction to Organic Chemistry Credits: 3 hours and
- CHEM 3710 - Introduction to Organic Chemistry Lab Credits: 1 hour
- GEOG 5010 - Introduction to Geographic Information Systems Credits: 4 hours
- GEOS 5210 - Geological and Environmental Remote Sensing Credits: 4 hours
- GEOS 5350 - Numerical and Spatial Data Analysis in the Geosciences Credits: 3 hours
- MATH 2720 - Multivariate Calculus and Matrix Algebra Credits: 4 hours
- MATH 3740 - Differential Equations and Linear Algebra Credits: 4 hours
- STAT 2610 - Engineering Statistics Credits: 3 hours or
- STAT 3640 - Statistical Methods Credits: 4 hours

**Required Minor**

The Group Science minor for Geology Majors is recommended. Other options include Anthropology, Applied Statistics, Biological Sciences, Chemistry, Computer Science, Economics, any Foreign Language, Geography, Mathematics, and Physics. Or one can take a coordinate major in Environmental Sciences.

**Baccalaureate Writing Requirement**

Students who have chosen the Hydrogeology major will satisfy the Baccalaureate Writing Requirement by successfully completing one of the following courses:

- GEOS 4320 - Geomorphology Credits: 3 hours
- GEOS 4350 - Sedimentation and Stratigraphy Credits: 4 hours

**Geophysics Major (75 to 77 hours) (Geosciences)**

The Geosciences and Physics Departments offer a program of study leading to a major in geophysics. Students choosing this program of study are also required to take mathematics courses which correspond to a minor in mathematics. Students contemplating a geophysics major should contact the Geosciences Department as early as possible for advising.
Major Core: (48 to 51 hours)

**Geology (GEOS) (22 hours)**
- GEOS 1300 - Physical Geology Credits: 4 hours
- GEOS 1310 - Historical Geology Credits: 4 hours
- GEOS 3010 - Minerals and Rocks Credits: 4 hours
- GEOS 4300 - Structural Geology Credits: 3 hours
- GEOS 4390 - Geologic Mapping Credits: 3 hours
- GEOS 4600 - Geologic Communications Credits: 1 hour
- GEOS 5600 - Introduction to Applied Geophysics Credits: 3 hours

**Physics (PHYS) (17 to 18 hours)**
- PHYS 2050 - Mechanics and Heat Credits: 4 hours
- PHYS 2060 - Mechanics and Heat Laboratory Credits: 1 hour
- PHYS 2070 - Electricity and Light Credits: 4 hours
- PHYS 2080 - Electricity and Light Laboratory Credits: 1 hour
- PHYS 3420 - Electronics Credits: 4 hours

One of the following
- PHYS 3300 - Thermodynamics and Kinetic Theory Credits: 3 hours
- PHYS 3520 - Waves and Optics Credits: 3 hours
- PHYS 4400 - Electromagnetism Credits: 4 hours

**Electives: (9 to 12 hours)**
Three electives from upper-level geosciences, physics, and engineering courses to be chosen with consent of advisor (9--12 hours).

**Required Mathematics Minor (19 hours)**
- MATH 2720 - Multivariate Calculus and Matrix Algebra Credits: 4 hours
- MATH 3740 - Differential Equations and Linear Algebra Credits: 4 hours
- MATH 5070 - Numerical Analysis I Credits: 3 hours

Either
- MATH 1220 - Calculus I Credits: 4 hours or
- MATH 1700 - Calculus I, Science and Engineering Credits: 4 hours

And Either
- MATH 1230 - Calculus II Credits: 4 hours or
- MATH 1710 - Calculus II, Science and Engineering Credits: 4 hours

**Baccalaureate Writing Requirement**
Students who have chosen the Geophysics major will satisfy the Baccalaureate Writing Requirement by successfully completing one of the following courses:
- ENGL 3050 - Practical Writing Credits: 4 hours
- GEOS 4320 - Geomorphology Credits: 3 hours
- GEOS 4350 - Sedimentation and Stratigraphy Credits: 4 hours

**Required Supporting Courses (4 hours)**
Select Either
- CHEM 1100 - General Chemistry I Credits: 3 hours and
- CHEM 1110 - General Chemistry Laboratory I Credits: 1 hour or
- CHEM 1120 - General Chemistry II Credits: 3 hours and
- CHEM 1130 - General Chemistry Laboratory II Credits: 1 hour
Geochemistry Major (68 hours) (Geosciences)
The Geosciences and Chemistry Departments offer a program of study leading to a major in geochemistry. Students choosing this major will not be required to complete an additional minor. The geochemistry major is designed to meet the needs of students preparing for a professional career in geochemistry or environmental chemistry. Students contemplating a geochemistry major should contact the Geosciences Department as early as possible for advising.

Geosciences Core (19 hours)
GEOS 1300 - Physical Geology Credits: 4 hours
GEOS 1310 - Historical Geology Credits: 4 hours
GEOS 1320 - Integrated Earth System Studies Credits: 3 hours
GEOS 3350 - Mineralogy Credits: 4 hours
GEOS 4600 - Geologic Communications Credits: 1 hour
GEOS 5550 - Introduction to Geochemistry Credits: 3 hours

Chemistry Core (12 hours)
CHEM 1100 - General Chemistry I Credits: 3 hours
CHEM 1110 - General Chemistry Laboratory I Credits: 1 hour
CHEM 1120 - General Chemistry II Credits: 3 hours
CHEM 1130 - General Chemistry Laboratory II Credits: 1 hour
CHEM 2250 - Quantitative Analysis Credits: 3 hours
CHEM 2260 - Quantitative Analysis Laboratory Credits: 1 hour

Math Core (8 hours)
Either
MATH 1220 - Calculus I Credits: 4 hours or
MATH 1700 - Calculus I, Science and Engineering Credits: 4 hours
And Either
MATH 1230 - Calculus II Credits: 4 hours or
MATH 1710 - Calculus II, Science and Engineering Credits: 4 hours

Geosciences Electives (Choose at least 9 hours)
An approved field course (up to 3 hrs. total)
GEOS 3360 - Optical Mineralogy Credits: 3 hours
GEOS 4350 - Sedimentation and Stratigraphy Credits: 4 hours fulfills the baccalaureate-level writing requirement
GEOS 4400 - Petrology and Petrography Credits: 3 hours
GEOS 5020 - Problems in Geology and Earth Science Credits: 1 to 3 hours
GEOS 5060 - Introduction to Soils Credits: 3 hours
GEOS 5120 - Principles of Hydrogeology Credits: 3 hours
GEOS 5280 - Principles and Practices of Ground-water Sampling and Monitoring Credits: 1 hour
GEOS 5450 - Hazardous Waste Remediation Credits: 3 hours

Chemistry Electives (Choose at least 9 hours)
CHEM 3700 - Introduction to Organic Chemistry Credits: 3 hours
CHEM 3710 - Introduction to Organic Chemistry Lab Credits: 1 hour
CHEM 3750 - Organic Chemistry I Credits: 3 hours
CHEM 3760 - Organic Chemistry Lab I Credits: 1 hour
CHEM 3770 - Organic Chemistry II Credits: 3 hours
CHEM 3780 - Organic Chemistry Lab II Credits: 1 hour
CHEM 4300 - Physical Chemistry I Credits: 3 hours
CHEM 4310 - Physical Chemistry II Credits: 3 hours
CHEM 4360 - Physical Chemistry Laboratory I Credits: 2 hours fulfills the baccalaureate-level writing requirement
CHEM 4370 - Physical Chemistry Laboratory II Credits: 1 hour
CHEM 5200 - Instrumental Methods in Chemistry Credits: 3 hours
CHEM 5250 - Techniques in Water Analysis Credits: 2 hours
CHEM 5400 - Biogeochemistry Credits: 3 hours

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CHEM 5500 - Biochemistry I Credits: 3 hours

Math and General Sciences Electives (Choose at least 11 hours) (hours cannot all be in the same department)
- BIOS 1500 - Molecular and Cellular Biology Credits: 4 hours
- BIOS 1510 - Organismal Biology Credits: 4 hours
- BIOS 2320 - Microbiology and Infectious Diseases Credits: 4 hours
- BIOS 3010 - Ecology Credits: 5 hours
- MATH 2720 - Multivariate Calculus and Matrix Algebra Credits: 4 hours
- MATH 3740 - Differential Equations and Linear Algebra Credits: 4 hours
- PHYS 2050 - Mechanics and Heat Credits: 4 hours
- PHYS 2060 - Mechanics and Heat Laboratory Credits: 1 hour
- PHYS 2070 - Electricity and Light Credits: 4 hours
- PHYS 2080 - Electricity and Light Laboratory Credits: 1 hour
- PHYS 3300 - Thermodynamics and Kinetic Theory Credits: 3 hours
- STAT 3640 - Statistical Methods Credits: 4 hours

Notes: Either CHEM 3700/3710 or CHEM 3750-3780 will count toward the major and an outside geology field camp is strongly recommended.

Geology Minor (Minimum 18 hours)
The Geology minor is designed as a supporting minor for students preparing to do professional work in the fields of chemistry, physics, engineering, zoology, botany, and geography. It cannot be combined with earth science as a major-minor or double minor relationship. A student may design a Geology minor for his/her specific need.

Required Courses Hours
- GEOS 1300 - Physical Geology Credits: 4 hours
- GEOS 1310 - Historical Geology Credits: 4 hours

One of the following options is recommended:

Additional hours in Geology Credits: 6 hours
- GEOS 3350 - Mineralogy Credits: 4 hours
- GEOS 3360 - Optical Mineralogy Credits: 3 hours
- GEOS 4330 - Invertebrate Paleontology Credits: 4 hours

Select Either
- GEOS 3010 - Minerals and Rocks Credits: 4 hours or
- GEOS 4400 - Petrology and Petrography Credits: 3 hours

Note: Course substitution from other Geology offerings can be made with the consent of advisor (e.g., a geography major minoring in Geology might elect Geomorphology and/or Glacial Geology).

Group Science Minor for Geology Majors (26 hours minimum)
The group science minor is designed for students not electing a mathematics, chemistry, physics, or biology minor. Some modification of these requirements may be made in consultation with the student's departmental advisor. This minor is not acceptable for education majors and minors.

Required Courses Hours

Biological Sciences (4 hours)
Select either:
- BIOS 1050 - Environmental Biology Credits: 3 hours
- BIOS 1100 - Biology Laboratory Credits: 1 hour Or
BIOS 1120 - Principles of Biology Credits: 3 hours
BIOS 1100 - Biology Laboratory Or
BIOS 1500 - Molecular and Cellular Biology Credits: 4 hours Or
BIOS 2320 - Microbiology and Infectious Diseases Credits: 4 hours

Select either:
BIOS 1100 - Biology Laboratory Credits: 1 hour
BIOS 1120 - Principles of Biology Credits: 3 hours

Chemistry (8 hours)
CHEM 1100 - General Chemistry I Credits: 3 hours
CHEM 1110 - General Chemistry Laboratory I Credits: 1 hour
CHEM 1120 - General Chemistry II Credits: 3 hours
CHEM 1130 - General Chemistry Laboratory II Credits: 1 hour

Physics (10 hours)
Either
PHYS 1130 - General Physics I Credits: 4 hours
PHYS 1140 - General Physics I Laboratory Credits: 1 hour
PHYS 1150 - General Physics II Credits: 4 hours
PHYS 1160 - General Physics II Laboratory Credits: 1 hour
OR
PHYS 2050 - Mechanics and Heat Credits: 4 hours
PHYS 2060 - Mechanics and Heat Laboratory Credits: 1 hour
PHYS 2070 - Electricity and Light Credits: 4 hours
PHYS 2080 - Electricity and Light Laboratory Credits: 1 hour

Electives
At least 4 credit hours selected from the physical or biological sciences with approval of student's advisor.

Earth Science Education Minor (22 hours)
An Earth Science Education minor is also available to the student preparing to teach in the related fields of biology, physics, chemistry, general science, and environmental science.

Required Courses
GEOG 2250 - Introduction to Meteorology and Climatology Credits: 4 hours
GEOS 1300 - Physical Geology Credits: 4 hours
GEOS 1310 - Historical Geology Credits: 4 hours
GEOS 3220 - Ocean Systems Credits: 3 hours
PHYS 1030 - Sky and Solar System Laboratory Credits: 1 hour
PHYS 1040 - Introduction to the Sky and Solar System Credits: 3 hours
SCI 4040 - Teaching of Secondary Science Credits: 3 hours

Earth Science Minor (21 hours)

Required Courses:
GEOS 1300 - Physical Geology Credits: 4 hours
GEOS 1310 - Historical Geology Credits: 4 hours
GEOS 1320 - Integrated Earth System Studies Credits: 3 hours
GEOS 3010 - Minerals and Rocks Credits: 4 hours
Electives
Six (6) hours must be selected in consultation with the advisor. A minimum of three (3) elective hours for the minor must be taken in the Geosciences Department.

History
Marion Gray, Chair
Robert F. Berghofer, III
Amos Beyan
Linda Borish
Jose Brandao
Andrew Carlson
Michael Chiarappa
Janet Coryell
Ronald Davis
Frederick J. Dobney
Howard Dooley
E. Rozanne Elder
Nora Faires
Ralph Gordon
Bruce Haight
Barbara Havira
Lynne Heasley
Catherine Julien
Mitch A. Kachun
Cheryl H. Lyon-Jeness
Paul Maier
Edwin Martini
John Norman
R. Patrick Norris
James Palmitessa
Lewis Pyenson
Francis Ramos
Eli Rubin
John Salliant
Peter Schmitt
Larry Simon
Judith F. Stone
Kristin Szylvian
Luis Toledo Pereyra
Wilson Warren
Victor Xiong
Takashi Yoshida

The Department of History offers several academic and professional programs with varying requirements. Students intending to major in history should meet at least once a semester with a faculty advisor in the department advising office, 4451 Friedmann, phone 387-4659. HIST 1900 is an orientation course to the historical professions, and to basic research and presentation skills in the discipline, and should be taken as early as possible.

History majors lead to the degree of Bachelor of Arts. A maximum of 9 hours of 1000/2000-level course work and/or course work transferred from two-year institutions may be included in a major or minor. At least half of the minimum credit hour requirement for any major or minor must be earned at Western Michigan University. Only courses in which a grade of "C" or better is earned may be applied toward a major, minor, and required electives, including the last semester of foreign language
requirements. Course work in science, and in allied social sciences and humanities, is specified by curriculum. Consult the Department of History Undergraduate Handbook.

The Department of History strongly encourages foreign study at one of WMU’s international centers or in similar programs, and acquisition of foreign language skills beyond minimum program requirements.

**History Major-Liberal Education Curriculum**

**Major Requirements:**

1. History course (6 hours)
   HIST 1900 - Historians in the Modern World Credits: 3 hours
   HIST 3900 - Advanced Historical Skills Credits: 3 hours

2. Choose one of the following history courses (3 hours)
   HIST 4960 - Senior Seminar Credits: 3 hours
   HIST 4990 - Senior Thesis Credits: 3 to 6 hours

3. Minimum of 36 hrs. in history including 18 hrs. at the 4000/5000 level, with at least 12 hrs. at the 3000 level or above in courses dealing specifically with European history before 1789, American history before 1877, ancient/medieval history, or courses on the pre-modern history of other civilizations.

**Baccalaureate Writing Requirement**

Students who have chosen the History major will satisfy the Baccalaureate Writing Requirement by successfully completing
HIST 3900 - Advanced Historical Skills Credits: 3 hours

**Cognate Requirements:**

1. At least one approved course in a laboratory science (4 hours)

2. Three approved courses (9 to 12 hours)
   Three approved courses in allied social sciences and/or humanities disciplines pertinent to an emphasis or focus in the history major 9 to 12 hours

3. A foreign language through the 2010-level by course work or by examination (16 hours)

**History Major-Secondary Education Curriculum**

The secondary teacher preparation program complies with Guidelines for the Certification of Teachers of History established by the American Historical Association.

**Major Requirements:**

1. History courses (9 hours)
   HIST 1900 - Historians in the Modern World Credits: 3 hours
   HIST 3900 - Advanced Historical Skills Credits: 3 hours
   HIST 4940 - Teaching Methods for Secondary Schools Credits: 3 hours

2. United States history courses (9 hours)
   United States history including at least 6 hrs. at the 4000/5000 level Credits: 9 hours

3. Non-Western history courses (6 hours)
   Non-Western history including at least 3 hrs. at the 4000/5000 level Credits: 6 hours
4. European and/or General history courses (6 hours)
European and/or General history including at least 3 hrs. at the 4000/5000 level Credits: 6 hours

5. Minimum of 36 hrs. in history including at least 18 hrs. at the 4000/5000 level.

Baccalaureate Writing Requirement
Students who have chosen the History major will satisfy the Baccalaureate Writing Requirement by successfully completing
HIST 3900 - Advanced Historical Skills Credits: 3 hours

Minor
History majors in the Secondary Education Curriculum must select a minor from the list of Approved Minors designated by
the College of Education.

Additional Requirements
In addition to the history major, students must complete the following cognate requirements:

1. One approved course in literature
Select from
ENGL 1120 - Literary Classics Credits: 4 hours
ENGL 2220 - Literatures and Cultures of the United States Credits: 4 hours
ENGL 2230 - Black American Literature Credits: 4 hours
ENGL 3120 - Western World Literature Credits: 3 hours
ENGL 3130 - Asian Literature Credits: 3 hours
ENGL 3140 - African Literature Credits: 3 hours
ENGL 3150 - The English Bible as Literature Credits: 3 hours

Department of English prerequisites (3-4 hours)
Students who meet the Department of English prerequisites may also select either
ENGL 3200 - American Literature I Credits: 3 hours or
ENGL 3210 - American Literature II Credits: 3 hours

2. One approved course in economics
Select either
ECON 2010 - Principles of Microeconomics Credits: 3 hours or
ECON 2020 - Principles of Macroeconomics Credits: 3 hours

3. One approved course in geography
Select from
GEOG 1020 - World Geography Through Media and Maps Credits: 3 hours
GEOG 1050 - Physical Geography Credits: 4 hours or
GEOG 2050 - Human Geography Credits: 3 hours

4. Two approved courses in political science
Select
PSCI 2000 - National Government Credits: 3 hours And select either
PSCI 2400 - Comparative Politics Credits: 3 hours or
PSCI 2500 - International Relations Credits: 4 hours

Notes:
(1) Each student must complete at least two approved courses in American Indian history or culture, women's history or
women's studies, African-American history or culture, or Hispanic-American history or culture. These courses may be
included within the history major. ENGL 2220 or 2230 (cognate requirement one) also meet this requirement.
(2) All course work at the 3000-level or above in the History major must be completed within ten years of commencing a
directed teaching assignment. History majors must have completed at least six hours of History in courses numbered 4200--
5960 with grades of “B” or better to be approved by the department for directed teaching.
Public History Major
This program is designed to prepare students for entry-level positions in fields of public history such as museum and archival administration, preservation/restoration work, interpretation, consulting, and applied research.

Major Requirements:

1. Required Courses (6 hours)
   HIST 1900 - Historians in the Modern World Credits: 3 hours  
   HIST 3900 - Advanced Historical Skills Credits: 3 hours

2. Four courses chosen from the following: (12 hours)
   HIST 4040 - Introduction to Public History Credits: 3 hours  
   HIST 4060 - Archives Administration Credits: 3 hours  
   HIST 4080 - Museum Studies Credits: 3 hours  
   HIST 4100 - Historic Preservation Credits: 3 hours  
   HIST 4120 - Local History Techniques Credits: 1 to 3 hours

3. Approved electives from other departments (18 hours)
   (check with advisor)

4. One course from the following: (3 hours)
   HIST 3150 - Popular Art and Architecture in America Credits: 3 hours  
   HIST 3180 - American Environmental History Credits: 3 hours  
   HIST 5150 - Topics in Public History Credits: 1 to 3 hours  
   HIST 5920 - Computers in Historical Research Credits: 1 to 3 hours  
   HIST 5950 - History Writing Workshop Credits: 1 to 3 hours  
   HIST 5960 - Local History Workshop Credits: 1 to 3 hours

5. North American History, 3 courses, including 2 at the 4000/5000-level (9 hours)

6. History electives (12 hours)

7. Internship (6 hours)
   HIST 4950 - Internship Credits: 3 to 9 hours

Baccalaureate Writing Requirement
Students who have chosen the History major will satisfy the Baccalaureate Writing Requirement by successfully completing:
   HIST 3900 - Advanced Historical Skills Credits: 3 hours

Note: Minimum total of 66 hours in the major is required. The Public History major does not require a minor. History majors in the Public History major also must complete a foreign language through the 1010 level by course work or examination.

History Minor-Liberal Education Curriculum

Minor Requirements
Minimum of 24 hrs. of course work, with a maximum of nine hours at the 1000/2000 level, and a minimum of six hours at the 4000/5000 level. With faculty advisor approval, two courses in historical studies outside the Department of History, in disciplines such as archaeology, art history, music or theatre history, period literature, etc., may be applied toward minor requirements in lieu of 1000/2000-level courses in history.
**History Minor-Secondary Education Curriculum**

**Minor Requirements:**

1. At least four courses in United States history (12 hours)  
At least four courses in United States history, including 6 hrs. at the 4000/5000-level 12 hours

2. Total of 21 hrs. in history, including 9 hrs. at the 4000/5000-level and a maximum of 9 hrs. at the 1000/2000-level.

**Cognate Requirements**

1. One course in American literature (4 hours)

    Recommended:
    - ENGL 2220 - Literatures and Cultures of the United States Credits: 4 hours
    - ENGL 2230 - Black American Literature Credits: 4 hours
    - ENGL 3200 - American Literature I Credits: 3 hours
    - ENGL 3210 - American Literature II Credits: 3 hours

2. One approved course in the social sciences or humanities (3 to 4 hours) (other than History) at the 300-level or above dealing with American culture or institutions

3. Students whose teaching major is outside the College of Arts and Sciences (3 hours) must also complete HIST 4940 - Teaching Methods for Secondary Schools Credits: 3 hours (Secondary Methods)

Note: All course work at the 3000-level or above in the minor and required electives must be completed within ten years of commencing a directed teaching assignment. Minors must have completed at least six hours of History in course work numbered 4200 through 5960 with grades of “B” or better to be approved by the department for directed teaching.

**Public History Minor**

**Minor Requirements:**

1. Three courses from the Public History Core: (9 hours)  
HIST 4040 - Introduction to Public History Credits: 3 hours  
HIST 4060 - Archives Administration Credits: 3 hours  
HIST 4080 - Museum Studies Credits: 3 hours  
HIST 4100 - Historic Preservation Credits: 3 hours  
HIST 4120 - Local History Techniques Credits: 1 to 3 hours

2. One course from the following: (3 hours)  
HIST 3150 - Popular Art and Architecture in America Credits: 3 hours  
HIST 3180 - American Environmental History Credits: 3 hours  
HIST 5150 - Topics in Public History Credits: 1 to 3 hours  
HIST 5920 - Computers in Historical Research Credits: 1 to 3 hours  
HIST 5950 - History Writing Workshop Credits: 1 to 3 hours  
HIST 5960 - Local History Workshop Credits: 1 to 3 hours

3. One elective chosen from courses in other departments (3 hours)  
(check with faculty advisor)

4. North American History, two courses, including one at the 4000/5000 level (6 hours)

5. History electives: two courses (6 hours)
6. Minimum of 27 hours of course work in the minor, maximum of nine hours at the 1000/2000 level.

Note: Internships, volunteer, and work experience are strongly recommended.

### Courses By Topic - History

#### Basic Courses
- **HIST 1060** - Historical Writing
- **HIST 1000** - Early Western World Credits: 3 hours
- **HIST 1010** - Modern Western World Credits: 3 hours
- **HIST 1030** - History and Current Events Credits: 3 hours
- **HIST 1450** - Heroes and Villains in the Middle Ages Credits: 3 hours
- **HIST 1900** - Historians in the Modern World Credits: 3 hours
- **HIST 2100** - American History to 1877 Credits: 3 hours
- **HIST 2110** - American History since 1877 Credits: 3 hours
- **HIST 2120** - American Culture Credits: 3 hours
- **HIST 2980** - Directed Reading in History Credits: 1 to 3 hours
- **HIST 3290** - Michigan History Credits: 3 hours

#### North America
- **HIST 3130** - American Diplomatic History Credits: 3 hours
- **HIST 3140** - American Minorities Credits: 3 hours
- **HIST 3160** - Women in United States History Credits: 3 hours
- **HIST 3180** - American Environmental History Credits: 3 hours
- **HIST 3200** - American Military History Credits: 3 hours
- **HIST 3220** - The American West Credits: 3 hours
- **HIST 3240** - Everyday Life in America Credits: 3 hours
- **HIST 3260** - Native American History and Culture Credits: 3 hours
- **HIST 3270** - U.S./Spanish Borderlands: History and Culture Credits: 3 hours
- **HIST 3280** - African-American History and Culture Credits: 3 hours
- **HIST 3300** - Canadian History and Culture Credits: 3 hours
- **HIST 4160** - Topics in Great Lakes History Credits: 1 to 3 hours
- **HIST 4200** - Colonial America Credits: 3 hours
- **HIST 4210** - The New Nation: American Revolution and Independence Credits: 3 hours
- **HIST 4220** - Antebellum America Credits: 3 hours
- **HIST 4240** - The Civil War and Reconstruction Credits: 3 hours
- **HIST 4250** - United States, 1877—1919 Credits: 3 hours
- **HIST 4260** - United States 1920—1940 Credits: 3 hours
- **HIST 4270** - United States 1940—1960 Credits: 3 hours
- **HIST 4280** - United States since 1960 Credits: 3 hours
- **HIST 4300** - American Maritime History Credits: 3 hours
- **HIST 4320** - Women in America to 1870 Credits: 3 hours
- **HIST 4330** - Women in America since 1870 Credits: 3 hours
- **HIST 4340** - Native Americans to 1783 Credits: 3 hours
- **HIST 4350** - Native Americans since 1783 Credits: 3 hours
- **HIST 4360** - Topics in African-American History Credits: 3 hours
- **HIST 4370** - American Working Class History Credits: 3 hours
- **HIST 4390** - Topics in United States History Credits: 1 to 3 hours
- **HIST 5300** - Studies in Early American History Credits: 3 hours
- **HIST 5350** - Studies in Recent American History Credits: 3 hours

#### Europe
- **HIST 3360** - Women in European History Credits: 3 hours
- **HIST 3490** - Ancient Near East Credits: 3 hours

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HIST 3500 - Ancient Greece and the Hellenistic World Credits: 3 hours
HIST 3510 - Ancient Rome Credits: 3 hours
HIST 3600 - The Medieval World: Society and Culture Credits: 3 hours
HIST 3620 - History of England Credits: 3 hours
HIST 3630 - History of Modern Britain Credits: 3 hours
HIST 3640 - Modern Europe: Culture and Society Credits: 3 hours
HIST 3660 - Russia Yesterday and Tomorrow Credits: 3 hours
HIST 3680 - History of European Nations Credits: 3 hours
HIST 4400 - Imperial Rome Credits: 3 hours
HIST 4410 - Early Christianity Credits: 3 hours
HIST 4420 - Byzantine Civilization Credits: 3 hours
HIST 4440 - Early Medieval History Credits: 3 hours
HIST 4450 - Later Medieval History Credits: 3 hours
HIST 4460 - Renaissance Europe Credits: 3 hours
HIST 4470 - The Reformation Credits: 3 hours
HIST 4500 - Europe in the Seventeenth and Eighteenth Centuries Credits: 3 hours
HIST 4520 - French Revolution and Napoleon Credits: 3 hours
HIST 4560 - Europe 1815—1871 Credits: 3 hours
HIST 4570 - Europe 1871—1919 Credits: 3 hours
HIST 4580 - Europe 1919—1945 Credits: 3 hours
HIST 4600 - Europe since 1945 Credits: 3 hours
HIST 4620 - Great Ages in English History Credits: 3 hours
HIST 4630 - British Empire Credits: 3 hours
HIST 4650 - Russia to 1855 Credits: 3 hours
HIST 4660 - Russia since 1855 Credits: 3 hours
HIST 4670 - Topics in Iberian History Credits: 3 hours
HIST 4680 - Topics in European History Credits: 1 to 3 hours
HIST 5500 - Studies in Medieval History Credits: 3 hours
HIST 5650 - Studies in Modern European History Credits: 3 hours

Non-Western
HIST 3020 - World History to 1500 Credits: 3 hours
HIST 3030 - World History since 1500 Credits: 3 hours
HIST 3700 - History of Latin America Credits: 3 hours
HIST 3760 - Modern East Asia Credits: 3 hours
HIST 3790 - World War II in American and Japanese History Credits: 3 hours
HIST 3840 - Islamic Civilization Credits: 3 hours
HIST 3850 - Modern Middle East Credits: 3 hours
HIST 3880 - Introduction to African Civilization Credits: 3 hours
HIST 4710 - Latin America Credits: 3 hours
HIST 4720 - The Modern Caribbean Credits: 3 hours
HIST 4760 - Traditional China Credits: 3 hours
HIST 4770 - Modern China Credits: 3 hours
HIST 4790 - Modern Japan Credits: 3 hours
HIST 4800 - Topics in Asian History Credits: 1 to 3 hours
HIST 4810 - Japanese History Through Film and Literature Credits: 3 hours
HIST 4850 - Medieval Islam Credits: 3 hours
HIST 4880 - History of West Africa Credits: 3 hours
HIST 4890 - Topics in African History Credits: 1 to 3 hours
HIST 5850 - Studies in Asian and African History Credits: 3 hours

General
HIST 3000 - Arts and Ideas: Ancient/Medieval Credits: 3 hours
HIST 3010 - Modern Arts and Ideas Credits: 3 hours
HIST 3020 - World History to 1500 Credits: 3 hours
HIST 3030 - World History since 1500 Credits: 3 hours
HIST 3060 - Technology and Culture Credits: 3 hours
HIST 3100 - Topics in History Credits: 1 to 3 hours
HIST 3320 - Global History 1885—1945 Credits: 3 hours
HIST 3330 - The World since 1945 Credits: 3 hours
HIST 3790 - World War II in American and Japanese History Credits: 3 hours
HIST 4000 - Topics in History Credits: 1 to 3 hours
HIST 4140 - Topics in Military History Credits: 1 to 3 hours
HIST 5170 - Topics in Economic and Social History Credits: 1 to 3 hours
HIST 5190 - Topics in Intellectual and Cultural History Credits: 1 to 3 hours

Theory And Practice
HIST 3900 - Advanced Historical Skills Credits: 3 hours
HIST 4040 - Introduction to Public History Credits: 3 hours
HIST 4060 - Archives Administration Credits: 3 hours
HIST 4080 - Museum Studies Credits: 3 hours
HIST 4100 - Historic Preservation Credits: 3 hours
HIST 4120 - Local History Techniques Credits: 1 to 3 hours
HIST 4940 - Teaching Methods for Secondary Schools Credits: 3 hours
HIST 4960 - Senior Seminar Credits: 3 hours
HIST 4990 - Senior Thesis Credits: 3 to 6 hours
HIST 5150 - Topics in Public History Credits: 1 to 3 hours
HIST 5910 - Topics in Theory and Practice Credits: 1 to 3 hours
HIST 5920 - Computers in Historical Research Credits: 1 to 3 hours
HIST 5950 - History Writing Workshop Credits: 1 to 3 hours
HIST 5960 - Local History Workshop Credits: 1 to 3 hours

Other Courses
HIST 4950 - Internship Credits: 3 to 9 hours
HIST 4980 - Directed Research Credits: 3 hours
HIST 5000 - Studies in History Credits: 1 to 3 hours
HIST 5900 - Proseminar Credits: 3 hours

Mathematics
Gene Freudenburg, Chair
Christine Browning
Dwayne Channell
Jon Davis
Clifton Ealy
Paul Eenigenburg
Theresa Grant
Christian Hirsch
Terrell Hodge
Ok-Kyeong Kim
Kate Kline
Yuri Ledyaev
Jane-Jane Lo
Niloufer Mackey
John Martino
Tabitha Mingus
Annegret Paul
Dennis Pence
Srdjan Petrovic
The Mathematics Department offers a wide variety of courses and programs in both theoretical and applied areas. There are three majors available: Applied, General, and Secondary Teaching. Minors available include the General Minor, Secondary Teaching of Mathematics, the Science and Mathematics Teaching Minor, and the Elementary and Middle School Teaching Minor. These major and minor programs incorporate emphasis on computer methods, mathematical modeling, and problem solving.

The various mathematics majors (and most minors) all require two semesters of calculus. Students may take either the MATH 1220/1230 sequence or the MATH 1700/1710 sequence, with the recommendation that they pick the last sequence if they will be taking a physics course soon. Students may begin this course work while deciding on a branch of mathematics in which to specialize in the options below.

During the first year, interested students should contact Steve Culver, student advisor/assistant to the chair, through the Mathematics Department. Phone (269) 387-4510 or write: Mathematics Department, Western Michigan University, Kalamazoo, MI 49008. All majors should contact a faculty advisor in mathematics once a year and must contact a faculty advisor in mathematics during their second year of study. All minors, except General Math minors, must contact an advisor.

At most one course with a grade below "C" can be applied toward a major or minor in Mathematics.

Honors in Mathematics

NOTE: Qualified students may plan a program to graduate with honors in mathematics. The following are the requirements for graduation with Honors in Mathematics:

- Grade point average of at least 3.7 in mathematics and statistics courses
- Overall grade point average of at least 3.25
- Completion of two of the following:
  - an honors seminar (can be the Putnam Seminar)
  - an upper-level theoretical course
  - an approved independent study project leading to a paper or presentation

Interested students should see the Curriculum Coordinator in their junior year or early in their senior year to plan an "honors program."

Putnam Seminar

The Putnam Seminar is a problem-solving seminar offered under the course number MATH 3900. Under the direction of a faculty member students practice techniques for solving very challenging problems. Students in the seminar may participate in the William Lowell Putnam national intercollegiate mathematics competition.
Mathematics Major - Applied Mathematics Option

There is a growing need for people who combine knowledge of mathematics and science to formulate and solve practical problems. The intent of the Applied Mathematics Option is to provide a broad range of computational and analytical skills, practice in mathematical modeling, and some fundamental knowledge of a scientific discipline. Computational and applied mathematicians are employed in a variety of positions in industry, business, and government. Students must complete a minor in one of Astronomy, Biomedical Sciences, Chemistry, Computer Science, Physics, or Statistics. Students should select their minor in the area in which they intend to apply their mathematical talents, and then they should select electives that are particularly suited to the problems in that area.

Core Requirements
MATH 2300 - Elementary Linear Algebra Credits: 4 hours
MATH 2720 - Multivariate Calculus and Matrix Algebra Credits: 4 hours
MATH 3740 - Differential Equations and Linear Algebra Credits: 4 hours
MATH 4020 - Mathematical Modeling Credits: 3 hours
MATH 5070 - Numerical Analysis I Credits: 3 hours

Select Either:
MATH 1220 - Calculus I Credits: 4 hours or
MATH 1700 - Calculus I, Science and Engineering Credits: 4 hours

Select Either:
MATH 1230 - Calculus II Credits: 4 hours or
MATH 1710 - Calculus II, Science and Engineering Credits: 4 hours

Select Either
MATH 1450 - Discrete Mathematical Structures Credits: 3 hours or
MATH 3140 - Mathematical Proofs Credits: 3 hours

Three of the following: (9 to 12 hours)
MATH 3300 - Modern Algebra I Credits: 4 hours
MATH 4080 - Linear Programming Credits: 3 hours
MATH 4270 - Graphs and Mathematical Models Credits: 3 hours
MATH 4450 - Algorithmic and Applied Combinatorics Credits: 3 hours
MATH 4500 - Topics in Mathematics Credits: 3 hours
MATH 5270 - Differential Geometry of Curves and Surfaces Credits: 3 hours
MATH 5300 - Advanced Calculus I Credits: 4 hours
MATH 5270 - Vector Calculus and Complex Variables Credits: 4 hours
MATH 5740 - Advanced Differential Equations Credits: 3 hours
STAT 3620 - Probability Credits: 4 hours
STAT 5670 - Statistical Design and Analysis of Experiments Credits: 4 hours
STAT 5680 - Regression Analysis Credits: 3 hours

Select Either
MATH 5100 - Applied Matrix Algebra Credits: 3 hours or
MATH 5300 - Linear Algebra Credits: 3 hours

Cognate Science Requirements:
PHYS 2050 - Mechanics and Heat Credits: 4 hours
PHYS 2060 - Mechanics and Heat Laboratory Credits: 1 hour
STAT 3640 - Statistical Methods Credits: 4 hours

Select Either:
CS 1110 - Computer Science I Credits: 4 hours or
CS 2010 - Programming in FORTRAN Credits: 2 hours or
CS 2040 - Programming in C++ Credits: 2 hours
Select Either
CHEM 1100 - General Chemistry I Credits: 3 hours and
CHEM 1110 - General Chemistry Laboratory I Credits: 1 hour OR
PHYS 2070 - Electricity and Light Credits: 4 hours and
PHYS 2080 - Electricity and Light Laboratory Credits: 1 hour

Minor Requirement
Students must complete a minor in one of the following areas: Astronomy, Biomedical Sciences, Chemistry, Computer Science, Physics, or Statistics. The courses listed above under "Cognate Science Requirements" may also be used to fulfill requirements for the minor where applicable. The minor requirement will be waived for students completing one of the following engineering curricula: Aeronautical Engineering, Chemical Engineering, Computer Engineering, Construction Engineering, Computer Science-General, Computer Science-Theory and Analysis, Electrical Engineering, Industrial Engineering, Manufacturing Engineering, Materials Engineering, Mechanical Engineering, Paper Engineering, or Paper Science.

Recommendations
It is strongly suggested that Biomedical Sciences minors elect:
CHEM 1100 - General Chemistry I Credits: 3 hours
CHEM 1110 - General Chemistry Laboratory I Credits: 1 hour
STAT 3620 - Probability Credits: 4 hours
STAT 5670 - Statistical Design and Analysis of Experiments Credits: 4 hours

Computer Science minors should select:
MATH 1450 - Discrete Mathematical Structures Credits: 3 hours and either
MATH 4400 - Graphs and Mathematical Models Credits: 3 hours or
MATH 4450 - Algorithmic and Applied Combinatorics Credits: 3 hours

Physics minors should select:
MATH 3140 - Mathematical Proofs Credits: 3 hours and
MATH 5700 - Advanced Calculus I Credits: 4 hours

Note: Graduate study in mathematics typically requires:
MATH 3140 - Mathematical Proofs Credits: 3 hours
MATH 3300 - Modern Algebra I Credits: 4 hours and
MATH 5700 - Advanced Calculus I Credits: 4 hours

Baccalaureate Writing Requirement
Students who have chosen the Applied Mathematics option will satisfy the Baccalaureate Writing Requirement by successfully completing:
MATH 4020 - Mathematical Modeling Credits: 3 hours

Mathematics Major - General Mathematics Option
The General Mathematics Option is a flexible program that may be combined with minors in diverse areas such as physics in the natural sciences, economics in the social sciences, or even be used as a base for law school. This option also serves as excellent preparation for graduate study in mathematics. A student in this program should develop, in addition to a broad background in mathematics, an ability for communicating mathematics and for rigorous logical thinking.

Core (12 hours)
MATH 1220 - Calculus I Credits: 4 hours or
MATH 1700 - Calculus I, Science and Engineering Credits: 4 hours
MATH 2300 - Elementary Linear Algebra Credits: 4 hours

Select Either:
MATH 1230 - Calculus II Credits: 4 hours or
MATH 1710 - Calculus II, Science and Engineering Credits: 4 hours
Required (17 to 18 hours)
MATH 2720 - Multivariate Calculus and Matrix Algebra Credits: 4 hours
MATH 3140 - Mathematical Proofs Credits: 3 hours
MATH 3300 - Modern Algebra I Credits: 4 hours
MATH 4400 - Graphs and Mathematical Models Credits: 3 hours or
MATH 4450 - Algorithmic and Applied Combinatorics Credits: 3 hours
MATH 5070 - Numerical Analysis I Credits: 3 hours or
MATH 5700 - Advanced Calculus I Credits: 4 hours Strongly recommended for those planning on graduate school mathematics.

Electives: (Select Three. At least one of the three electives must be at the 4000 level or higher.)
MATH 3400 - Fundamental Concepts of Geometry Credits: 3 hours
MATH 3740 - Differential Equations and Linear Algebra Credits: 4 hours
MATH 4020 - Mathematical Modeling Credits: 3 hours
MATH 4080 - Linear Programming Credits: 3 hours
MATH 4300 - Modern Algebra II Credits: 3 hours
MATH 4900 - Topics in Mathematics Credits: 3 hours
MATH 5070 - Numerical Analysis I Credits: 3 hours
MATH 5100 - Applied Matrix Algebra Credits: 3 hours
MATH 5220 - Introduction to Topology Credits: 3 hours
MATH 5270 - Differential Geometry of Curves and Surfaces Credits: 3 hours
MATH 5300 - Linear Algebra Credits: 3 hours
MATH 5710 - Advanced Calculus II Credits: 3 hours
MATH 5720 - Vector Calculus and Complex Variables Credits: 4 hours
MATH 5740 - Advanced Differential Equations Credits: 3 hours
MATH 5800 - Number Theory Credits: 3 hours
STAT 3620 - Probability Credits: 4 hours
STAT 3640 - Statistical Methods Credits: 4 hours

Note: Those planning to attend graduate school in mathematics should elect theoretical courses such as:
MATH 4300 - Modern Algebra II Credits: 3 hours
MATH 5220 - Introduction to Topology Credits: 3 hours
MATH 5300 - Linear Algebra Credits: 3 hours
MATH 5700 - Advanced Calculus I Credits: 4 hours
MATH 5710 - Advanced Calculus II Credits: 3 hours
MATH 5800 - Number Theory Credits: 3 hours

Baccalaureate Writing Requirement
Students who have chosen the General Mathematics option will satisfy the Baccalaureate Writing Requirement by successfully completing:
MATH 3140 - Mathematical Proofs Credits: 3 hours

Mathematics Major - Secondary Teaching Option
The Secondary Teaching Option, which combines theoretical mathematics with teaching techniques, is designed for students planning to teach in a junior or senior high school. With the current national focus on the improvement of mathematics and science education, this program offers a timely and attractive option.

A minimum grade point average of 2.5 must be attained in this major option to satisfy the requirements of this program.

Core Requirements
MATH 1220 - Calculus I Credits: 4 hours
MATH 1230 - Calculus II Credits: 4 hours
MATH 2300 - Elementary Linear Algebra Credits: 4 hours
MATH 3140 - Mathematical Proofs Credits: 3 hours
MATH 3300 - Modern Algebra I Credits: 4 hours
MATH 3400 - Fundamental Concepts of Geometry Credits: 3 hours
MATH 3500 - Teaching of Middle School Mathematics Credits: 3 hours
MATH 3510 - Computing Technology in Secondary School Mathematics Credits: 3 hours
MATH 4400 - Graphs and Mathematical Models Credits: 3 hours
MATH 4500 - Teaching of Secondary School Mathematics Credits: 3 hours
STAT 3640 - Statistical Methods Credits: 4 hours

One of the following (3 to 4 hours)
MATH 4080 - Linear Programming Credits: 3 hours
MATH 4300 - Modern Algebra II Credits: 3 hours
MATH 5220 - Introduction to Topology Credits: 3 hours
MATH 5700 - Advanced Calculus I Credits: 4 hours
MATH 5800 - Number Theory Credits: 3 hours

Baccalaureate Writing Requirement
Students who have chosen the Secondary Teaching option will satisfy the Baccalaureate Writing Requirement by successfully completing
MATH 3140 - Mathematical Proofs Credits: 3 hours

Mathematics Minor - General Mathematics Option
Students interested in the General Mathematics Minor Option may plan their program using the information below. An advisor's approval is not necessary unless a change in the requirements is requested.

Core Requirements
MATH 1220 - Calculus I Credits: 4 hours or
MATH 1700 - Calculus I, Science and Engineering Credits: 4 hours

Select Either:
MATH 1230 - Calculus II Credits: 4 hours or
MATH 1710 - Calculus II, Science and Engineering Credits: 4 hours

Select Either:
MATH 2300 - Elementary Linear Algebra Credits: 4 hours or
MATH 3740 - Differential Equations and Linear Algebra Credits: 4 hours

Electives
Substitutions or exceptions require approval of departmental advisor. Some electives have other prerequisites. (Choose two)
MATH 2720 - Multivariate Calculus and Matrix Algebra Credits: 4 hours
MATH 3300 - Modern Algebra I Credits: 4 hours
MATH 3400 - Fundamental Concepts of Geometry Credits: 3 hours

Select Either:
MATH 1450 - Discrete Mathematical Structures Credits: 3 hours or
MATH 3140 - Mathematical Proofs Credits: 3 hours

(At most, one of the following six:)
IME 2610 - Engineering Statistics Credits: 3 hours
IME 2620 - Probability for Engineers Credits: 3 hours
MATH 4020 - Mathematical Modeling Credits: 3 hours
MATH 4080 - Linear Programming Credits: 3 hours
MATH 4400 - Graphs and Mathematical Models Credits: 3 hours or
MATH 4450 - Algorithmic and Applied Combinatorics Credits: 3 hours
MATH 5070 - Numerical Analysis I Credits: 3 hours
STAT 2610 - Engineering Statistics Credits: 3 hours
STAT 2620 - Probability for Engineers Credits: 3 hours
Mathematics Minor - Secondary Teaching Option

Program Requirements
A minimum grade point average of 2.5 must be attained in this minor option to satisfy the requirements of this program.

MATH 1220 - Calculus I Credits: 4 hours
MATH 1230 - Calculus II Credits: 4 hours
MATH 2300 - Elementary Linear Algebra Credits: 4 hours
MATH 3140 - Mathematical Proofs Credits: 3 hours
MATH 3400 - Fundamental Concepts of Geometry Credits: 3 hours
MATH 3500 - Teaching of Middle School Mathematics Credits: 3 hours
MATH 3510 - Computing Technology in Secondary School Mathematics Credits: 3 hours

Approved electives (3 to 4 hours)
MATH 3300 - Modern Algebra I Credits: 4 hours or
STAT 3640 - Statistical Methods Credits: 4 hours

Elementary And Middle School Teaching Minor
Students in an Elementary School and Middle School curriculum must contact a mathematics advisor to seek enrollment in this minor.

Courses
MATH 1500 - Number Concepts for Elementary/Middle School Teachers Credits: 4 hours
MATH 1510 - Geometry for Elementary/Middle School Teachers Credits: 4 hours
MATH 2650 - Probability and Statistics for Elementary/Middle School Teachers Credits: 4 hours
MATH 3520 - Teaching of Elementary/Middle School Mathematics Credits: 3 hours
MATH 5540 - Algebra in the Elementary/Middle School Curriculum Credits: 4 hours
MATH 5550 - Mathematical Modeling and Problem Solving in the Elementary/Middle School Curriculum. Credits: 4 hours

Philosophy
Timothy McGrew, Interim Chair
Marc Alspector-Kelly
Kent Baldner
John Dilworth
Michael Pritchard
Michael Scriven
Quentin Smith

Students majoring in philosophy may go into teaching, law, medicine, journalism, government, computer programming, business or any number of other careers. Philosophy is attractive to those who are prepared to search for understanding for its own sake, who do not expect ready-made answers or easy solutions, and who are willing to subject their assumptions to critical scrutiny. Prospective philosophy teachers, whether at the university, junior college, or even high school level, should anticipate continuing for an advanced degree.
The Philosophy Department offices are located on the third floor of Moore Hall. Students are invited to visit the department office and the offices of faculty at any time.

Robert Friedmann Philosophy Prize

A prize named in honor of Dr. Friedmann, the first person to teach philosophy at Western, is awarded annually to an outstanding senior philosophy student.

Honors Program

Applications to the departmental honors program are invited from qualified students. A student wishing to enter the program must submit a proposal for independent research to a faculty committee. Normally, the honors candidate works in close association with a professor of his/her choice and submits a paper (or other project of philosophic merit) to the department. To achieve honors in philosophy the candidate's academic record must be of high quality and the project must be outstanding.

Interdisciplinary work involving faculty from other departments is welcome.

Normally, but not necessarily, the honors student is a senior major; in exceptional cases non-seniors or non-majors may be considered.

Philosophy Major

Program Requirements

Cognates: Appropriate courses in other departments may be used towards a philosophy major (not a minor) up to a maximum of four hours.

Flexibility is built into the philosophy major. Students are encouraged to speak with a faculty advisor about which combination of courses would best suit their individual interests.

A major consists of a minimum of 28 hours in philosophy, including:
PHIL 3000 - Ancient and Medieval Philosophy Credits: 4 hours or
PHIL 3010 - History of Modern Philosophy Credits: 4 hours
PHIL 4800 - Senior Seminar Credits: 4 hours

And one of the following three courses:
PHIL 3310 - Moral Philosophy Credits: 4 hours
PHIL 3320 - Theory of Knowledge Credits: 4 hours or
PHIL 3330 - Metaphysics Credits: 4 hours

Baccalaureate Writing Requirement

Students who have chosen the Philosophy major will satisfy the Baccalaureate Writing Requirement by successfully completing one of the following courses:
PHIL 3000 - Ancient and Medieval Philosophy Credits: 4 hours
PHIL 3010 - History of Modern Philosophy Credits: 4 hours
PHIL 3310 - Moral Philosophy Credits: 4 hours
PHIL 3320 - Theory of Knowledge Credits: 4 hours
PHIL 3330 - Metaphysics Credits: 4 hours

Philosophy Major - Professional and Applied Ethics Concentration

Program Requirements

Philosophy majors who have a special interest in the study of ethics may have their major identified as a Professional and Applied Ethics Concentration, provided that the following course requirements are met:
1. A minimum of 28 hours in Philosophy.

2. One of the following:
   PHIL 3000 - Ancient and Medieval Philosophy Credits: 4 hours
   PHIL 3010 - History of Modern Philosophy Credits: 4 hours

3. Two of the following:
   PHIL 2010 - Introduction to Ethics Credits: 4 hours
   PHIL 3030 - Existentialist Philosophies Credits: 3 hours
   PHIL 3110 - Political Philosophy Credits: 3 hours
   PHIL 3130 - Philosophy of Law Credits: 3 hours
   PHIL 3140 - Philosophy and Public Affairs Credits: 3 hours
   PHIL 3150 - Race and Gender Issues Credits: 3 hours
   PHIL 3160 - Ethics in Engineering and Technology Credits: 3 hours
   PHIL 3310 - Moral Philosophy Credits: 4 hours
   PHIL 3340 - Biomedical Ethics Credits: 4 hours
   PHIL 5340 - Moral and Philosophical Foundations of Health Care Credits: 3 hours

4. Required Course
   The remaining credit hour requirements may be satisfied in a variety of ways, subject to the approval of the student's advisor.
   The student may apply up to four credit hours from an ethics-related course in another department, subject to advisor approval.
   PHIL 4100 - Professional Ethics Credits: 3 hours

**Baccalaureate Writing Requirement**
Students who have chosen the Philosophy major with the professional and applied ethics concentration will satisfy the
Baccalaureate Writing Requirement by successfully completing one of the following courses:
   PHIL 3000 - Ancient and Medieval Philosophy Credits: 4 hours
   PHIL 3010 - History of Modern Philosophy Credits: 4 hours
   PHIL 3310 - Moral Philosophy Credits: 4 hours
   PHIL 3320 - Theory of Knowledge Credits: 4 hours
   PHIL 3330 - Metaphysics Credits: 4 hours

**Philosophy Minor - Professional and Applied Ethics**

**Program Requirements**
Minimum of 18 credit hours. Minor slip required. Required Philosophy courses:

1. One of the following:
   PHIL 3000 - Ancient and Medieval Philosophy Credits: 4 hours
   PHIL 3010 - History of Modern Philosophy Credits: 4 hours

2. Two of the following:
   PHIL 2010 - Introduction to Ethics Credits: 4 hours
   PHIL 3030 - Existentialist Philosophies Credits: 3 hours
   PHIL 3110 - Political Philosophy Credits: 3 hours
   PHIL 3130 - Philosophy of Law Credits: 3 hours
   PHIL 3140 - Philosophy and Public Affairs Credits: 3 hours
   PHIL 3150 - Race and Gender Issues Credits: 3 hours
   PHIL 3160 - Ethics in Engineering and Technology Credits: 3 hours
   PHIL 3310 - Moral Philosophy Credits: 4 hours
   PHIL 3340 - Biomedical Ethics Credits: 4 hours
   PHIL 5340 - Moral and Philosophical Foundations of Health Care Credits: 3 hours
3. Required Course
The remaining credit hour requirements may be satisfied in a variety of ways. The student may complete the minor by doing additional course work within the Department of Philosophy. Any courses, including PHIL 4980: Independent Study, are applicable. Also, the student may apply up to four credit hours from an ethics-related course in another department, subject to advisor approval.

PHIL 4100 - Professional Ethics Credits: 3 hours

Students Not Majoring or Minoring in Philosophy
Students not majoring or minoring in philosophy find that philosophy adds intellectual depth to their major field of study. Philosophy by its nature touches on many areas of life and thought, frequently from a perspective that students find valuable and exciting. Non-majors often consider their philosophy courses an essential element in their general intellectual growth.

In recognition of this, the department offers a wide range of courses for non-major/minors. Students who wish to sharpen their critical thinking skills should consider PHIL 2200, PHIL 2250, or for more advanced students PHIL 3200 or 3250. Students interested in a general introduction to philosophy should consider PHIL 2000; students interested in a philosophical approach to a more specialized area should consider PHIL 2550 or some upper-level cognate. Students interested in a more technical appreciation of the central problems of philosophy should consider such courses as PHIL 3320 (Theory of Knowledge) and PHIL 3330 (Metaphysics). Many students will find it advisable to begin with PHIL 2000, 2010 or 2550, and then continue on the upper level.

Philosophy Minor
A minor consists of at least 15 hours in philosophy. Minors may choose any courses they find suitable. No minor slip is required.

Physics
Paul Pancella, Chair
Nora Berrah
Clement Burns
Sung Chung
Michael Famiano
Thomas Gorczyca
Dean Halderson
Gerald Hardie
Charles Henderson
Emanuel Kamber
Kirk Korista
Arthur McGurn
Lisa Paulius
Alvin Rosenthal
David Schuster
John Tanis
Alan Wuosmaa

The Department of Physics offers four programs of study leading to a major in physics. Three of these are in the Arts and Sciences Curriculum (Physics Major, Physics Major with Electrical Engineering Option, and Physics Major with Materials Physics Option) and are programs that prepare students for graduate study or professional employment in physics. The Secondary Education Physics major prepares students to teach physics at the high school level. A Geophysics Major, sponsored jointly by the departments of Geosciences and Physics, is also available, enabling students to prepare for a career in an important area of applied physics.

Any student contemplating majoring or minoring in physics should contact the Department of Physics as early as possible.
This is especially true for transfer students from community colleges in regard to transfer credit and course of study. Students will want to contact the department undergraduate advisor regarding courses, employment opportunities, and graduate study in physics.

Any physics major may qualify for departmental honors in physics by fulfilling the following requirements:

- Complete the courses recommended for students planning to enter graduate school.
- Attain by the end of the semester preceding graduation an accumulated grade point average of at least 3.5 in physics courses and an accumulated grade point average of 3.0 in other courses.
- Minor programs are available in physics, in secondary education physics, and in astronomy.

All students majoring or minoring in Physics are required to complete the introductory courses PHYS 2050, PHYS 2060, PHYS 2070, PHYS 2080, PHYS 3090, and PHYS 3100 with a grade of "C" or better in each course.

**Physics Major**

**Required Courses**

PHYS 2050 - Mechanics and Heat Credits: 4 hours
PHYS 2060 - Mechanics and Heat Laboratory Credits: 1 hour
PHYS 2070 - Electricity and Light Credits: 4 hours
PHYS 2080 - Electricity and Light Laboratory Credits: 1 hour
PHYS 3090 - Introductory Modern Physics Credits: 3 hours
PHYS 3100 - Introductory Modern Physics Lab Credits: 1 hour
PHYS 3300 - Thermodynamics and Kinetic Theory Credits: 3 hours
PHYS 3420 - Electronics Credits: 4 hours
PHYS 3520 - Waves and Optics Credits: 3 hours
PHYS 4200 - Analytical Mechanics Credits: 3 hours
PHYS 4400 - Electromagnetism Credits: 4 hours
PHYS 4600 - Quantum Mechanics Credits: 3 hours
PHYS 4660 - Advanced Laboratory Credits: 3 hours

**Required Cognates**

CHEM 1100 - General Chemistry I Credits: 3 hours and
CHEM 1110 - General Chemistry Laboratory I Credits: 1 hour
CHEM 1120 - General Chemistry II Credits: 3 hours and
CHEM 1130 - General Chemistry Laboratory II Credits: 1 hour
MATH 2720 - Multivariate Calculus and Matrix Algebra Credits: 4 hours
MATH 3740 - Differential Equations and Linear Algebra Credits: 4 hours
MATH 5720 - Vector Calculus and Complex Variables Credits: 4 hours

Select Either

MATH 1220 - Calculus I Credits: 4 hours or
MATH 1700 - Calculus I, Science and Engineering Credits: 4 hours

Select Either

MATH 1230 - Calculus II Credits: 4 hours or
MATH 1700 - Calculus I, Science and Engineering Credits: 4 hours

**Computer Programming Requirement**

The Department requires Physics majors to be proficient in a programming language. This requirement can be met by demonstrating proficiency or by passing one of the following courses with a grade of “C” or higher.

CS 1040 - Introductory C/C++ Credits: 2 hours or
CS 1070 - Introductory Programming: FORTRAN Credits: 2 hours
Baccalaureate Writing Requirement
Students who have chosen the Physics major will satisfy the Baccalaureate Writing Requirement by successfully completing:
PHYS 4660 - Advanced Laboratory Credits: 3 hours

Physics Major with Electrical Engineering Option
This program is designed for those students who wish to pursue a physics degree with a concentration in Electrical Engineering.

Required Courses
ECE 2100 - Circuit Analysis Credits: 4 hours
ECE 2210 - Electronics I Credits: 4 hours
ECE 3100 - Network Analysis Credits: 3 hours
PHYS 2050 - Mechanics and Heat Credits: 4 hours
PHYS 2060 - Mechanics and Heat Laboratory Credits: 1 hour
PHYS 2070 - Electricity and Light Credits: 4 hours
PHYS 2080 - Electricity and Light Laboratory Credits: 1 hour
PHYS 3090 - Introductory Modern Physics Credits: 3 hours
PHYS 3100 - Introductory Modern Physics Lab Credits: 1 hour
PHYS 3300 - Thermodynamics and Kinetic Theory Credits: 3 hours
PHYS 4200 - Analytical Mechanics Credits: 3 hours
PHYS 4400 - Electromagnetism Credits: 4 hours
PHYS 4600 - Quantum Mechanics Credits: 3 hours
PHYS 4660 - Advanced Laboratory Credits: 3 hours
PHYS 5630 - Solid State Physics Credits: 3 hours

Additional Required Courses
In addition to the above courses the student is required to take a minimum of three courses from among the following. The courses must include at least four hours of ECE course work and be approved by the advisor.

ECE 3200 - Electronics II Credits: 4 hours
ECE 3300 - Electrical Machinery Credits: 4 hours
ECE 3710 - Linear Systems Credits: 3 hours
ECE 3800 - Probabilistic Methods of Signal and System Analysis Credits: 3 hours
ECE 4200 - Power Electronics Credits: 3 hours
ECE 4300 - Electrical Power Systems Credits: 3 hours
ECE 4510 - Microcontroller Applications Credits: 3 hours
ECE 4550 - Digital Signal Processing Credits: 3 hours
ECE 4600 - Communication Systems Credits: 3 hours
ECE 4700 - Feedback Systems Credits: 3 hours
PHYS 3520 - Waves and Optics Credits: 3 hours
PHYS 5620 - Atomic and Molecular Physics Credits: 3 hours
PHYS 5640 - Nuclear and Particle Physics Credits: 3 hours

Computer Programming Requirement
The Department requires Physics majors to be proficient in a programming language. This requirement can be met by demonstrating proficiency or by passing one of the following courses with a grade of “C” or higher.

CS 1040 - Introductory C/C++ Credits: 2 hours or
CS 1070 - Introductory Programming: FORTRAN Credits: 2 hours

Baccalaureate Writing Requirement
Students who have chosen the Physics major with Electrical Engineering option will satisfy the Baccalaureate Writing Requirement by successfully completing:
PHYS 4660 - Advanced Laboratory Credits: 3 hours
Physics Major with Materials Science Option
This program is designed for those students who wish to pursue a physics degree with a concentration in Materials Science.

Required Courses
CHEM 1120 - General Chemistry II Credits: 3 hours
CHEM 1130 - General Chemistry Laboratory II Credits: 1 hour
GEOS 3350 - Mineralogy Credits: 4 hours
GEOS 3360 - Optical Mineralogy Credits: 3 hours
MSE 3530 - Physical Metallurgy Credits: 4 hours
MSE 4570 - Mechanical Behavior of Materials Credits: 3 hours
MSE 4710 - Thermodynamics of Materials Credits: 4 hours
MSE 4760 - Failure Analysis and Corrosion Credits: 3 hours
PHYS 2050 - Mechanics and Heat Credits: 4 hours
PHYS 2060 - Mechanics and Heat Laboratory Credits: 1 hour
PHYS 2070 - Electricity and Light Credits: 4 hours
PHYS 2080 - Electricity and Light Laboratory Credits: 1 hour
PHYS 3090 - Introductory Modern Physics Credits: 3 hours
PHYS 3100 - Introductory Modern Physics Lab Credits: 1 hour
PHYS 3300 - Thermodynamics and Kinetic Theory Credits: 3 hours
PHYS 3420 - Electronics Credits: 4 hours
PHYS 4200 - Analytical Mechanics Credits: 3 hours
PHYS 4600 - Quantum Mechanics Credits: 3 hours
PHYS 5630 - Solid State Physics Credits: 3 hours

Computer Programming Requirement
The Department requires Physics majors to be proficient in a programming language. This requirement can be met by demonstrating proficiency or by passing one of the following courses with a grade of “C” or higher.
CS 1040 - Introductory C/C++ Credits: 2 hours of
CS 1070 - Introductory Programming: FORTRAN Credits: 2 hours

Baccalaureate Writing Requirement
Students who have chosen the Physics major with Materials Science option must satisfy the Baccalaureate Writing Requirement by successfully completing:
ENGL 3050 - Practical Writing Credits: 4 hours

Physics Major - Secondary Education

Required Courses
PHYS 1030 - Sky and Solar System Laboratory Credits: 1 hour and
PHYS 1040 - Introduction to the Sky and Solar System Credits: 3 hours
PHYS 2050 - Mechanics and Heat Credits: 4 hours
PHYS 2060 - Mechanics and Heat Laboratory Credits: 1 hour
PHYS 2070 - Electricity and Light Credits: 4 hours
PHYS 2080 - Electricity and Light Laboratory Credits: 1 hour
PHYS 3090 - Introductory Modern Physics Credits: 3 hours
PHYS 3100 - Introductory Modern Physics Lab Credits: 1 hour
PHYS 3200 - Problems in Mechanics and Thermodynamics Credits: 3 hours
PHYS 3420 - Electronics Credits: 4 hours
PHYS 3520 - Waves and Optics Credits: 3 hours
PHYS 4040 - Teaching of Secondary Science Credits: 3 hours

Required Cognates
CHEM 1100 - General Chemistry I Credits: 3 hours and
CHEM 1110 - General Chemistry Laboratory I Credits: 1 hour

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CHEM 1120 - General Chemistry II Credits: 3 hours and
CHEM 1130 - General Chemistry Laboratory II Credits: 1 hour
MATH 2720 - Multivariate Calculus and Matrix Algebra Credits: 4 hours
MATH 3740 - Differential Equations and Linear Algebra Credits: 4 hours

Select Either
MATH 1220 - Calculus I Credits: 4 hours or
MATH 1700 - Calculus I, Science and Engineering Credits: 4 hours

Select Either
MATH 1230 - Calculus II Credits: 4 hours or
MATH 1710 - Calculus II, Science and Engineering Credits: 4 hours

Note: Refer to the College of Education section of this catalog for additional curriculum requirements for this program. Students should meet with the undergraduate advisor to plan a course of study as soon as possible.

Baccalaureate Writing Requirement
Students who have chosen the Secondary Education Physics major will satisfy the Baccalaureate Writing Requirement by successfully completing:
ED 3950 - School and Society Credits: 3 hours

Geophysics Major (48 to 52 hours) (Physics)
The Geosciences and Physics Departments offer a program of study leading to a major in geophysics. Students choosing this program of study are also required to take mathematics courses which correspond to a minor in mathematics. Students contemplating a geophysics major should contact the Geosciences Department as early as possible for advising.

Major Core: (39 to 40 hours)

Geosciences (GEOS) (22 hours)
GEOS 1300 - Physical Geology Credits: 4 hours
GEOS 1310 - Historical Geology Credits: 4 hours
GEOS 3010 - Minerals and Rocks Credits: 4 hours
GEOS 4300 - Structural Geology Credits: 3 hours
GEOS 4390 - Geologic Mapping Credits: 3 hours
GEOS 4600 - Geologic Communications Credits: 1 hour
GEOS 5600 - Introduction to Applied Geophysics Credits: 3 hours

Physics (PHYS) (17 to 18 hours)
PHYS 2050 - Mechanics and Heat Credits: 4 hours
PHYS 2060 - Mechanics and Heat Laboratory Credits: 1 hour
PHYS 2070 - Electricity and Light Credits: 4 hours
PHYS 2080 - Electricity and Light Laboratory Credits: 1 hour
PHYS 3420 - Electronics Credits: 4 hours
One of the following
PHYS 3300 - Thermodynamics and Kinetic Theory Credits: 3 hours
PHYS 3520 - Waves and Optics Credits: 3 hours
PHYS 4400 - Electromagnetism Credits: 4 hours

Electives: (9 to 12 hours)
Three electives from upper-level geosciences, physics, and engineering courses to be chosen with consent of advisor (9-12 hours).
Required Mathematics Minor (19 hours)
MATH 1220 - Calculus I Credits: 4 hours
MATH 1230 - Calculus II Credits: 4 hours
MATH 2720 - Multivariate Calculus and Matrix Algebra Credits: 4 hours
MATH 3740 - Differential Equations and Linear Algebra Credits: 4 hours
MATH 5070 - Numerical Analysis I Credits: 3 hours

Baccalaureate Writing Requirement
Students who have chosen the Geophysics major will satisfy the Baccalaureate Writing Requirement by successfully completing one of the following courses:
ENGL 3050 - Practical Writing Credits: 4 hours
GEOS 4320 - Geomorphology Credits: 3 hours
GEOS 4350 - Sedimentation and Stratigraphy Credits: 4 hours

Required Supporting Courses (4 hours)
Either
CHEM 1100 - General Chemistry I Credits: 3 hours and
CHEM 1110 - General Chemistry Laboratory I Credits: 1 hour or
CHEM 1120 - General Chemistry II Credits: 3 hours and
CHEM 1130 - General Chemistry Laboratory II Credits: 1 hour

Physics Minor

Required Courses
PHYS 2050 - Mechanics and Heat Credits: 4 hours
PHYS 2060 - Mechanics and Heat Laboratory Credits: 1 hour
PHYS 2070 - Electricity and Light Credits: 4 hours
PHYS 2080 - Electricity and Light Laboratory Credits: 1 hour
PHYS 3090 - Introductory Modern Physics Credits: 3 hours
PHYS 3100 - Introductory Modern Physics Lab Credits: 1 hour

Additional Courses
In addition, two physics courses numbered above 3000 and totaling a minimum of six hours of credit are required.

Physics Minor - Secondary Education

Required Courses
PHYS 2050 - Mechanics and Heat Credits: 4 hours
PHYS 2060 - Mechanics and Heat Laboratory Credits: 1 hour
PHYS 2070 - Electricity and Light Credits: 4 hours
PHYS 2080 - Electricity and Light Laboratory Credits: 1 hour
PHYS 3090 - Introductory Modern Physics Credits: 3 hours
PHYS 3100 - Introductory Modern Physics Lab Credits: 1 hour
PHYS 3420 - Electronics Credits: 4 hours
PHYS 3520 - Waves and Optics Credits: 3 hours

Astronomy Minor

Required Courses
PHYS 1030 - Sky and Solar System Laboratory Credits: 1 hour
PHYS 1040 - Introduction to the Sky and Solar System Credits: 3 hours
PHYS 1050 - Stars and Galaxies Laboratory Credits: 1 hour
PHYS 1060 - Introduction to Stars and Galaxies Credits: 3 hours
PHYS 3250 - Introduction to Astrophysics Credits: 3 hours
PHYS 4980 - Special Problems Credits: 1 to 3 hours

Plus one of the following options, determined in consultation with the physics advisor:
PHYS 2050 - Mechanics and Heat Credits: 4 hours and
PHYS 2060 - Mechanics and Heat Laboratory Credits: 1 hour or
PHYS 3520 - Waves and Optics Credits: 3 hours

Note: Students not majoring in physics should note that they must also complete all prerequisites for the courses listed above. See advisor for details. Astronomy minors with a Physics major must take PHYS 3520 to fulfill the requirements of the minor.

Political Science

J. Kevin Corder, Chair
James M. Butterfield
John A. Clark
Paul Clements
Suhashni Datta-Sandhu
Emily Hauptmann
Gunther M. Hega
Susan Hoffmann
David G. Houghton
Mark Hurwitz
Alan C. Isaak
Ashlyn Kuersten
Priscilla Lambert
Mahendra Lawoti
Peter G. Renstrom
Sybil D. Rhodes
Jacinda Swanson
Peter Wielhouwer

Courses in the department are designed to prepare a student to: (1) become a functioning citizen; (2) become a teacher of government or civics; (3) become a governmental employee or officer; (4) understand the part government plays in everyday business or other activities; (5) develop sound methods of investigation and reflection as well as the ability to evaluate political information critically; (6) understand the role that individuals and organized groups can play in the political process; and (7) appreciate the relationship of the study of government and public affairs to other social sciences. Students who wish to major or minor in political science should come to the department office as soon as possible to complete the appropriate declaration form and to consult with a departmental advisor.

Institute of Government and Politics

The Department of Political Science houses and administers the Institute of Government and Politics (IGP). The mission of IGP is multidimensional. It is organized to serve the professional staff of the Department of Political Science in their varied fields of interest and specialization. It will assist in meeting the needs of the department's student body by extending their educational experiences beyond the confines of the classroom. IGP also reaches out into the larger community, to the university, its immediate environment, the state and national scene, as well as the international arena. In this regard, IGP gives particular attention to the practical applications of political science training. It is therefore charged with the development of relationships between the Department of Political Science and the various colleges, departments, and programs comprising the University.
Foreign Study

Study abroad is encouraged by the Political Science Department. University funds are available to assist students who would like to spend a semester studying abroad. Credit toward any of the majors in political science can be obtained while studying in other countries. To explore these opportunities, talk with one of the faculty in the Political Science Department or contact the Study Abroad Director or Coordinator, B-2425 Ellsworth Hall.

Honors Program

The honors program in political science provides an opportunity for students to earn the bachelor's degree with honors in political science. To be eligible, a student must have sophomore standing, a better than "B" average, and a willingness to do original and independent work. Students interested in the program should consult the departmental honors advisor, Dr. Peter Renstrom.

Programs of Study

Programs of study offered by the department include: (1) a standard major and minor in political science; (2) a major in political science with an international and comparative politics concentration; (3) a major in political science with a public law concentration; (4) a major in political science with an American public policy concentration; and (5) a teaching major and minor in political science.

Political Science Major (33 hours minimum)

The major consists of a minimum of 33 semester hours of work in the department. A grade of "C" or better is required in all courses in the major, including courses in all concentrations of the major (i.e., international and comparative politics, public law, American public policy, and the secondary education curriculum). It is expected that transfer students will take at least one-half of the minimum required 33 hours in the department.

Required Core Courses

PSCI 2000 - National Government Credits: 3 hours
PSCI 2400 - Comparative Politics Credits: 3 hours or
PSCI 2500 - International Relations Credits: 4 hours
PSCI 3660 - Scope and Methods of Political Science Credits: 3 hours
PSCI 3950 - Quantitative Methods for Political Scientists Credits: 3 hours

One course in comparative politics to be chosen from:
PSCI 3400 - European Politics Credits: 4 hours
PSCI 3410 - The Politics of Sub-Saharan Africa Credits: 4 hours
PSCI 3440 - Russian and Central Asian Politics Credits: 4 hours
PSCI 3450 - Latin American Politics Credits: 4 hours
PSCI 3460 - Women in Developing Countries Credits: 4 hours

One course in political theory to be chosen from:
PSCI 3600 - Introduction to the History of Political Theory I: Political Theory to Thomas Hobbes Credits: 3 hours
PSCI 3610 - Introduction to the History of Political Theory II: Political Theory from Thomas Hobbes to Karl Marx Credits: 3 hours
PSCI 3620 - Theoretical and Ideological Bases of Contemporary Politics Credits: 3 hours
PSCI 3630 - American Political Theory Credits: 3 hours

Baccalaureate Writing Requirement

Students who have chosen the Political Science major (any concentration) or the Public Administration major may satisfy the Baccalaureate Writing Requirement by successfully completing one of the following courses:
PSCI 4050 - National Public Policy Credits: 3 hours
PSCI 4210 - Gender and Law Credits: 3 hours
PSCI 4500 - Seminar in International and Comparative Politics Credits: 3 hours
PSCI 4900 - Political Science Honors Seminar Credits: 3 hours
Political Science Major - International and Comparative Politics Concentration
This concentration is available within the political science major for students with particular career and/or advanced degree interests that would require concentrated knowledge of foreign politics and/or international politics. The concentration provides for students completing the program to receive designation of this specialization on their transcript.

The concentration in international and comparative politics is aimed at preparing students for careers in international affairs, the foreign service, development assistance, and international business.

Students interested in a major in political science with a concentration in international and comparative politics should see the designated departmental advisor.

A grade of “C” or better is required in all courses in the major in political science with a concentration in international and comparative politics.

Program Requirements
For the political science major concentration in international and comparative politics, a student must complete the following:

Required Core Courses (16 hours)
PSCI 2000 - National Government Credits: 3 hours
PSCI 2400 - Comparative Politics Credits: 3 hours
PSCI 2500 - International Relations Credits: 4 hours
PSCI 3660 - Scope and Methods of Political Science Credits: 3 hours or
PSCI 3950 - Quantitative Methods for Political Scientists Credits: 3 hours
One course in political theory to be chosen from:
PSCI 3600 - Introduction to the History of Political Theory I: Political Theory to Thomas Hobbes Credits: 3 hours
PSCI 3610 - Introduction to the History of Political Theory II: Political Theory from Thomas Hobbes to Karl Marx Credits: 3 hours
PSCI 3620 - Theoretical and Ideological Bases of Contemporary Politics Credits: 3 hours
PSCI 3630 - American Political Theory Credits: 3 hours
Four of the Following Courses (12 to 16 hours)
PSCI 3400 - European Politics Credits: 4 hours
PSCI 3410 - The Politics of Sub-Saharan Africa Credits: 4 hours
PSCI 3440 - Russian and Central Asian Politics Credits: 4 hours
PSCI 3450 - Latin American Politics Credits: 4 hours
PSCI 3460 - Women in Developing Countries Credits: 4 hours
PSCI 3500 - American Foreign Policy Credits: 4 hours
PSCI 4400 - The European Union Credits: 3 hours
PSCI 4410 - Issues in International Politics Credits: 3 hours
PSCI 4420 - Studies in International Politics Credits: 3 hours
PSCI 5320 - Administration in Developing Countries Credits: 3 hours
PSCI 5530 - United Nations Credits: 3 hours
PSCI 5550 - International Law Credits: 3 hours
Each of the Following Courses (6 to 7 hours)
One additional 3 to 4 hours from Political Science at the 3000-level or higher.
(Prerequisites: PSCI 2400, 2500, and at least one course in the 3400, 3500, or 4400 series.)
PSCI 4500 - Seminar in International and Comparative Politics Credits: 3 hours

Baccalaureate Writing Requirement
PSCI 4500 - Seminar in International and Comparative Politics Credits: 3 hours
Foreign Language Requirement
Student must complete two years of the same foreign language, and this can be met in one of the following four ways. First, successful completion (defined as passing) of the 2010-level course at WMU in the language of their choice. Second, successful completion of similar courses at another institution which are accepted as transfer credit by WMU. Third, passing the Foreign Language Placement Evaluation Exam in the language of their choice regularly offered by the Department of Foreign Languages and Literatures. The student must be placed in the third year of study, which means the student's level of competence is in accordance with two completed years. Fourth, if the student is a foreign student whose first language is not English, the student is exempt from this requirement. Determination of eligibility for this exemption will be based on whether the student was required to take the TOEFL test for admission.

Political Science Major - Public Law Concentration
This concentration is available within the political science major for students with particular career and/or advanced degree interests in this field. The concentration allows students completing the program to receive designation of this specialization on their Permanent Record Card.

Public law is concerned with judicial and quasi-judicial institutions at the international, national, state, and local levels. The concentration is primarily, though not exclusively, designed for students with career interests in the field of law.

A grade of “C” or better is required in all courses in the major in political science with a concentration in public law.

Program Requirements
For the political science major concentration in public law, a student must complete the following:

Required Core Courses (24 hours)
PSCI 2000 - National Government Credits: 3 hours
PSCI 2400 - Comparative Politics Credits: 3 hours or
PSCI 2500 - International Relations Credits: 4 hours
PSCI 3200 - The American Judicial Process Credits: 4 hours
PSCI 3660 - Scope and Methods of Political Science Credits: 3 hours
PSCI 3950 - Quantitative Methods for Political Scientists Credits: 3 hours

Two Of The Following Courses (6 hours)
PSCI 3000 - Urban Politics in the United States Credits: 3 hours
PSCI 3040 - Introduction to Public Policy Credits: 3 hours
PSCI 3100 - Political Parties and Elections Credits: 3 hours
PSCI 3110 - American Politics and the Media Credits: 3 hours
PSCI 3120 - Interest Groups and Citizen Politics Credits: 3 hours
PSCI 3140 - The Presidency Credits: 3 hours
PSCI 3150 - The Politics of Congress Credits: 3 hours

One Of The Following Courses (4 hours)
PSCI 3400 - European Politics Credits: 4 hours
PSCI 3410 - The Politics of Sub-Saharan Africa Credits: 4 hours
PSCI 3440 - Russian and Central Asian Politics Credits: 4 hours
PSCI 3450 - Latin American Politics Credits: 4 hours
PSCI 3460 - Women in Developing Countries Credits: 4 hours

One Of The Following Courses (3 hours)
PSCI 3600 - Introduction to the History of Political Theory I: Political Theory to Thomas Hobbes Credits: 3 hours
PSCI 3610 - Introduction to the History of Political Theory II: Political Theory from Thomas Hobbes to Karl Marx Credits: 3 hours
PSCI 3620 - Theoretical and Ideological Bases of Contemporary Politics Credits: 3 hours
PSCI 3630 - American Political Theory Credits: 3 hours
**Baccalaureate Writing Requirement**  
One course to be chosen from:
- PSCI 4050 - National Public Policy Credits: 3 hours
- PSCI 4210 - Gender and Law Credits: 3 hours
- PSCI 4500 - Seminar in International and Comparative Politics Credits: 3 hours
- PSCI 4900 - Political Science Honors Seminar Credits: 3 hours
- PSCI 4940 - Seminar in Political Science Credits: 3 hours

**PSCI 4050 - National Public Policy**  
**Credits:** 3 hours

**PSCI 4210 - Gender and Law**  
**Credits:** 3 hours

**PSCI 4500 - Seminar in International and Comparative Politics**  
**Credits:** 3 hours

**PSCI 4900 - Political Science Honors Seminar**  
**Credits:** 3 hours

**PSCI 4940 - Seminar in Political Science**  
**Credits:** 3 hours

Two Of The Following Courses (6 hours)
- PSCI 3250 - Criminal Justice Policy Credits: 3 hours
- PSCI 4200 - Constitutional Law Credits: 3 hours
- PSCI 4210 - Gender and Law Credits: 3 hours
- PSCI 4220 - Civil Liberties and Civil Rights Credits: 3 hours

**Political Science Major - American Public Policy Concentration**

This concentration is designed for students who wish to study American government and public policy in depth, yet gain exposure to the broader discipline of political science as well. It aims to prepare students to pursue advanced degrees or careers in policy making, politics, law and public service. The concentration provides for students completing the program to receive designation of this specialization on their transcript.

Students interested in a major in political science with a concentration in American public policy should see the designated departmental advisor.

A grade of "C" or better is required in all courses in the major in political science with a concentration in American public policy.

**Program Requirements**

For the political science major concentration in American public policy, a student must complete the following:

**Required Core Courses (21 hours)**
- PSCI 2000 - National Government Credits: 3 hours
- PSCI 3040 - Introduction to Public Policy Credits: 3 hours
- PSCI 4050 - National Public Policy Credits: 3 hours

One political theory course to be chosen from:
- PSCI 3620 - Theoretical and Ideological Bases of Contemporary Politics Credits: 3 hours
- PSCI 3630 - American Political Theory Credits: 3 hours

Two methods courses:
- PSCI 3660 - Scope and Methods of Political Science Credits: 3 hours
- PSCI 3950 - Quantitative Methods for Political Scientists Credits: 3 hours

One international relations or comparative politics course to be chosen from:
- PSCI 2400 - Comparative Politics Credits: 3 hours
- PSCI 2500 - International Relations Credits: 4 hours

Three of the following courses (9 hours)

One course to be chosen from:
- PSCI 2020 - State and Local Government Credits: 4 hours
- PSCI 3000 - Urban Politics in the United States Credits: 3 hours
- PSCI 3100 - Political Parties and Elections Credits: 3 hours
- PSCI 3110 - American Politics and the Media Credits: 3 hours
- PSCI 3120 - Interest Groups and Citizen Politics Credits: 3 hours
- PSCI 3140 - The Presidency Credits: 3 hours
- PSCI 3150 - The Politics of Congress Credits: 3 hours
- PSCI 3200 - The American Judicial Process Credits: 4 hours
PSCI 3300 - Introduction to Public Administration Credits: 3 hours  
PSCI 4040 - Making of Public Policy in the U.S. Credits: 3 hours

Two additional PSCI courses at 2000-level or above (6 hours)

**Baccalaureate Writing Requirement**
One course to be chosen from:
PSCI 4050 - National Public Policy Credits: 3 hours  
PSCI 4210 - Gender and Law Credits: 3 hours  
PSCI 4500 - Seminar in International and Comparative Politics Credits: 3 hours  
PSCI 4900 - Political Science Honors Seminar Credits: 3 hours  
PSCI 4940 - Seminar in Political Science Credits: 3 hours

**Secondary Education Major in Political Science**
The teaching major consists of a minimum of 30 semester hours of work in political science. It is expected that transfer students will take at least one-half of the minimum required 30 hours in the department. A grade of “C” or better is required in all courses in the secondary education major in political science. The following are the program requirements for teaching majors:

**Required Courses**
PSCI 2000 - National Government Credits: 3 hours  
PSCI 2020 - State and Local Government Credits: 4 hours  
PSCI 2400 - Comparative Politics Credits: 3 hours or  
PSCI 2500 - International Relations Credits: 4 hours  
PSCI 3660 - Scope and Methods of Political Science Credits: 3 hours or  
PSCI 3950 - Quantitative Methods for Political Scientists Credits: 3 hours

One course in comparative politics to be chosen from:
PSCI 3400 - European Politics Credits: 4 hours  
PSCI 3410 - The Politics of Sub-Saharan Africa Credits: 4 hours  
PSCI 3440 - Russian and Central Asian Politics Credits: 4 hours  
PSCI 3450 - Latin American Politics Credits: 4 hours  
PSCI 3460 - Women in Developing Countries Credits: 4 hours

One course in political theory to be chosen from:
PSCI 3600 - Introduction to the History of Political Theory I: Political Theory to Thomas Hobbes Credits: 3 hours  
PSCI 3610 - Introduction to the History of Political Theory II: Political Theory from Thomas Hobbes to Karl Marx Credits: 3 hours  
PSCI 3620 - Theoretical and Ideological Bases of Contemporary Politics Credits: 3 hours or  
PSCI 3630 - American Political Theory Credits: 3 hours

**Baccalaureate Writing Requirement**
ED 3950 - School and Society Credits: 3 hours or  
ES 3950 - School and Society Credits: 3 hours

**Additional Electives**
Additional electives in Political Science at the 2000-level or higher to achieve a minimum of 30 semester hours

**Cognate Requirements**
Students planning to use this major to meet teacher certification requirements are required to complete GEOG 4600, Concepts and Strategies in the Teaching of Geography, or HIST 4940, Teaching Methods in the Secondary School.

Teaching majors must also complete a minor from the list of approved minors for the Secondary Education curriculum. The cognate requirements can be counted toward a minor in Geography or History.
ECON 2010 - Principles of Microeconomics Credits: 3 hours or
ECON 2020 - Principles of Macroeconomics Credits: 3 hours
GEOG 1020 - World Geography Through Media and Maps Credits: 3 hours
GEOG 1050 - Physical Geography Credits: 4 hours or
GEOG 2050 - Human Geography Credits: 3 hours
HIST 2100 - American History to 1877 Credits: 3 hours and
HIST 2110 - American History since 1877 Credits: 3 hours

Political Science Minor
The standard political science minor consists of 20 semester hours in political science. It is expected that transfer students will take at least one-half of the minimum required 20 hours in the department.

Program Requirements
A political science minor shall complete the following:
PSCI 2000 - National Government Credits: 3 hours
PSCI 2400 - Comparative Politics Credits: 3 hours or
PSCI 2500 - International Relations Credits: 4 hours

One course in comparative politics to be chosen from:
PSCI 3420
PSCI 3470
PSCI 3480
PSCI 3400 - European Politics Credits: 4 hours
PSCI 3410 - The Politics of Sub-Saharan Africa Credits: 4 hours
PSCI 3440 - Russian and Central Asian Politics Credits: 4 hours
PSCI 3450 - Latin American Politics Credits: 4 hours
PSCI 3460 - Women in Developing Countries Credits: 4 hours

One course in political theory to be chosen from:
PSCI 5620
PSCI 3600 - Introduction to the History of Political Theory I: Political Theory to Thomas Hobbes Credits: 3 hours
PSCI 3610 - Introduction to the History of Political Theory II: Political Theory from Thomas Hobbes to Karl Marx Credits: 3 hours
PSCI 3620 - Theoretical and Ideological Bases of Contemporary Politics Credits: 3 hours
PSCI 3630 - American Political Theory Credits: 3 hours
PSCI 3660 - Scope and Methods of Political Science Credits: 3 hours

Additional Information
Requirements may be waived with the written permission of the chairperson of the department.

Secondary Education Minor in Political Science
A teaching minor consists of 21 semester hours of work in political science. It is expected that transfer students will take at least one-half of the minimum required 21 hours in the department. A grade of "C" or better is required in all courses in the secondary education minor in Political Science. The following are the program requirements for teaching minors:

Required Courses
One elective at the 3000-level or above.
PSCI 2000 - National Government Credits: 3 hours
PSCI 2020 - State and Local Government Credits: 4 hours
PSCI 2400 - Comparative Politics Credits: 3 hours or
PSCI 2500 - International Relations Credits: 4 hours
One course in comparative politics to be chosen from:
PSCI 3420
PSCI 3470
PSCI 3480
PSCI 3400 - European Politics Credits: 4 hours
PSCI 3410 - The Politics of Sub-Saharan Africa Credits: 4 hours
PSCI 3440 - Russian and Central Asian Politics Credits: 4 hours
PSCI 3450 - Latin American Politics Credits: 4 hours
PSCI 3460 - Women in Developing Countries Credits: 4 hours

One course in political theory to be chosen from:
PSCI 3600 - Introduction to the History of Political Theory I: Political Theory to Thomas Hobbes Credits: 3 hours
PSCI 3610 - Introduction to the History of Political Theory II: Political Theory from Thomas Hobbes to Karl Marx Credits: 3 hours
PSCI 3620 - Theoretical and Ideological Bases of Contemporary Politics Credits: 3 hours or
PSCI 3630 - American Political Theory Credits: 3 hours

Courses by Topic - Political Science

Principles
PSCI 1000 - Introduction to Political Science Credits: 3 hours
PSCI 1050 - Critical Thinking About Politics Credits: 3 hours
PSCI 3660 - Scope and Methods of Political Science Credits: 3 hours

American Political System
PSCI 2000 - National Government Credits: 3 hours
PSCI 2020 - State and Local Government Credits: 4 hours
PSCI 3000 - Urban Politics in the United States Credits: 3 hours
PSCI 3040 - Introduction to Public Policy Credits: 3 hours
PSCI 3060 - Environmental Politics Credits: 3 hours
PSCI 3100 - Political Parties and Elections Credits: 3 hours
PSCI 3110 - American Politics and the Media Credits: 3 hours
PSCI 3120 - Interest Groups and Citizen Politics Credits: 3 hours
PSCI 3140 - The Presidency Credits: 3 hours
PSCI 3150 - The Politics of Congress Credits: 3 hours
PSCI 3200 - The American Judicial Process Credits: 4 hours
PSCI 3250 - Criminal Justice Policy Credits: 3 hours
PSCI 4040 - Making of Public Policy in the U.S. Credits: 3 hours
PSCI 4050 - National Public Policy Credits: 3 hours
PSCI 4100 - American Public Opinion Credits: 3 hours
PSCI 4200 - Constitutional Law Credits: 3 hours
PSCI 4210 - Gender and Law Credits: 3 hours
PSCI 4220 - Civil Liberties and Civil Rights Credits: 3 hours
PSCI 5060 - Topics in American Politics Credits: 3 to 4 hours
PSCI 5260 - Administrative Law and Public Regulation Credits: 3 hours

Public Administration
PSCI 3300 - Introduction to Public Administration Credits: 3 hours
PSCI 5320 - Administration in Developing Countries Credits: 3 hours

Foreign And Comparative Political Systems
PSCI 2400 - Comparative Politics Credits: 3 hours
PSCI 3400 - European Politics Credits: 4 hours
PSCI 3410 - The Politics of Sub-Saharan Africa Credits: 4 hours
PSCI 3440 - Russian and Central Asian Politics Credits: 4 hours
PSCI 3450 - Latin American Politics Credits: 4 hours
PSCI 3460 - Women in Developing Countries Credits: 4 hours

International Relations
PSCI 2500 - International Relations Credits: 4 hours
PSCI 3500 - American Foreign Policy Credits: 4 hours
PSCI 4500 - Seminar in International and Comparative Politics Credits: 3 hours
PSCI 5530 - United Nations Credits: 3 hours
PSCI 5550 - International Law Credits: 3 hours

Political Theory And Methodology
PSCI 3600 - Introduction to the History of Political Theory I: Political Theory to Thomas Hobbes Credits: 3 hours
PSCI 3610 - Introduction to the History of Political Theory II: Political Theory from Thomas Hobbes to Karl Marx Credits: 3 hours
PSCI 3620 - Theoretical and Ideological Bases of Contemporary Politics Credits: 3 hours
PSCI 3630 - American Political Theory Credits: 3 hours
PSCI 3950 - Quantitative Methods for Political Scientists Credits: 3 hours

Special Studies
PSCI 2700 - Political Topics Credits: 1 to 3 hours
PSCI 3700 - Issues in Contemporary Politics Credits: 3 to 4 hours
PSCI 3900 - Field Work in Political Science Credits: 1 to 12 hours
PSCI 3910 - Internship Seminar Credits: 3 hours
PSCI 4490 - Field Work in Foreign Political Systems Credits: 3 to 4 hours
PSCI 4900 - Political Science Honors Seminar Credits: 3 hours
PSCI 4920 - Political Science Honors Research Credits: 2 to 3 hours
PSCI 4940 - Seminar in Political Science Credits: 3 hours
PSCI 5980 - Studies in Political Science Credits: 1 to 4 hours

Psychology
R. Wayne Fuqua, Chair
Mark Alavosius
Galen J. Alessi
John Austin
Lisa E. Baker
James E. Carr
Alyce M. Dickinson
Eric Fox
Scott T. Gaynor
Bradley E. Huitema
Linda A. LeBlanc
Richard W. Malott
Tina Mason-Hall
Amy Naugle
Cynthia Pietras
Alan Poling
C. Richard Spates
Lester W. Wright, Jr.
Pre-Psychology Major

Admission Requirement
Any freshman or transfer student planning to pursue psychology as a major will be admitted as a pre-psychology student (PRPP) and will work with a psychology advisor to develop a planned program. Admission as a major requires that the student complete PSY 1000, 1600, and 2500, all with grades of "C" or better.

Transfer students who present appropriate psychology courses will be evaluated and may be admitted on an individual basis directly into the program. Transfer students with no psychology courses will be required to take PSY 1000, 1600, and 2500, and receive a grade of "C" or better in each course.

Application forms and additional information can be obtained from the departmental office or from a psychology advisor. Students who do not meet admission requirements will be informed of steps they can take to earn admission. Admission of students on a probationary status to the psychology major will be considered on an individual basis.

Honors Program in Psychology
The honors program is designed to promote an academic community of undergraduate students, graduate students and faculty in psychology. The requirements for the departmental honors program include:

1. The completion of a major in Psychology.
2. A University grade point average of 3.5, and a department grade point average of 3.8.
3. Completion and the following: (6 hours)
   Preparation of an Honors Thesis and the following course:
   PSY 4990 - Honors Projects in Psychology Credits: 1 to 5 hours
4. The successful defense of the Honors Thesis before a departmental committee.
5. Participation in a professional apprenticeship program (2 credit hours).

Psychology Major (34 hours)
A minimum of nine (9) hours must be taken from the WMU Psychology Department, and the student must obtain a grade of "C" or better in any courses that count toward the major. Majors are required to satisfy College-Level Mathematics or Quantitative Reasoning Proficiency before registering for PSY 3000.

Self-instructional courses will not generally count toward the Psychology major.

Introductory Core (9 hours)
PSY 1000 - General Psychology Credits: 3 hours
PSY 1600 - Child Psychology Credits: 3 hours
PSY 2500 - Abnormal Psychology Credits: 3 hours

Method and Theory Core (13 hours)
PSY 3000 - Statistics for the Behavioral Sciences Credits: 3 hours
PSY 3300 - Behavioral Research Methods Credits: 3 hours
PSY 3600 - Concepts and Principles of Behavior Analysis Credits: 4 hours
PSY 4600 - Survey of Behavior Analysis Research Credits: 3 hours

Practicum or Laboratory Experience (3 hours)
Take one of the 3-hour practicum or laboratory courses
PSY 3470 - Practicum: Learning and Self-Management Credits: 3 hours
PSY 3570 - Practicum with Special Populations Credits: 3 hours
PSY 3780 - Laboratory in Physiological Psychology Credits: 3 hours
PSY 3870 - Practicum in Behavior Analysis in Education Credits: 3 hours
PSY 3970 - Practicum in Psychology Credits: 1 to 5 hours
PSY 5470 - Practicum: Organizational Performance Improvement Credits: 3 hours
PSY 5990 - Practicum in Psychology Credits: 2 to 4 hours

Electives (9 hours)
PSY 3240 - Abnormal Child Psychology Credits: 3 hours
PSY 3720 - Physiological Psychology Credits: 3 hours
PSY 3980 - Independent Study Credits: 1 to 5 hours
PSY 4280 - Psychology of Aging Credits: 3 hours
PSY 4440 - Industrial/Organizational Behavior Analysis Credits: 3 hours
PSY 4630 - Health Psychology Credits: 3 hours
PSY 4700 - Applied Behavior Analysis in Developmental Disabilities Credits: 3 hours
PSY 5170 - Psychology in the Schools Credits: 3 hours
PSY 5240 - Human Sexuality Credits: 3 hours
PSY 5260 - Human Drug Use and Abuse Credits: 3 hours
PSY 5400 - Psychology of Safety Credits: 3 hours
PSY 5610 - Introduction to Clinical Psychology Credits: 3 hours
PSY 5740 - Cross Cultural Psychology Credits: 3 hours
PSY 5950 - History of Psychology Credits: 3 hours

Acceptable Minors:
Anthropology, Biology, Chemistry, Communication, Economics, English, Linguistics, Mathematics, Philosophy, Physics, Political Science, Practical Writing, Sociology, Social Work, and others approved by the department advisor.

Baccalaureate Writing Requirement
Students who have chosen the Psychology major will satisfy the Baccalaureate Writing Requirement by successfully completing:
PSY 3300 - Behavioral Research Methods Credits: 3 hours or
PSY 4600 - Survey of Behavior Analysis Research Credits: 3 hours

Psychology Minor (15 hours minimum)
Of the minimum total of fifteen (15) hours for the minor, a minimum of six (6) hours must be taken from the WMU Psychology Department, and the student must receive a grade of "C" or better in the Psychology minor courses-PSY 1000, 1600, and 2500-and obtain a grade of "C" or better in any course that counts toward the minor.

Self-instructional courses will not generally count toward the Psychology minor.

Required Courses (9 hours)
PSY 1000 - General Psychology Credits: 3 hours
PSY 1600 - Child Psychology Credits: 3 hours
PSY 2500 - Abnormal Psychology Credits: 3 hours

Approved Electives (6 hours)
PSY 3240 - Abnormal Child Psychology Credits: 3 hours
PSY 3440 - Organizational Psychology Credits: 3 hours
PSY 4240 - The Psychology of Human Sexuality Credits: 3 hours
PSY 4260 - Introduction to Human Drug Use and Abuse Credits: 3 hours
PSY 4280 - Psychology of Aging Credits: 3 hours
PSY 4630 - Health Psychology Credits: 3 hours

Note: Three (3) hours of practicum can substitute for 3 hours of elective.
PSY 3470 - Practicum: Learning and Self-Management Credits: 3 hours
PSY 3570 - Practicum with Special Populations Credits: 3 hours
PSY 3870 - Practicum in Behavior Analysis in Education Credits: 3 hours or
Public Affairs and Administration
Robert A. Peters, Director
Barbara Liggett
Janice Maatman
L. Robert McConnell
Matthew S. Mingus
Victoria Ross
Udaya Wagle
James A. Visser

The School of Public Affairs and Administration offers graduate courses, seminars, and workshops designed to prepare Master of Public Administration (MPA) and Doctor of Philosophy in Public Administration (Ph.D.) degree candidates for leadership positions with public and independent sector agencies. The School also offers for undergraduate students a minor in Nonprofit Leadership with a certification in American Humanities.

The American Humanities certification can be accomplished two ways at WMU—as a stand-alone certificate with a major and minor in any discipline or as part of a minor in Nonprofit Leadership through the School of Public Affairs and Administration. The minor in Nonprofit Leadership is described below; the stand-alone certificate in American Humanities is described in the College of Arts and Sciences section of this catalog under the general heading of Interdisciplinary Programs, American Humanities Program.

Nonprofit Leadership Minor
The School of Public Affairs and Administration offers a Minor in Nonprofit Leadership. Besides traditional course work this minor requires service to the University and community. The minor requires 18 credit hours and certification. Each student earning this minor will also earn a certificate from American Humanities, a national organization of over 70 collaborating universities and national nonprofit organizations. The American Humanities program is designed to prepare students for entry-level professional positions in nonprofit organizations.

Requirements
The minor in Nonprofit Leadership that includes the American Humanities certification requires the following 18 credit hours and service:

Electives Credits: 6 to 9 hours
- PADM 2000 - Introduction to Nonprofit Leadership Credits: 3 hours
- PADM 3000 - Nonprofit Advancement Credits: 3 hours
- PADM 4000 - Seminar in Nonprofit Leadership Credits: 3 hours
- PADM 4100 - Internship in Nonprofit Leadership Credits: 3 hours

Additional Requirements
Extra curricular requirements prescribed by American Humanities, Inc. (These requirements include participation in an American Humanities Student Organization, attending the national AH Management Institute, and participating in other activities that fulfill the AH competencies.)

The student must complete a minimum internship of 300 hours (3 hours) in a nonprofit organization either by taking PADM 4100 or by taking an internship in the student's major. If the internship is in the student's major, the internship must be approved by the WMU AH Campus Director, involve work that fulfills the American Humanities competencies, and include the reports for American Humanities certification by WMU. The student must also take additional electives if he/she fulfills the internship in his/her major.
The 6 to 9 hours of electives (9 if the internship is taken as part of the student's major) are determined by the student's career goals and defined in conjunction with the American Humanics Director. Since leadership encompasses a broad range of skills that are applied in several sectors, it is not possible to provide a comprehensive list of the areas of the electives. Examples include the arts, communication, criminal justice, diversity, environmental studies, health services, nonprofit administration, public policy, public history, and urban and regional planning. Course options for these and additional areas are provided on the School of Public Affairs and Administration's web site and developed in consultation with the American Humanics Director.

In order to obtain AH certification/minor, the student must earn a minimum grade of "C" or better in any course counted towards the AH certification/minor and have the WMU Campus Director attest to the fulfillment of the competencies. The American Humanics competency requirements include communication skills, employability skills, a demonstrated understanding of historical and philosophical foundations of nonprofit organizations, youth and adult development, nonprofit board and committee development, fundraising principles and practices, human resource development and supervision, nonprofit leadership and financial management, nonprofit advancement, program planning, and risk management.

Current Approved Electives
Areas of Competence and suggested courses are provided on the School's website: www.wmich.edu/spaa

**Sociology**
David J. Hartmann, Chair
Susan Caringella-MacDonald
Susan M. Carlson
Susan L. Caulfield
Paul S. Ciccantell
Laura Citrin
Charles E. Crawford II
Douglas V. Davidson
Thomas E. Ford
Barry Goetz
Gregory Howard
Vyacheslav Karpov
Ronald C. Kramer
Richard R. MacDonald
Gerald Markle
Angela Moe
Victoria C. Ross
Zoann K. Snyder
Subhash R. Sonnad
Thomas L. Van Valey
Robert F. Wait
Paul L. Wienir

Courses are designed to give students a better understanding of the significant factors and processes of modern life; to provide study useful for particular applied fields, such as social work, criminal justice, market research, opinion polling, city, state, and federal governmental service, and social research; to meet the needs of students preparing to teach in the social science field; and to prepare students for graduate work in sociology or criminal justice.

The Kercher Center for Social Research, as the research arm of the department, provides facilities and services available to students as well as faculty for instructional and research purposes. The center maintains computer and other research facilities that are used in research course instruction. Research conducted through the center has dealt with subjects such as: criminal justice, marital roles, race relations, voting behavior, alcoholism, mental health, demography, and education.
Department Advisor

2401 Sangren Hall, 387-5286. Students must consult the department advisor for major/minor slips in Sociology, Criminal Justice, the Social Psychology Concentration, and for the evaluation of transfer credits, or for any other questions involving majors or minors.

Undergraduate Assistantships

Students interested in becoming more involved in the department's activities and projects may wish to apply for undergraduate assistantships which are available fall and spring semesters. Department assistants receive a moderate stipend and are assigned to work for a faculty member or department project. Applicants for these awards are also considered for the Kercher Award. For further information and application forms, see the department advisor.

Further information and application forms may be obtained at the Sociology Office, 2420 Sangren Hall.

American Humanities Certificate Program

Sociology majors and minors may choose to participate in the American Humanities Certificate Program. This program is designed to prepare students for employment, service, and leadership in nonprofit organizations. Students qualify for the certificate by taking courses in their major and minor that meet the American Humanities competency requirements, by taking the required American Humanities courses, and by meeting the American Humanities extra-curricular requirements. For details, please see the American Humanities description in the College of Arts and Sciences Interdisciplinary Program section of this catalog. Details are also available from the Sociology academic advisor and from the American Humanities director.

Honors Program

Students in sociology and criminal justice may participate in the department honors program in three ways:

- Membership in Alpha Kappa Delta, the national sociology honor society. AKD is open to all students who have completed at least ten hours in sociology with a grade point average of 3.0 or better, and whose overall average is at least 3.0.
- Leonard C. Kercher Fund Awards are made each year for outstanding student achievement. Dr. Kercher was head of the department from 1940 to 1972.
- Membership in Alpha Phi Sigma, the national criminal justice honor society. Alpha Phi Sigma is open to all criminal justice students who have completed at least one third of the credit hours required for graduation with an overall grade point average of 3.0 or better, and whose criminal justice average is at least 3.2.

Criminal Justice Program

Ronald C. Kramer, Director

2406 Sangren Hall

(269) 387-5284

Susan Standish, Advisor

2401 Sangren Hall

(269) 387-5286

Criminal Justice is an interdisciplinary curriculum designed to provide perspective on the entire criminal justice system. The program is designed to provide a well-rounded, theoretical, and practical education necessary for careers in criminal justice and/or graduate work in law, criminology, or other areas.

The Criminal Justice Major requires thirty-three hours of core and specialized classes including: Criminology, Criminal Justice Process, Sociology of Law Enforcement, Juvenile Delinquency, Correctional Process, Advanced Criminology, and Methods of Data Collection and Analysis. Specialized work in juvenile justice, courts, probation, and law enforcement is available as well as certifiability as a Michigan police officer.
Curriculum and program details may be found under Sociology/Criminal Justice.

**Criminal Justice Major (33 hours)**
This program is designed to provide perspective on the entire criminal justice system: crime as a social problem and society's reactions to it, the organization and operation of the criminal justice system, and the correctional process, as well as causes of crime and delinquency and other current issues. While the goal of the program is to provide knowledge and skills necessary for students interested in careers in criminal justice, it will support a number of related areas. In addition, students will be well prepared to pursue professional or graduate work in law, criminology, or other areas.

Students should consider internships. Not all students are guaranteed internships and some placements require the applicant to undergo security checks. Applications are required.

**Required Prerequisites**
The following courses are required before taking any of the core courses. These hours are not included in the 33-hour requirement for the major.
SOC 2000 - Principles of Sociology Credits: 3 hours or
SOC 2100 - Modern Social Problems Credits: 3 hours
SOC 2600 - Introduction to Criminal Justice Credits: 3 hours

**Writing Expectation**
Students should have completed ENGL 1050 or equivalent and write at the college level before enrolling in the following advanced courses.

**Baccalaureate Writing Requirements**
Students who have chosen the Criminal Justice major will satisfy the Baccalaureate Writing Requirement by successfully completing SOC 4660 Advanced Criminology.

**Required Core Courses**
All of the following courses (18 hours) are required. It is important to check with the advisor so courses are taken in proper sequence.
SOC 3620 - Criminology Credits: 3 hours
SOC 3630 - Criminal Justice Process Credits: 3 hours
SOC 3640 - Sociology of Law Enforcement Credits: 3 hours
SOC 3650 - Correctional Process Credits: 3 hours
SOC 4540 - Juvenile Delinquency Credits: 3 hours
SOC 4660 - Advanced Criminology Credits: 3 hours

**Required Research Methods**
SOC 2820 - Methods of Data Collection Credits: 3 hours
SOC 2830 - Methods of Data Analysis Credits: 3 hours

**Electives**
To complete the required total of 33 hours, students may take any of the following courses.

*Contemporary Issues in Sociology and Criminology*
AFS 3000 - Black Experience: From the African Beginnings to 1865 Credits: 3 hours
LAW 3840 - Criminal Law and Procedure Credits: 4 hours
SOC 3140 - Ethnic Relations Credits: 3 hours
SOC 3200 - Introduction to Social Psychology Credits: 3 hours
SOC 4120 - Child Abuse Credits: 3 hours
SOC 4560 - Social Stratification Credits: 3 hours
SOC 4950 - Special Topics in Sociology or Criminal Justice: Variable Topics Credits: 1 to 3 hours
SOC 5600 - Corporate and Governmental Crime Credits: 3 hours
SOC 5610 - Violence and U.S. Society Credits: 3 hours
SOC 5620 - Victimology Credits: 3 hours
SOC 5630 - Gender and Justice Credits: 3 hours
SOC 5680 - Race, Ethnicity, and Justice Credits: 3 hours

Corrections
SOC 4650 - Non-Institutional Corrections

Courts
PHIL 3130 - Philosophy of Law Credits: 3 hours
PSCI 3200 - The American Judicial Process Credits: 4 hours
PSCI 3250 - Criminal Justice Policy Credits: 3 hours
PSCI 4220 - Civil Liberties and Civil Rights Credits: 3 hours
SOC 5780 - Sociology of Law Credits: 3 hours

Juvenile Justice
SOC 4220 - Adolescent Socialization Credits: 3 hours
SOC 4580 - Juvenile Justice Casework Credits: 3 hours
SOC 4590 - Juvenile Justice Credits: 3 hours

Internship and Directed Study
SOC 4960 - Criminal Justice Internship Credits: 2 to 8 hours
SOC 4980 - Sociology Internship Credits: 2 to 8 hours
SOC 5980 - Directed Individual Study Credits: 2 to 6 hours

Law Enforcement Administration
SOC 4670 - The Police and Community Dynamics Credits: 3 hours
SOC 4680 - The Police and Crime Prevention Credits: 3 hours

Criminal Justice Minor
An 18-hour criminal justice minor is available, patterned after the major. Minor slips are required.

Required Core (9 hours)
SOC 2000 - Principles of Sociology Credits: 3 hours or
SOC 2100 - Modern Social Problems Credits: 3 hours
SOC 2600 - Introduction to Criminal Justice Credits: 3 hours
SOC 3620 - Criminology Credits: 3 hours

Three of the Following are Required:
SOC 3630 - Criminal Justice Process Credits: 3 hours
SOC 3640 - Sociology of Law Enforcement Credits: 3 hours
SOC 3650 - Correctional Process Credits: 3 hours
SOC 4540 - Juvenile Delinquency Credits: 3 hours

Special Law Enforcement Certification Option
Students have the option to enroll in the Law Enforcement Certification Program in cooperation with Kalamazoo Valley Community College (KVCC). Application and preliminary screening are required. Students are required to track in the program during the last two semesters at WMU (MLEOTC ruling). See the advisor for further information.

Required courses in the Tracking Program include:
Topics include: Criminal Investigation (4); Criminal Law and Procedure (4); Emergency Vehicle Operation (2); Firearms (3); Fundamentals of Marksmanship (2); Medical First Responder for Law Enforcement (3); Patrol Procedures (4); Police Physical Skills (4); Police Practical Problems (3); and Traffic (4).
SOC 2610 - Law Enforcement Certification - Variable Topics Credits: Variable hours
Note: All WMU classes are 3 credit hours unless otherwise noted.

**Sociology Major**
A major in Sociology consists of a minimum of 30 hours of course work in Sociology.

**Required Courses (18 hours)**
SOC 2000 - Principles of Sociology Credits: 3 hours
SOC 2820 - Methods of Data Collection Credits: 3 hours
SOC 2830 - Methods of Data Analysis Credits: 3 hours
SOC 3000 - Sociological Theory Credits: 3 hours
SOC 3200 - Introduction to Social Psychology Credits: 3 hours
SOC 4800 - Advanced Sociology Credits: 3 hours

**Electives (12 hours)**
Students may choose their twelve hours of electives from the many offerings in the Department. At least two of the elective courses must be at the 3000- to 5000-level; only one at the 1000-level.

Limitations to the requirements above include: (1) a maximum of 12 hours transferred from a two-year institution may be included; (2) at least 9 hours must be taken at Western Michigan University; (3) no more than one course at the 1000-level may be included. Any variance of the above requirements must be approved by the Undergraduate Advisor, 2401 Sangren Hall.

**Transfer Students**
Transfer students should see the department advisor, since any transfer credit in sociology without a stated equivalent must be evaluated by the department if it is to apply toward a sociology major or minor.

**Baccalaureate Writing Requirement**
Students who have chosen the Sociology major will satisfy the Baccalaureate Writing Requirement by successfully completing:
SOC 4800 - Advanced Sociology Credits: 3 hours

**Sociology Major - Social Psychology Concentration**
Social Psychology is the study of the impact of group life on individual behavior, thought, and personality development. Training in social psychology provides a valuable background for a variety of positions in human service organizations and can provide an excellent theoretical foundation for graduate work in more applied fields such as social work, counseling, public administration and criminology. Since this is a concentration, students cannot major/minor in this concentration and have a sociology major/minor.

**Required Courses (18 hours)**
SOC 2000 - Principles of Sociology Credits: 3 hours
SOC 2820 - Methods of Data Collection Credits: 3 hours
SOC 2830 - Methods of Data Analysis Credits: 3 hours
SOC 3000 - Sociological Theory Credits: 3 hours
SOC 3200 - Introduction to Social Psychology Credits: 3 hours
SOC 4800 - Advanced Sociology Credits: 3 hours

**Electives (12 hours)**
Three of the following electives (9 hours) are required:
At least three (3) hours of other electives within the Sociology department.
SOC 4120 - Child Abuse Credits: 3 hours
SOC 4210 - Childhood Socialization Credits: 3 hours
SOC 4220 - Adolescent Socialization Credits: 3 hours
SOC 4790 - Female/Male Interaction Credits: 3 hours
SOC 5200 - Studies in Social Psychology: Variable Topics Credits: 3 hours

**Baccalaureate Writing Requirement**

Students who have chosen the Sociology Major-Social Psychology Concentration will satisfy the Baccalaureate Writing Requirement by successfully completing:

SOC 4800 - Advanced Sociology Credits: 3 hours

**Sociology Minor**

**Requirements**

A minor in sociology consists of 18 hours of course work in Sociology. SOC 2000 and 2100 are required. The balance of the hours required may be selected by the student, with the following limitations: (1) A maximum of 9 hours transferred from a two-year institution may be included; (2) at least 6 hours must be 3000-level or above; (3) no more than one 1000-level course may be included. Minor slips are required.

**Sociology Minor - Social Psychology Concentration**

Social Psychology is the study of the impact of group life on individual behavior, thought, and personality development. Training in social psychology provides a valuable background for a variety of positions in human service organizations and can provide an excellent theoretical foundation for graduate work in more applied fields such as social work, counseling, public administration and criminology. Since this is a concentration, students cannot major/minor in this concentration and have a sociology major/minor.

**Requirements**

The student may include any other sociology course to complete the required eighteen (18) hours.

- SOC 2000 - Principles of Sociology Credits: 3 hours
- SOC 2100 - Modern Social Problems Credits: 3 hours
- SOC 3200 - Introduction to Social Psychology Credits: 3 hours

Two electives (6 hours) from among the following are required:

- SOC 4120 - Child Abuse Credits: 3 hours
- SOC 4210 - Childhood Socialization Credits: 3 hours
- SOC 4220 - Adolescent Socialization Credits: 3 hours
- SOC 4790 - Female/Male Interaction Credits: 3 hours
- SOC 5200 - Studies in Social Psychology: Variable Topics Credits: 3 hours

**Spanish**

Mercedes Tasende, Interim Chair
John Benson
Gary E. Bigelow
Michael Braun
Robert Felkel
Carolyn Harris
Antonio Isea
Irma Lopez
Michael Millar
Patricia Montilla
Holly Nibert
Pablo Pastrana-Pérez
Mariola Pérez de la Cruz
Benjamín Torres
Robert Vann
The Department of Spanish offers courses in Spanish language at all levels, as well as courses in culture, literature, and linguistics. In language courses emphasis is placed on developing practical communication skills that will be of interest and value to students in a wide variety of disciplines and careers. Culture courses, through the use of authentic materials in Spanish, provide knowledge and insights into the life of the Spanish-speaking people of Spain, Spanish America, and the United States. Courses in literature and linguistics, at intermediate and advanced levels, facilitate a deeper understanding of both language and culture.

Placement

Students who have studied Spanish in high school or who have learned Spanish through travel or residence abroad must take a placement evaluation before enrolling in their first Spanish class at Western Michigan University. In addition to being used to place students in the proper class, the evaluation may serve to exempt students from foreign language requirements that exist for the College of Arts and Sciences or for specific major programs. Students have two placement options available: (1) An Online Placement Exam and (2) a Monitored Test-Out Exam. The Online Placement Exam is designed to help students determine which WMU language course is appropriate for their level of preparedness. It cannot be used to satisfy any foreign language requirement nor are any credits awarded on the basis of the results. The Monitored Test-Out Exam, on the other hand, may be taken by students who wish to try to place out of the foreign language requirements that exist for majors or minors in certain programs at WMU or for all students in the College of Arts and Sciences. The monitored exam may be taken only once and must be taken before students begin their first class in that language at WMU. Students may be awarded as many as eight hours of retroactive credit if they place at the SPAN 2010-level or above.

Transfer students who have successfully completed Spanish courses at community colleges or four-year colleges do not need to take the placement evaluation at Western Michigan University. They should ascertain the WMU equivalent for the courses taken at the other institution and then enroll in the next course in the sequence. Students who are unsure about equivalencies should check with the Spanish advisor or the department chair before enrolling in a particular course.

Native speakers of Spanish are not required to take the placement evaluation. They must, however, consult with a Spanish advisor or the department chair before registering for classes.

Study Abroad

Students are strongly encouraged to study in a Spanish-speaking country as part of their undergraduate program. Western Michigan University offers excellent, affordable programs in Querétaro (Mexico), Burgos (Spain), and Santander (Spain). Some scholarships are available. Students interested in receiving Spanish credit for study abroad must consult with the Spanish advisor well in advance of such study in order to plan properly and to obtain approval.

Majors and Minors

Given the increasing importance of Spanish as an international language and within the United States, many students wish to take courses beyond the intermediate level. We encourage them to do so, whether or not they intend to major or minor in the language. It is quite common for students who major or minor in Spanish to have an additional major or minor in a related or entirely different field. All students having questions about a Spanish major or minor are welcome to speak with an advisor during walk-in hours (for specific hours, check with the department secretary or see www.wmich.edu/spanish).

As soon as students decide to major or minor in Spanish, they should confer with the Spanish advisor in order to plan their program. Major slips are required for all majors. Minor slips are required for all minors. Only courses in which a grade of "C" or better is obtained can be counted toward a major or minor.

Students who complete a major or minor in Spanish may be eligible for some retroactive credit based on the results of the placement examination. Questions about this matter should be referred to the Spanish advisor or department chair.

Teaching certification is approved for majors or minors in Spanish in secondary and middle school education. A course in the methods of teaching Spanish is required for all teaching majors and minors.
Baccalaureate Writing Requirement for Majors

Students who have chosen to major in Spanish will satisfy the Baccalaureate Writing Requirement by successfully completing LANG 3750 Foreign Literature in English Translation.

Residency Requirement for Majors and Minors in Spanish

Majors in Spanish must take at least five courses (of the total required for the major) on campus at Western Michigan University. These five courses must be at the 2000-level or above. At least two of the five must be 4000- or 5000-level classes. Minors in Spanish must take at least four courses (of the total required for the minor) on campus at Western Michigan University. These four courses must be at the 2000-level or above. At least one of the four must be above SPAN 3170.

Foreign Credits

Credits for language study at a foreign university may be granted on official proof that the student has completed the course work successfully.

Spanish Major: Non-teaching

Program Requirements
LANG 5580 cannot be included in this major.

Thirty-five hours beyond 1000-level to include:
SPAN 3160 - Spanish Composition Credits: 3 hours
SPAN 3170 - Spanish Conversation Credits: 3 hours
SPAN 3250 - Introduction to the Study of Spanish Literature Credits: 3 hours

At least one course from:
SPAN 3210 - Life and Culture of Hispanics in U.S. Credits: 3 hours
SPAN 3220 - Life and Culture of Spain Credits: 3 hours
SPAN 3230 - Life and Culture of Spanish America Credits: 3 hours or
SPAN 3240 - Introduction to the Study of Spanish Linguistics Credits: 3 hours

And four 4000- or 5000-level Spanish courses to include one course from:
SPAN 4900 - Studies in Spanish Linguistics Credits: 3 hours
SPAN 5260 - Survey of Spanish Literature to the 18th Century Credits: 3 hours
SPAN 5270 - Survey of Spanish Literature from the 18th Century to the Present Credits: 3 hours
SPAN 5280 - Survey of Spanish American Literature to Modernismo Credits: 3 hours
SPAN 5290 - Survey of Spanish American Literature from Modernismo to the Present Credits: 3 hours
SPAN 5600 - Studies in Spanish Literatures Credits: 3 hours

Spanish Major: Education Curriculum

Program Requirements
Thirty-five hours beyond 1000-level to include:
LANG 5580 - Modern Language Instruction (in French, German, Spanish, or other language) Credits: 3 hours
SPAN 3160 - Spanish Composition Credits: 3 hours
SPAN 3170 - Spanish Conversation Credits: 3 hours
SPAN 3220 - Life and Culture of Spain Credits: 3 hours
SPAN 3250 - Introduction to the Study of Spanish Literature Credits: 3 hours
And four 4000- or 5000-level Spanish courses to include one course from:
SPAN 4900 - Studies in Spanish Linguistics Credits: 3 hours
SPAN 5260 - Survey of Spanish Literature to the 18th Century Credits: 3 hours
SPAN 5270 - Survey of Spanish Literature from the 18th Century to the Present Credits: 3 hours
SPAN 5280 - Survey of Spanish American Literature to Modernismo Credits: 3 hours
SPAN 5290 - Survey of Spanish American Literature from Modernismo to the Present Credits: 3 hours
SPAN 5600 - Studies in Spanish Literatures Credits: 3 hours

**Spanish Minor: Non-teaching**

**Program Requirements**
LANG 5580 cannot be included in this minor.

Twenty-three hours beyond the 1000-level to include:
SPAN 3160 - Spanish Composition Credits: 3 hours
SPAN 3170 - Spanish Conversation Credits: 3 hours

And six hours from:
SPAN 3210 - Life and Culture of Hispanics in U.S. Credits: 3 hours
SPAN 3220 - Life and Culture of Spain Credits: 3 hours
SPAN 3230 - Life and Culture of Spanish America Credits: 3 hours
SPAN 3240 - Introduction to the Study of Spanish Linguistics Credits: 3 hours or
SPAN 3250 - Introduction to the Study of Spanish Literature Credits: 3 hours

**Spanish Minor: Education Curriculum**

**Program Requirements**

Twenty-nine hours beyond 1000-level to include:
SPAN 4540 Spanish Phonetics is strongly recommended.
LANG 5580 - Modern Language Instruction (in French, German, Spanish, or other language) Credits: 3 hours
SPAN 3160 - Spanish Composition Credits: 3 hours
SPAN 3170 - Spanish Conversation Credits: 3 hours

And Six Hours From:
SPAN 3210 - Life and Culture of Hispanics in U.S. Credits: 3 hours
SPAN 3220 - Life and Culture of Spain Credits: 3 hours
SPAN 3230 - Life and Culture of Spanish America Credits: 3 hours
SPAN 3240 - Introduction to the Study of Spanish Linguistics Credits: 3 hours or
SPAN 3250 - Introduction to the Study of Spanish Literature Credits: 3 hours

**Statistics**
Daniel Mihalko, Chair
Joseph McKeen
Joshua Naranjo
Magdelena Niewiadomska-Bugaj
Gerald Sievers
Michael Stoline
Jung Chao Wang
Eshetu Wondmagegnehu
Statistics is the science of data analysis and inference. The Department of Statistics offers a variety of courses in applied and theoretical statistics. Course work is designed to enable students to function professionally as statisticians in industry or government and to prepare them for graduate study in statistics. Shortages of qualified statisticians are anticipated through the next decade.

The department offers a major in statistics and two minors, one in applied statistics and one in general statistics. The majority of courses make use of the computer. Course work for the major requires calculus and linear algebra. These are usually taken in the first two years of course work but can be taken later. The applied statistics minor does not require any mathematics courses.

During their first year, students should contact the Department of Statistics in 3306 Everett Tower or write to the Department of Statistics, Western Michigan University, Kalamazoo, MI 49008. All majors must contact a faculty advisor in their first or second year. All minors must contact an advisor.

At most, one course with a grade below "C" can be applied toward a major or minor in Statistics.

**Statistics Major**
The field of statistics is concerned with collection of data, with various descriptive and inferential methods of analyzing data and with proper interpretation of the results. Statisticians frequently work in government and industry as part of a team of specialists, in areas such as business, biology, pharmaceutics, demography, economics, and the health sciences.

**Cognate Requirements**
One computer language course (e.g., CS 1040, 1070, 2010, 2030, 2040, 2050, 2060)

CS 1110 - Computer Science I Credits: 4 hours
MATH 1220 - Calculus I Credits: 4 hours
MATH 1230 - Calculus II Credits: 4 hours
MATH 2300 - Elementary Linear Algebra Credits: 4 hours
MATH 2720 - Multivariate Calculus and Matrix Algebra Credits: 4 hours

**Core Requirements**
STAT 3620 - Probability Credits: 4 hours
STAT 3640 - Statistical Methods Credits: 4 hours
STAT 4620 - Introduction to Mathematical Statistics Credits: 3 hours
STAT 4640 - Introduction to Statistical Computing Credits: 3 hours
STAT 4810 - Communicating Statistical Results Credits: 3 hours
STAT 5670 - Statistical Design and Analysis of Experiments Credits: 4 hours
STAT 5680 - Regression Analysis Credits: 3 hours

One of the following:
MATH 5700 - Advanced Calculus I Credits: 4 hours
STAT 5610 - Applied Multivariate Statistical Methods Credits: 3 hours
STAT 5630 - Sample Survey Methods Credits: 3 hours
STAT 5650 - Design of Experiments of Quality Improvement Credits: 3 hours
STAT 5660 - Nonparametric Statistical Methods Credits: 3 hours

**Baccalaureate Writing Requirement**
Students who have chosen the Statistics major will satisfy the Baccalaureate Writing Requirement by successfully completing:
STAT 4810 - Communicating Statistical Results Credits: 3 hours
Statistics Minor

Program Requirements
STAT 3620 - Probability Credits: 4 hours
STAT 3640 - Statistical Methods Credits: 4 hours
STAT 5680 - Regression Analysis Credits: 3 hours Credits: 3 to 4 hours

Select Either:
STAT 3030 - Data Analysis with Excel Credits: 3 hours or
STAT 4640 - Introduction to Statistical Computing Credits: 3 hours

Elective
Approved Elective Credits: 3 to 4 hours
The elective would normally be selected from the following list of courses:
STAT 5610 - Applied Multivariate Statistical Methods Credits: 3 hours
STAT 5630 - Sample Survey Methods Credits: 3 hours
STAT 5650 - Design of Experiments of Quality Improvement Credits: 3 hours
STAT 5660 - Nonparametric Statistical Methods Credits: 3 hours
STAT 5670 - Statistical Design and Analysis of Experiments Credits: 4 hours

Additional Elective
An approved calculus-based introductory course in statistics may be substituted for the following course with the approval of the department.
STAT 3640 - Statistical Methods Credits: 4 hours

Applied Statistics Minor

Program Requirements
STAT 3660 - Introduction to Statistics Credits: 4 hours
STAT 5680 - Regression Analysis Credits: 3 hours

Select Either:
STAT 3030 - Data Analysis with Excel Credits: 3 hours
STAT 4640 - Introduction to Statistical Computing Credits: 3 hours

Two of the following: (6 to 7 hours) or one of these courses and an approved statistics course from the student's area of major or related area.
STAT 5610 - Applied Multivariate Statistical Methods Credits: 3 hours
STAT 5630 - Sample Survey Methods Credits: 3 hours
STAT 5650 - Design of Experiments of Quality Improvement Credits: 3 hours
STAT 5660 - Nonparametric Statistical Methods Credits: 3 hours
STAT 5670 - Statistical Design and Analysis of Experiments Credits: 4 hours

Honors in Statistics

Note: Qualified students may plan a program to graduate with honors in statistics. The following are the requirements for graduation with Honors in Statistics:

- Grade point average of at least 3.7 in statistics and mathematics courses
- Overall grade point average of at least 3.25
- Completion of two of the following: an honors seminar
- an upper-level theoretical course
- an approved independent study project leading to a paper or presentation
Interested students should see their advisor in their junior year or early in their senior year to plan an “honors program.”

Interdisciplinary Programs
Africana Studies: African Studies, Black Americana Studies
American Humanics Program
American Studies Program
Criminal Justice Program
Environmental Studies Program
International and Area Studies Programs
Medieval Studies
Science Education
Women's Studies
World Literature

American Humanics Certificate Program

The American Humanics certification can be accomplished two ways at WMU, as a stand-alone certificate with a major and minor in any discipline or as part of a minor in Nonprofit Leadership through the School of Public Affairs and Administration. Information about obtaining the certification by fulfilling the minor requirements for Nonprofit Leadership are found in this catalog under the School of Public Affairs and Administration.

The American Humanics program is designed to prepare students for entry-level professional positions in nonprofit organizations. The certificate that the student receives is awarded by American Humanics, Inc., a national organization of over 70 collaborating universities and national nonprofit organizations. The WMU American Humanics director and the national American Humanics office assist students in finding employment and internship programs in nonprofit organizations. Additional information about American Humanics can be found at the national website (www.humanics.org) or at the WMU American Humanics website (www.rso.wmich.edu/ahsa) or by contacting the American Humanics director at the School of Public Affairs and Administration, 387-8930.

Requirements
The American Humanics program is offered in conjunction with a student's major or minor or as a minor in Nonprofit Leadership. The requirements for certification are as follows:

1. American Humanics Competency Requirements
The student must fulfill the American Humanics competency requirements. These can be fulfilled through course work, workshops, internships, volunteer experience, service learning, or work experience.

2. Extra-Curricular Requirements
The student must fulfill the extra-curricular requirements prescribed by American Humanics, Inc. These requirements include participation in an American Humanics Student Organization, attending the national AH Management Institute, and participating in prescribed workshops.

3. The Student must Complete the Following Three Courses:
PADM 2000 - Introduction to Nonprofit Leadership Credits: 3 hours
PADM 3000 - Nonprofit Advancement Credits: 3 hours
PADM 4000 - Seminar in Nonprofit Leadership Credits: 3 hours
4. Internship
The student must complete a minimum internship of 300 hours (3 credit hours) in a nonprofit organization. This internship is typically completed in the student's major or minor, although it can also be supervised by the American Humanics director as PADM 4100 Internship in Nonprofit Leadership.

5. Grades
The student must earn a grade of "C" or better in all courses that count toward fulfilling American Humanics requirements

American Humanics Competency Requirements
The American Humanics competency requirements include communication skills, employability skills, a demonstrated understanding of historical and philosophical foundations of nonprofit organizations, youth and adult development, nonprofit board and committee development, fundraising principles and practices, human resource development and supervision, nonprofit leadership and financial management, nonprofit advancement, program planning, and risk management.

Partners
The national nonprofit partners of American Humanics are American Red Cross, Big Brothers/Big Sisters of America, Boy Scouts of America, Boys & Girls Clubs of America, Camp Fire Boys and Girls, Catholic Charities USA, Girls Inc., Girl Scouts of the USA, Habitat for Humanity International, Junior Achievement, Inc., National Network for Youth, National Urban League, Special Olympics, Inc., United Way of America, Volunteers of America, the YWCA and YMCA of the USA, and the local affiliates of these organizations. These national partners guide and support the national American Humanics students.

American Studies Major (36 hours)
Admission to the American Studies Program is suspended pending review of the curriculum, effective Fall 2005

Joint-appointed Faculty:
Michael Millar, Spanish and American Studies
Carolyn Podruchny, History and American Studies

Associate Faculty:
James Biles, Geography
Linda Borish, History
Jose Brandao, History
Paula Brush, Sociology
Sharon Carlson, Director of the Regional History Archive
Michael Chiarappa, History and Environmental Studies
Kevin Corder, Political Science
Douglas Davidson, Sociology
Nora Faires, History
Sarah Hill, Anthropology
Catherine Julien, History
Ashlyn Kuersten, Political Science
Irma Lopez, Spanish
Vincent Lyon-Callo, Anthropology
Mustafa Mirzeler, Comparative Religion
Michael Nassaney, Anthropology
Gwen Raaberg, Women's Studies
John Saillant, English
Peter Schmitt, History
Kristin Szylvian, History
Gwen Tarbox, English
Daneen Wardrop, English
Ben Wilson, Africana Studies
Brian Wilson, Comparative Religion
The Program in American Studies provides students with a critical understanding of American identities through teaching and mentoring as well as providing opportunities for internships, undergraduate research, and study abroad. The course of study offers students an interdisciplinary framework that examines the United States and its neighboring countries from regional, national, and global perspectives.

The program in American Studies offers a major and a minor designed to be interdisciplinary. The program brings together WMU faculty from Africana Studies, Anthropology, Comparative Religion, English, Geography, History, Political Science, Spanish, Sociology, and Women's Studies who are scholars and teachers specializing in aspects of the United States and its neighboring countries. Students are required to take courses within the American Studies Program, including an introductory course, two courses in special topics, and a capstone seminar. They are also required to take at least one course in non-U.S. American Studies, such as the geography of Mexico and the Caribbean or the history of Canada. Other courses are selected from offerings in participating departments, covering such topics as popular art and architecture, urban politics, gender and law, literatures and cultures, the Underground Railroad, modern social problems, Hispanic culture, philosophy and religions in America.

The interdisciplinary approach of the Program in American Studies provides theoretical, methodological, and practical grounding for careers in journalism, politics, research, organizations, public relations, and information technology. It is also a useful major for students who plan to do graduate studies in law, the humanities, and the social sciences.

American Studies Major (30 hours)
Students must select courses in at least three (3) departments participating in the program and must concentrate nine (9) hours of study in one department; at least sixteen (16) hours must be taken at the 400-level or above.

Required Courses (6 hours)
AMS 2000 - Introduction to American Studies Credits: 3 hours
AMS 3000 - Topics in American Studies Credits: 3 hours two sections, Credits: 6 hours

Capstone Seminar (3 hours)
For majors and minors in American Studies, this course satisfies the Baccalaureate Writing Requirement.
AMS 4900 - American Studies in a Global Context Credits: 3 hours

Required Course in Non-U.S. American Studies (3 hours)
Student may select from the following offerings:
ANTH 3390 - Cultures of Latin America Credits: 3 hours
FREN 2750 - Francophone Culture Credits: 3 hours
GEOG 3820 - Mexico and the Caribbean Credits: 3 hours
HIST 3300 - Canadian History and Culture Credits: 3 hours
SPAN 3230 - Life and Culture of Spanish America Credits: 3 hours

Required Course in Participating Departments (12 hours)
Students will work with the director to create a course of study that will focus attention on regional, national, and global perspectives on American cultures.
AFS 3000 - Black Experience: From the African Beginnings to 1865 Credits: 3 hours
AFS 3010 - Black Experience: From 1866 to the Present Credits: 3 hours
AFS 3150 - The Underground Railroad in the Midwest Credits: 3 hours
ANTH 3030 - Historical Archaeology Credits: 3 hours
ANTH 3440 - The First Americans Credits: 3 hours
ANTH 3450 - Topics in Anthropology Credits: 3 hours
ANTH 4050 - Archaeology of the Great Lake State Credits: 3 hours
ANTH 5220 - Poverty, Power, and Privilege Credits: 3 hours
COM 3430 - American Film History Credits: 3 hours
ENGL 2220 - Literatures and Cultures of the United States Credits: 4 hours
ENGL 2230 - Black American Literature Credits: 4 hours
ENGL 3200 - American Literature I Credits: 3 hours
ENGL 3210 - American Literature II Credits: 3 hours
ENGL 5220 - Studies in American Literature Credits: 3 hours
GEOG 3110 - Geography of Michigan Credits: 3 hours
GEOG 3800 - United States and Canada Credits: 3 hours
HIST 2120 - American Culture Credits: 3 hours
HIST 3130 - American Diplomatic History Credits: 3 hours
HIST 3150 - Popular Art and Architecture in America Credits: 3 hours
HIST 3160 - Women in United States History Credits: 3 hours
PHIL 3070 - Philosophy in the American Context Credits: 3 hours
PSCI 2000 - National Government Credits: 3 hours
PSCI 2500 - International Relations Credits: 4 hours
PSCI 3000 - Urban Politics in the United States Credits: 3 hours
PSCI 3500 - American Foreign Policy Credits: 4 hours
PSCI 4210 - Gender and Law Credits: 3 hours
REL 3130 - Religion in America Credits: 4 hours
REL 3150 - African-American Religion in the 20th Century Credits: 4 hours
SOC 2100 - Modern Social Problems Credits: 3 hours
SOC 3140 - Ethnic Relations Credits: 3 hours
SPAN 2650 - Hispanic Culture in the U.S. Credits: 3 hours
SPAN 2750 - Latino Writing/Latino Culture Credits: 3 hours
WMS 2000 - Introduction to Women's Studies Credits: 4 hours

Electives (3 hours)
Students may choose an additional course from the College of Arts and Sciences or from courses offered in the College of Fine Arts or the College of Business.

Optional American Studies Courses:
AMS 3900 - Internship Credits: 3 to 6 hours Credits: 3 hours
AMS 5000 - Seminar in American Studies Credits: 3 hours
AMS 5900 - Interdisciplinary Theory and Methods Credits: 3 hours
AMS 5980 - Independent Study Credits: 1 to 3 hours Credits: 3 hours

American Studies Abroad
The director will arrange for WMU students to study American culture at a university outside the United States. Consult the director for more information about this option.

American Studies Minor (18 hours)
Admission suspended, effective Fall 2005

Required Courses (6 hours)
AMS 2000 - Introduction to American Studies Credits: 3 hours
AMS 3000 - Topics in America Studies Credits: 3 hours

Capstone Seminar (3 hours)
AMS 4900 - American Studies in a Global Context Credits: 3 hours

Required Courses in Participating Departments (9 hours)
Students will work the director to create a course of study that will focus attention on regional, national, and global perspectives on American cultures. See list of courses under American Studies major.

Environmental Studies Major (32 hours)
Steven Kohler, Director
One of the goals of our University's Mission Statement is “to advance responsible environmental stewardship;” in that same vein, the College of Arts and Sciences in its Strategic Plan, seeks to raise “awareness about the . . . environmental and international contexts of knowledge . . .” and has as one of its goals interdisciplinary education on all aspects of environmental problems. Accordingly, our Program, as we conceive it, has two major duties: One, fostering environmental awareness and scientific literacy for the general student; Two, careful interdisciplinary training of majors and minors to understand environmental complexity and health, enabling them to be creative and able problem solvers.

The Program will also serve the Kalamazoo community and greater Southwestern Michigan as the center for environmental action and for the sharing of environmental knowledge; we see ourselves as both participating in and leading the larger community toward environmental knowledge and environmental repair.

For our students, the results of this combination of abstract and experiential learning, along with community activism, will be periodically assessed by both subjective and objective measurements, but always central to any such assessment will be the quality of the professional and personal lives our students lead after they have graduated from WMU.

Advising

Given the interdisciplinary nature of the program, it is very important that students work regularly with program advisors. Information about career choices, internships, summer jobs, graduate programs, and second majors is also available from our office.

Academic Standards

Students in all options of the Environmental Studies Program must earn at least a grade of “C” in all courses counted for their major/minor.

Baccalaureate Writing Requirement

Students who have chosen an Environmental Studies major will satisfy the Baccalaureate Writing Requirement by successfully completing ENVS 3200 Major Environmental Writings.

Liberal Education/General Education Requirements

Students in any curriculum who successfully complete the Environmental Studies program will be deemed to have satisfied the criteria for Areas V, VI, and VII of the new General Education requirements (limited to 10 hours). Those students enrolled in the Arts and Sciences LEC curriculum will be deemed to have also satisfied the second required course from the LEC core in Areas V and VI.

Second Major

Because the Program is broadly interdisciplinary, Environmental Studies (ENVS) is called a coordinate major; thus, students who choose ENVS are required to take a second major, chosen from any college in the University, to provide depth in a particular discipline.
Students choosing their disciplinary major from within the College of Arts and Sciences have the option, upon graduation, to select either of their two majors as their “degree” major. If Environmental Studies is selected, students will graduate with a Bachelor of Arts degree if their second major is in the Humanities or Social Sciences; they will graduate with a Bachelor of Science degree if that major is in the Sciences. Students choosing their disciplinary major as first degree will graduate accordingly.

Those students whose disciplinary major is in another college must graduate with their ENVS major as their second major.

In addition to satisfying all Environmental Studies Program requirements, students selecting Environmental Studies as their first major must satisfy the College of Arts and Sciences curriculum requirements as well as all University requirements. Those selecting ENVS as their second major must satisfy all requirements as designated by the College of the first major, as well as all University degree requirements.

Environmental Studies Major (32 hours minimum)

The Environmental Studies core curriculum embraces the interdisciplinary nature of environmental issues through scientific, social, and humanistic approaches to undergraduate scholarship. The curriculum envisages core themes, or Domains, that are essential to modern environmental education: the physical and biological sciences; the history of human interactions with the non-human world; the social and cultural dimensions of environmental problems; environmental thought as reflected in literature, ethics and philosophy; policy and decision-making; and practical experience.

Students may enter the Environmental Studies curriculum through different introductory courses. Students must take at least one course from each of the principal Domains. Some Domains may have only one option at present, but they are flexible and intellectually adaptive, and the ENVS faculty may include appropriate new courses, or occasional topics courses, as they become available. All domains have a prerequisite of one of the courses in the Entry Options.

At the advanced level, undergraduates will develop interdisciplinary competency by taking advanced courses outside the ENVS core. Students will also take a senior seminar capstone course. The senior seminar will bring together ENVS undergraduates from diverse disciplinary majors, who will work in teams outside the classroom to address complex environmental problems in both theoretical and experiential modes.

Note: Because of the complexity of this course of study, students are encouraged to speak regularly with an advisor.

Entry Options (4 hours)

A minimum grade of “B” is required for the following courses to count towards the Environmental Studies major. Any of the four courses serves as the prerequisite for all subsequent Domains.

ENVS 1100 - Nature and Society Credits: 4 hours
ENVS 3000 - Environment, Technology, and Value Credits: 4 hours (The Honors Cluster section is also applicable.)
GEOG 1000 - World Ecological Problems and Man Credits: 4 hours

Physical Science Domain (3 hours)
ENVS 2150 - Environmental Systems and Cycles Credits: 3 hours
GEOS 1320 - Integrated Earth System Studies Credits: 3 hours

Biological Science Domain (4 hours)
BIOS 1050 - Environmental Biology Credits: 3 hours (taken with ENVS 2260) Credits: 4 hours
BIOS 3010 - Ecology Credits: 5 hours Credits: 4 hours
ENVS 2250 - Environmental Ecology Credits: 3 hours Credits: 4 hours
ENVS 2260 - Field Environmental Ecology Credits: 1 hour Credits: 4 hours

Historical Domain (3 hours)
HIST 3180 - American Environmental History Credits: 3 hours

Cultural and Societal Domain (3 hours)
ENVS 3600 - Environment and Culture Credits: 3 hours

**Environmental Thought Domain (3 hours)**
ENVS 3200 - Major Environmental Writings Credits: 3 hours

**Policy Domain (4 hours)**
ENVS 3400 - Environmental Policy Credits: 4 hours

**Capstone Experience (3 hours)**
ENVS 4500 - Senior Seminar in Environmental Studies Credits: 3 hours

**Interdisciplinary Competency (6 hours) (two courses)**
Students must demonstrate competency in advanced fields of knowledge and practice outside the ENVS core. Students must choose, in consultation with a Program advisor, two approved courses emphasizing instruction in and application of advanced research methods, within a discipline of their choosing. A minimum of two separate courses must be taken to satisfy the competency requirement, with a minimum total of six hours accumulated credit for both courses. No more than one course of the two may be taken in the same area as the student's disciplinary major.

Examples of suitable courses that will fulfill the Competency requirement within the following disciplines are shown below. Other disciplines and their courses will be added to this list as they are deemed appropriate by the ENVS faculty.

**Natural Sciences Area**

*Environmental Studies*
ENVS 4100 - Appropriate Technologies and Sustainability Credits: 3 hours

*Biological Sciences*
BIOS 4560 - Tropical Biology Credits: 3 hours
BIOS 4990 - Independent Research in Biological Sciences Credits: 1 to 4 hours
BIOS 5535 - Freshwater Ecology Credits: 4 hours
BIOS 5600 - Toxicology Credits: 3 hours
BIOS 5970 - Topics in Biological Sciences Credits: 3 to 4 hours

*Chemistry*
CHEM 2250 - Quantitative Analysis Credits: 3 hours (Course may not be used to satisfy this competency requirement if the student's coordinate major is Chemistry.)
CHEM 2260 - Quantitative Analysis Laboratory Credits: 1 hour (Course may not be used to satisfy this competency requirement if the student's coordinate major is Chemistry.)
CHEM 3700 - Introduction to Organic Chemistry Credits: 3 hours (Course may not be used to satisfy this competency requirement if the student's coordinate major is Chemistry.)
CHEM 3710 - Introduction to Organic Chemistry Lab Credits: 1 hour (Course may not be used to satisfy this competency requirement if the student's coordinate major is Chemistry.)
CHEM 4300 - Physical Chemistry I Credits: 3 hours (Course may not be used to satisfy this competency requirement if the student's coordinate major is Chemistry.)
CHEM 4360 - Physical Chemistry Laboratory I Credits: 2 hours (Course may not be used to satisfy this competency requirement if the student's coordinate major is Chemistry.)
CHEM 5090 - Topics in Chemistry Credits: 3 hours
CHEM 5400 - Biogeochemistry Credits: 3 hours
CHEM 5580 - Toxicology Credits: 3 hours
CHEM 5900 - Special Problems in Chemistry Credits: 2 hours

*Geosciences*
GEOS 4390 - Geologic Mapping Credits: 3 hours
GEOS 5230 - Hazardous Waste Operation and Emergency Response Credits: 1 hour
GEOS 5240 - Remediation Design and Implementation Credits: 1 hour
GEOS 5250 - Surface Geophysics Credits: 1 hour
GEOS 5260 - Principles and Practices of Aquifer Testing Credits: 1 hour
GEOS 5270 - Principles of Well Drilling and Installation Credits: 1 hour
GEOS 5280 - Principles and Practices of Ground-water Sampling and Monitoring Credits: 1 hour
GEOS 5550 - Introduction to Geochemistry Credits: 3 hours
GEOS 5600 - Introduction to Applied Geophysics Credits: 3 hours

Statistics
STAT 5630 - Sample Survey Methods Credits: 3 hours
STAT 5650 - Design of Experiments of Quality Improvement Credits: 3 hours
STAT 5670 - Statistical Design and Analysis of Experiments Credits: 4 hours Credits: 3 hours

Social Sciences Area

Anthropology
ANTH 4500 - Primate Behavior and Ecology Credits: 3 hours
ANTH 4900 - Archaeological Field School Credits: 6 hours
ANTH 5010 - The Rise of Civilization Credits: 3 hours
ANTH 5220 - Poverty, Power, and Privilege Credits: 3 hours

Economics
ECON 3190 - Environmental Economics Credits: 3 hours

Geography
GEOG 5010 - Introduction to Geographic Information Systems Credits: 4 hours
GEOG 5440 - Studies in Economic Geography Credits: 2 to 3 hours Credits: 3 hours
GEOG 5560 - Studies in Urban and Regional Planning Credits: 3 hours
GEOG 5570 - Environmental Impact Assessment Credits: 3 hours
GEOG 5820 - Remote Sensing of the Environment Credits: 4 hours Credits: 3 hours

Political Science
PSCI 3060 - Environmental Politics Credits: 3 hours
PSCI 4040 - Making of Public Policy in the U.S. Credits: 3 hours
PSCI 4050 - National Public Policy Credits: 3 hours

Sociology
SOC 4560 - Social Stratification Credits: 3 hours
SOC 5630 - Gender and Justice Credits: 3 hours
SOC 5680 - Race, Ethnicity, and Justice Credits: 3 hours

Humanities Area

Comparative Religion
REL 3130 - Religion in America Credits: 4 hours Credits: 3 hours

Environmental Studies
ENVS 4100 - Appropriate Technologies and Sustainability Credits: 3 hours

History
HIST 4100 - Historic Preservation Credits: 3 hours
HIST 4120 - Local History Techniques Credits: 1 to 3 hours Credits: 3 hours
HIST 4160 - Topics in Great Lakes History Credits: 1 to 3 hours Credits: 3 hours

Philosophy
PHIL 2550 - Science, Technology, and Values Credits: 3 hours
PHIL 4100 - Professional Ethics Credits: 3 hours
Environmental Studies Minor (18 hours minimum)
This minor is offered to students who seek insight into the nature of the environment and into the complexity of environmental problems, but who do not have time to be a major.

Entry Options (3 hours minimum)
ENVS 1100 - Nature and Society Credits: 4 hours
ENVS 3000 - Environment, Technology, and Value Credits: 4 hours (The Honors Cluster section is also applicable)

Domains
The remaining 14-15 hours will be completed by choosing not more than one elective course in each of the domains listed below. One of these elective courses must be completed in either the Biological or Physical Science domain.

Physical Science Domain (3 hours)
ENVS 2150 - Environmental Systems and Cycles Credits: 3 hours
GEOS 1320 - Integrated Earth System Studies Credits: 3 hours

Biological Science Domain (4 hours)
BIOS 1050 - Environmental Biology Credits: 3 hours (taken with ENVS 2260)
BIOS 3010 - Ecology Credits: 5 hours Credits: 4 hours
ENVS 2250 - Environmental Ecology Credits: 3 hours
ENVS 2260 - Field Environmental Ecology Credits: 1 hour

Historical Domain (3 hours)
HIST 3180 - American Environmental History Credits: 3 hours

Cultural and Societal Domain (3 hours)
ENVS 3600 - Environment and Culture Credits: 3 hours

Environmental Thought Domain (3 hours)
ENVS 3200 - Major Environmental Writings Credits: 3 hours

Policy Domain (4 hours)
ENVS 3400 - Environmental Policy Credits: 4 hours Credits: 3 hours

Note: Students are urged to see a Program advisor early in their course work.

Environmental Studies Teaching Minor (20 hours minimum)
This option is available only to those enrolled in the secondary education curriculum with approved majors. Those electing a teaching minor in Environmental Studies must successfully complete all of the requirements of the non-teaching minor, plus an approved environmental/outdoors education course (2-4 hours) chosen in consultation with a program advisor.

Global Studies
The College of Arts and Sciences, in cooperation with the Diether H. Haenicke Institute for Global Studies and the Office of Study Abroad, houses a family of interdisciplinary programs devoted to the study of global and international issues and major regions and cultures of the world. These programs include a broad, interdisciplinary major and several interdisciplinary minors. Although course offerings for these programs are primarily in the College of Arts and Sciences, other colleges also provide appropriate courses.

In addition to their interdisciplinary structure, international and area studies programs are designed to maximize opportunities for foreign study and academic experiences outside the United States. Extensive foreign language study is required in the major; although the minors can be completed without foreign language courses, most students include some in their programs.
as appropriate. With advisor approval, courses taken at colleges and universities through study abroad, either in English or in other languages, may be used to complete program requirements.

Course listings for international and area program are very extensive and may be found on the Web at http://www.wmich.edu/international/academic.programs  or in printed materials available from advisors. All course work in international and area studies programs must carry a grade of “C” or better. For additional information on international academic activities and study abroad opportunities, see the “International Programs” section of this catalog.

African Studies Programs

Academic tracks devoted to the study of Africa are available through the Africana Studies Program, described elsewhere among “Interdisciplinary Programs” in the College of Arts and Sciences.

Global and International Studies Major (42 hours)

Director
Room B 200, Ellsworth Hall
(269) 387-3985

This program is designed to allow a broad, integrative approach to the study of global and international issues, supported by the methods and theories of several disciplines and regional case studies. The major requires a minimum of 42 hours, of which at least 24 hours must be in course work at the 3000-level or above. Overall the major must include course selections from at least four different departments or course prefixes. Students should see the program advisor to select a course to satisfy the University’s baccalaureate-level writing requirement.

Required Courses
INTL 2000 - Introduction To Global and International Studies Credits: 3 hours
INTL 4900 - Seminar in Global and International Studies Credits: 3 hours

Courses from Participating Departments
Course selection must include a disciplinary focus consisting of four courses from one of the following departments (with at least half of the course work at the 3000-level or above; in some circumstances courses from these department not on the attached list but required for access to advanced courses may also be counted):

Anthropology
Economics
Geography
History
Political Science
Comparative Religion
Sociology

Course selection also must include either a regional, a comparative, or a foreign language option:

Regional Option
The regional option consists of at least three courses dealing exclusively or substantially with one of the following:

Asia-General
Asia-Japan
Asia-China
Asia-Middle East/Islamic
Africa
Europe-General/comparative
Western Europe
Russia/Eastern Europe
Latin America
**Comparative Option**
The comparative option consists of four advisor-approved courses extending the comparative and cross-cultural nature of the program. It may include thematic, theoretical, and area studies courses. The course work must be drawn from at least three different departments/prefixes.

**Foreign Language Option**
The foreign language option permits the exploration of comparative and cross-cultural issues through the study of a second foreign language in addition to the required foreign language component in the program. Up to four courses in a second foreign language beyond the 1000-level may be incorporated into the major.

**Foreign Language Cognate Requirement**
Proficiency in a second language is a key goal. The program requires at least two courses beyond the 2010-level in a single language other than the student's native language and appropriate to the chosen regional focus. Intermediate proficiency is required if the chosen language is not offered at WMU beyond the 2000-2010 level. Some advanced courses in foreign languages may be included in a regional focus within the major as listed. Students whose native languages are other than English should consult the program advisor on fulfillment of the cognate requirement.

No minor is required for students choosing the major, although development of a foreign language minor is strongly recommended.

In addition to listed courses for the major, appropriate subtopic titles in topical courses may be used with advisor approval.

**Asian Studies Minor (20 hours)**
Requires a minimum of 20 hrs., with a minimum grade of "C" in all courses in the minor and with at least half at the 3000-level or above. The minor may be organized around a general study of Asia, one of its regions, or some specific countries, through completion of at least four appropriate courses in one of several tracks available in the program, including:

- General Asia/East Asia
- Japan
- China
- South Asia
- Southwest Asia/Islamic

Up to 8 hrs. of study in a single Asian language (such as Arabic, Chinese, Japanese, etc.) may be included in the minor requirements as appropriate to the track selection.

**Latin American Studies Minor (18 hours)**
Program Requirements
Minimum of 18 hours, with at least half at the 3000-level or above; minimum grade of “C” in all courses in the minor. At least one course from at least three different departments is chosen from an approved list of courses.

**Modern European Studies Minor (18 hours)**
Program Requirements
Minimum of 18 hours, with a minimum grade of “C” in all courses in the minor and with at least half at the 3000-level or above, including two of the following:

- ANTH 3430 - Cultures of Europe Credits: 3 hours
- HIST 3640 - Modern Europe: Culture and Society Credits: 3 hours
- PSCI 3400 - European Politics Credits: 4 hours Credits: 3 hours
- PSCI 3440 - Russian and Central Asian Politics Credits: 4 hours Credits: 3 hours
Additional Information
The minor may be organized around a general study of Europe, one of its regions, or some specific countries, through completion of at least three appropriate courses in one of several tracks available in the program, including:

- General/Western Civilization (four courses required in track)
- Spain/Hispanic Civilization
- France/Francophone Civilization
- Germanic Civilization
- Britain/British Isles
- Russia/Eastern Europe

Global and International Studies Minor (20 hours)
This minor encourages a broad study of global conditions and change across multiple disciplines and on a comparative basis. Minimum of 20 hrs., with at least half at the 3000-level or above.

Required course
INTL 2000 - Introduction To Global and International Studies Credits: 3 hours

The Mallinson Institute For Science Education
William W. Cobern, Director
Marcia Fetters, Teaching, Learning, and Leadership
Herb Fynnewever, Chemistry
Charles Henderson, Physics
Mark Jenness, SAMPI
Heather Petcovic, Geosciences
David W. Rudge, Biological Sciences
David Schuster, Physics
Reneé Schwartz, Biological Sciences
Joseph Stoltman, Geography
Paul Vellom, Teaching, Learning, and Leadership

The Mallinson Institute for Science Education is devoted to the study and improvement of how people learn science at the K-12, undergraduate, and graduate levels. The Mallinson Institute has four components:

- Graduate programs leading to a Master of Arts and a Doctor of Philosophy in Science Education. See the graduate catalog for more information.
- Coordination of undergraduate programs as part of the elementary education science and mathematics teaching minor. See the College of Education section of this catalog for more information.
- Professional development courses, workshops, and related opportunities for K-12 science teachers and school districts coordinated and offered by the Mallinson Institute for Science Education. In addition, the Mallinson Institute provides curriculum development expertise and services for science curriculum projects from the national to the school district level. Science and Mathematics Program Improvement (SAMPI) which provides technical assistance, conducts research and evaluation services, program development projects to K-12 schools, higher education, and other educational institutions. As an academic discipline, science education lies at the intersection of the sciences, educational pedagogy, cognitive psychology, and the history, philosophy, and sociology of science. It ranges from concerns about practical teaching strategies to fundamental questions about the nature of science and how people learn, and the systems that support teaching and learning. The courses and workshops taken by pre-and post-service teachers are designed to prepare them to think critically
about why people should become scientifically literate, what science is most important to know, and how students learn. This includes attention to the content of science, the process of science, and the cognition of learning. In particular, the Institute encourages participants in its programs to become self-reflective about their own learning, in the hope it will empower them to become more independent, intentional, and life-long learners.

Medieval Studies

The Medieval Institute
Paul E. Szarmach, Director and Advisor
104E Walwood Hall
387-8745

Knowledge of medieval and Renaissance culture is essential to an understanding of modern culture. The Medieval Institute was established by the University to develop and coordinate interdisciplinary programs in Medieval and Renaissance Studies. In addition to an undergraduate minor, the Institute offers a graduate program leading to an M.A. in Medieval Studies.

Western Michigan University has library resources and faculty to provide a good academic environment for the study of the Middle Ages and Renaissance. The Institute organizes and hosts the annual International Congress on Medieval Studies which has brought the University wide recognition throughout the United States, Canada, and Europe. The Institute's publishing program, Medieval Institute Publications, publishes significant current research in all areas of medieval studies.

Medieval Studies Minor (24 hours)

Program Requirements
Students with an undergraduate minor must complete twenty-four hours, to include the following:
HIST 3600 - The Medieval World: Society and Culture Credits: 3 hours
MDVL 1450 - Heroes and Villains of the Middle Ages Credits: 3 hours
MDVL 5000 - Interdisciplinary Studies in Medieval Culture Credits: 3 hours

Additional Hours
Fifteen additional hours of course work selected from the list below, with the approval of the Director. The student should take care that the courses selected represent the interdisciplinary nature of Medieval Studies; therefore, a maximum of two courses from each category may be credited toward the minor.

Approved Courses

Fine Arts
ART 3830 - Medieval Art Credits: 3 hours
MUS 5170 - Collegium Musicum Credits: 1 hour
MUS 5850 - Medieval Music Credits: 2 hours

Philosophy and Religion
PHIL 3000 - Ancient and Medieval Philosophy Credits: 4 hours
REL 3050 - The Christian Tradition Credits: 4 hours
REL 3060 - The Jewish Tradition Credits: 4 hours
REL 3070 - The Islamic Tradition Credits: 4 hours
REL 5000 - Historical Studies in Religion Credits: 2 to 4 hours (Christian Theology to 1500) Credits: 4 hours
REL 5100 - Morphological and Phenomenological Studies in Religion Credits: 2 to 4 hours (when appropriate) Credits: 4 hours

Language and Literature
ENGL 4100 - Special Topics in Literature Credits: 4 hours (when appropriate)
ENGL 5300 - Medieval Literature Credits: 3 hours
Women's Studies
Gwen Raaberg, Director
3061 Moore Hall
387-2510

Women's Studies courses are open to all students and may fulfill General Education, Liberal Education, major/minor, and elective requirements. Women's Studies courses encourage in students a spirit of inquiry and teach approaches to thought and action that prepare students to function effectively in a diverse, rapidly changing society. The organizing principle of the field is the concept of gender as a social construction; equally important are the categories of ethnicity, race, class, age, sexual identity, and nationality, and gender is always investigated within this context. Course work investigates the condition of women in societies, historically and currently, and approaches issues related to women and gender through multi-disciplinary and interdisciplinary methods. Women's Studies seeks to develop students' critical skills and creative potential in analyzing issues and conceiving solutions to problems regarding women and gender in a democratic society.

The Women's Studies coordinate major requires a minimum of twenty-four credit hours in the major to be taken in conjunction with another major. Course work in the major includes an interdisciplinary core consisting of an introductory course, intermediate courses focusing on research and theory, and concluding courses providing research possibilities and practical experience. Further course work is to be selected from the list of approved electives in consultation with the Women's Studies advisor.

The Women's Studies minor brings an additional perspective to any field of study. It consists of sixteen hours of course work, including the required Introduction to Women's Studies and other courses to be selected from Women's Studies core courses or the approved electives list.

In addition to the courses listed, students may pursue special interests and projects through independent studies, which offer variable credit hours for projects developed in consultation with the Women's Studies advisor.

Coordinate Major in Women's Studies (24 hours)

Required Courses
WMS 2000 - Introduction to Women's Studies Credits: 4 hours
WMS 4010 - Foundations of Feminist Theory Credits: 3 hours

3000 Level
At least one 3000-level course selected from the following:
WMS 3000 - Working Women, Past and Present Credits: 3 hours
WMS 3200 - Women, Multiculturalism, and Social Change Credits: 3 hours
WMS 3500 - Male/Female Psychological Perspectives Credits: 3 hours

4000 Level
At least one 4000-level course resulting in an internship experience or a Research Project:
WMS 4400 - Internship Seminar Credits: 3 hours
WMS 4980 - Independent Study Credits: 1 to 4 hours

Multicultural or Global Studies
At least one course in Multicultural or Global Studies should be selected from WMS core courses or the list of WMS Approved Electives at the 3000- or 4000-level.

5000 Level
WMS courses at the 5000-level are open to graduate students and to approved undergraduates at an advanced level.

Women's Studies Minor (16 hours)

Required Course
WMS 2000 - Introduction to Women's Studies Credits: 4 hours

Courses to be Selected from the List of WMS Approved Courses
For specific descriptions of the courses, consult the departmental sections of the catalog. For approval of variable topics courses, see Women's Studies advisor.

AFS 3100 - The Black Woman: Historical Perspective and Contemporary Status Credits: 3 hours
AFS 3600 - Black Woman-Black Man Relationships Credits: 3 hours
ANTH 3090 - Archaeology of Inequality and Resistance Credits: 3 hours
ANTH 3450 - Topics in Anthropology Credits: 3 hours Gender Issues (variable) Credits: 4 hours
ANTH 3600 - Sex, Gender, Culture Credits: 3 hours
ANTH 5450 - Topics in Sociocultural Anthropology Credits: 3 hours
ART 5210 - Topics in Art History: Variable Topics Credits: 3 hours Women in Art Credits: 3 hours
COM 3070 - Freedom of Expression Credits: 3 hours
COM 4750 - Family Communication Credits: 3 hours
COM 4790 - Female/Male Interaction Credits: 3 hours
ECON 3090 - Women and the Economy Credits: 3 hours
ENGL 4100 - Special Topics in Literature Credits: 4 hours American Women Poets Credits: 3 hours
Images of Women in the Media Credits: 3 hours
ENGL 4160 - Women in Literature Credits: 4 hours
FCS 2050 - Topics in Family and Consumer Sciences Credits: 1 to 3 hours Women and Health Credits: 3 hours
FCS 2100 - Human Sexuality Credits: 3 hours
HIST 3160 - Women in United States History Credits: 3 hours
HIST 3360 - Women in European History Credits: 3 hours
HIST 4320 - Women in America to 1870 Credits: 3 hours
HIST 4330 - Women in America Since 1870 Credits: 3 hours
PHIL 3140 - Philosophy and Public Affairs Credits: 3 hours (variable) Credits: 4 hours
PHIL 3150 - Race and Gender Issues Credits: 3 hours
PSCI 2700 - Political Topics Credits: 1 to 3 hours (variable) Credits: 1 to 3 hours
PSCI 3410 - The Politics of Sub-Saharan Africa Credits: 4 hours
PSCI 3460 - Women in Developing Countries Credits: 4 hours
REL 5110 - Women in Religion Credits: 3 hours Credits: 4 hours
SOC 1900 - Men and Women in Contemporary Society Credits: 3 hours
SOC 4790 - Female/Male Interaction Credits: 3 hours
SOC 4950 - Special Topics in Sociology or Criminal Justice: Variable Topics Credits: 1 to 3 hours (variable) Credits: 3 hours
SOC 5630 - Gender and Justice Credits: 3 hours
SWRK 4650 - Special Studies in Social Welfare Practice Credits: 3 hours Women and Therapy

World Literature Minor (20 hours)
Robert Felkel, Advisor
Department of Spanish
This is an interdepartmental program administered jointly by the Departments of English, Foreign Languages, and Spanish. Studying the literature of other peoples of the world is one of the best ways to begin to know them. A great body of the world's literature is available for study in English translation in a variety of courses and departments at Western Michigan University. The world literature minor grows out of and is based on these courses.

This minor should be of value to students who have a general interest in literature and are curious about the world, especially that major part which does not have English as its literary language.

Any student, including those majoring or minoring in English or Spanish or other Foreign Language, may elect the world literature minor. The minor should be of obvious value to students preparing to teach humanities or literature (at any of several levels), but education curricula students should understand that this minor is not a teaching minor.

The world literature minor can provide useful backgrounds to students interested in foreign affairs, law, politics, journalism, mass communication, and theatre. It should also be of interest to students in business, scientific, and engineering curricula who wish to do a minor outside their main field.

The minor should interest students who, whatever their career plans or major, wish the varied view and mixture of experiences of an interdepartmental program. Also, the wide range of electives possible should make the minor attractive to students who would like the opportunity to help shape their own programs.

Prerequisites listed for any of the courses in this minor will be waived. However, students with questions about the advisability of taking courses for which there are prerequisites should consult one of the minor advisors.

Transfer students should consult the minor advisor to determine the applicability of courses taken at other colleges.

Minor slips are required. Both the English and the Spanish Departments have world literature minor advisors with regular office hours, either one of whom may issue minor slips. For information, stop at or call the English Department office (620 Sprau: 387-2570) or the Department of Spanish (410 Sprau: 387-3001).

Requirements

1. Twenty hours, with the following distribution:
   ENGL 3120 - Western World Literature Credits: 3 hours or
   ENGL 3130 - Asian Literature Credits: 3 hours or
   ENGL 3140 - African Literature Credits: 3 hours

2. Two or three courses selected from the following list: (i.e., at least eight semester hours)
   ENGL 5300 - Medieval Literature in English Translation Credits: 3 hours
   ENGL 5380 - Modern Literature Credits: 3 hours
   ENGL 5550 - Studies in Major Writers Credits: 3 hours (If the authors studied are appropriate, this course may be approved by the minor advisor)
   ENGL 5980 - Readings in English: Independent Study Credits: 1 to 4 hours (with the approval of the minor advisor)
   ENGL 1100 - Literary Interpretation Credits: 4 hours
   ENGL 2100 - Film Interpretation Credits: 4 hours
   ENGL 2520 - Shakespeare Credits: 4 hours
   ENGL 3120 - Western World Literature Credits: 3 hours If not used under Requirement (1)
   ENGL 3130 - Asian Literature Credits: 3 hours If not used under Requirement (1)
   ENGL 3140 - African Literature Credits: 3 hours If not used under Requirement (1)
   ENGL 3150 - The English Bible as Literature Credits: 3 hours
   ENGL 4100 - Special Topics in Literature Credits: 4 hours (If the topic is appropriate it may be approved by the minor advisor.)
   ENGL 4420 - Studies in Drama Credits: 4 hours

3. Three courses selected from the following list:
LANG 3500 - Classical Greek and Roman Mythology Credits: 3 hours
LANG 3750 - Foreign Literature in English Translation: Views of Humanity Credits: 3 hours

Permissible Substitutions For Required Courses
With the approval of a minor advisor, students may:

1. Substitute one of the following courses for one course listed above in either Requirement 2 or Requirement 3:
   THEA 3700 - Theatre History I Credits: 3 hours
   THEA 3710 - Theatre History II Credits: 3 hours
   THEA 4700 - Development of Theater Art Credits: 3 hours OR

2. Substitute an advanced literature course in a foreign language for one of the courses listed above in either Requirement 2 or Requirement 3.
   OR

3. Substitute a course or courses (maximum of 4 hours) not presently listed in the catalog, which may be offered as a special or temporary course and which is deemed by the advisors appropriate to the World Literature Minor.
College of Aviation
Rick Maloney
Dean

David Powell
Assistant Dean and Director of Operations

Karin Carl
Director of Business and Marketing

Jorge Fierro
Director of Advising

Director of Student Services

Academic Advising

Students should contact an advisor as early as possible. Advisors are available to assist in the individual program planning, recommend electives appropriate to a student's educational objectives, discuss employment opportunities, and help solve academic problems. Substitutions and special transfer credit must be approved by the advisor, the curriculum committee, or the Faculty Chair. Academic advising is available; phone (269) 387-0347. Because of the prerequisites and the limited offering times, students must consult an academic advisor for proper course sequence.

Academic Performance

Candidates for the Bachelor of Science degree must satisfy the following requirements and University requirements stated elsewhere in this catalog:

For students entering the Aviation Flight Science, Aviation Maintenance Technology, and Aviation Science and Administration programs prior to Fall 2005, a "C" average or better must be earned in required courses with an AVS prefix. For students entering the Aviation Flight Science, Aviation Maintenance Technology, and Aviation Science and Administration programs Fall 2005 and thereafter, a minimum grade of "C" in all AVS courses is required for graduation. No more than two grades of "D" or "DC" in courses presented for graduation may be counted for graduation.

Approved Electives

Electives must be approved by a department academic advisor. While choice of electives is intended to provide flexibility for students, they must be selected to provide a thrust and add strength to the individual's program. Non-related courses will not normally be approved.

Transfer Credit

Transfer credit for FAA certification may be accepted providing the courses were taken at another accredited collegiate institution. Although these transfer courses may be approved for AVS credit, the use of these courses for AVS course substitution may not necessarily be approved.

Additional Costs

Special lab fees are in effect for all flight courses to cover the cost of flight instruction and aircraft operations. The fee is subject to change without notice due to fluctuations in operating costs. Flight fees are based on the scheduled flight time required to complete the course. Students may require additional or less instruction. Refund of flight fees is subject to departmental refund policy, depending on whether a student completes a course of instruction or withdraws. Flight fees are due at the beginning of the semester.

Students are required to have their own tools for courses required for the Airframe and Powerplant Certificate.
Class-related charges are assigned for laboratory courses. Refer to current semester course offerings booklet for course fees.

Aviation

**Academic Faculty:**
Curtis Swanson, Chair
Robert Aardema
Blair Balden
Patrick Benton
Mervin Elliott
Martin Grant
Kevin High
Willem Homan
William Rantz
Vladimir Risukhin
William Rutherford
Gil Sinclair
Lisa Whittaker

**Flight Faculty:**
Dave Powell, Director of Operations
Robert Bunday
Stephen Hasenick
G. Patrick Langworthy
Mike Ludwiczak
Dennis McFall
Tom McLaughlin
Dominic Nicolai
Dave Schrader
Ryan Seiler
Steven Tkachuk
Jay Waalkes
Jim Whittles

**Curricula**

The College of Aviation offers the following curricula:

- Aviation Flight Science - Bachelor of Science (Option A; Option B)
- Aviation Science and Administration - Bachelor of Science
- Aviation Maintenance Technology - Bachelor of Science

Admission criteria for all curricula in the College of Aviation are a high school grade point average of 3.0 and an ACT score or 21 or 970 on SAT. These criteria will apply to first-time college enrollees only (high school graduate entry).

Students who meet the College of Aviation admission criteria will be placed in their major by the College of Aviation. To begin pilot training, students not meeting these criteria must then complete a minimum of 14 credit hours from 8 of the courses listed below with a minimum of "C" in each course. Once the student meets these requirements, the student will be placed in the flight training courses by the College of Aviation Academic Advising Office.
Air Force Reserve Officers' Training Corps (AFROTC) Program

Western Michigan University, Michigan State University, and the United States Air Force have an agreement that enables WMU students to attend AFROTC classes at MSU while earning their degree at WMU.

The AFROTC program provides pre-professional preparation for future Air Force officers. The program is designed to develop men and women who can apply their education to their initial assignments as commissioned officers. In order to receive a commission, ROTC cadets must complete all requirements for a degree in accordance with University requirements, as well as complete certain courses specified by the MSU Department of Aerospace Studies. Depending on the student's program of study, such courses may supplement or serve as electives with the approval of the appropriate academic unit. For an undetermined amount of time all AFROTC classes will only be offered on the campus of Michigan State University, and students must register through Michigan State University's Lifelong Education program.

For more information about the AFROTC program or scholarship opportunities call (517) 355-2168 or visit www.afrotc.com or www.mus.edu/user/afrotc

For more information about how these courses may be applied to your aviation degree at WMU, contact a College of Aviation academic advisor at (269) 387-0347.

For students enrolled in other colleges at WMU, contact your academic advisor to find out how these courses might be applied to your specific degree requirements.

Aviation Flight Science (AFAJ, AFBJ) (122 or 128 hours)

Option A (AFAJ): 123 hours

Option B (AFBJ): 128 hours

The Aviation Flight Science curriculum prepares students for a career in aviation as a professional pilot. It emphasizes intellectual as well as technical competencies and is geared toward educating captains, not just training pilots. Flight training and prerequisite course work ensures that students learn essentials that are required by the commercial airline industry. Concepts emphasized include Crew Resource Management (CRM), Line Oriented Flight Training (LOFT), international flight, and airline regulations, profitability, management and administration. Equipment includes a modern fleet of single-and multi-engine aircraft and state-of-the-art Flight Training Devices (FTD) which provide exposure to current Electronic Flight Instrumentation Systems (EFIS) and Flight Management Systems (FMS). Graduates of this curriculum earn their Federal Aviation Administration (FAA) Commercial Pilot Certificate with Instrument and Multi-engine Land ratings.

The Aviation Flight Science curriculum has two options-Option A and Option B. The respective requirements for each are described below.

FAA Medical Certificate
Students considering this curriculum are highly encouraged to obtain an FAA First Class Medical Certificate before committing to this program. An FAA Second Class Medical Certificate is a prerequisite for the first flight course (AVS 2220).

Drug Testing
All students are required to subject themselves to the College approved drug testing procedure before being allowed to participate in any flight activity in University aircraft.

Program Requirements for AFAJ/AFBJ Curricula
Enrollment in flight courses may be subject to a waiting list. Admission is determined by the candidate's number of credits earned and GPA, and availability of aircraft and instructors. Registration is administered by the College of Aviation.
Baccalaureate Writing Requirement
Students who have chosen the Aviation Flight Science curriculum will satisfy the Baccalaureate Writing Requirement by successfully completing AVS 4270 Airline Administration.

Aviation Flight Science - Option A

Required Courses

AREA I General Education Elective Credits: 3 hours at least six hours must be upper division (3000-4000-level) courses.
AREA II General Education Elective Credits: 3 hours at least six hours must be upper division (3000-4000-level) courses.
AREA III General Education Elective Credits: 3 hours at least six hours must be upper division (3000-4000-level) courses.
AREA IV General Education Elective Credits: 3 hours at least six hours must be upper division (3000-4000-level) courses.
AREA VIII General Education Elective Credits: 2 hours at least six hours must be upper division (3000-4000-level) courses.

Approved Elective Credits: 3 hours
(Non-required AVS courses; declared minor courses; other approved supportive courses)
AVS 1200 - Introduction to Aviation Credits: 2 hours
AVS 1210 - Aerodynamics and Performance Credits: 2 hours
AVS 1220 - Aircraft Systems Credits: 3 hours
AVS 1230 - Aircraft Systems Laboratory Credits: 2 hours
AVS 2050 - Aviation Safety Credits: 3 hours
AVS 2060 - Flight Physiology Credits: 3 hours
AVS 2070 - Crew Resource Management Credits: 3 hours
AVS 2120 - Aviation Meteorology Credits: 3 hours
AVS 2210 - Professional Flight I Theory Credits: 3 hours
AVS 2220 - Professional Flight I Lab Credits: 2 hours
AVS 3060 - Advanced Aerodynamics and Performance Credits: 3 hours
AVS 3070 - Advanced Aircraft Systems Credits: 3 hours
AVS 3080 - Advanced Aircraft Systems Laboratory Credits: 3 hours
AVS 3190 - Aviation Legislation Credits: 3 hours
AVS 3220 - Global Navigation and International Flight Planning Credits: 3 hours
AVS 3510 - Professional Flight II Theory Credits: 3 hours
AVS 3520 - Professional Flight II Lab Credits: 2 hours
AVS 3530 - Professional Flight III Theory Credits: 2 hours
AVS 3540 - Professional Flight III Lab Credits: 2 hours
AVS 3550 - Professional Flight IV Theory Credits: 2 hours
AVS 3560 - Professional Flight IV Lab Credits: 2 hours
AVS 4110 - Airline Flight Operations Credits: 3 hours
AVS 4120 - Line Oriented Flight Crew Simulation Credits: 3 hours
AVS 4240 - Corporate Aviation Management Credits: 3 hours
AVS 4270 - Airline Administration Credits: 4 hours
COM 1700 - Interpersonal Communication Credits: 3 hours
CS 1000 - Fluency With Information Technology Credits: 3 hours
ECON 2010 - Principles of Microeconomics Credits: 3 hours
GEOG 1000 - World Ecological Problems and Man Credits: 4 hours
GEOG 1050 - Physical Geography Credits: 4 hours
GEOG 2250 - Introduction to Meteorology and Climatology Credits: 4 hours
IME 1020 - Technical Communication Credits: 3 hours
MATH 2000 - Calculus with Applications Credits: 4 hours
PHYS 1070 - Elementary Physics Credits: 4 hours
PHYS 1080 - Elementary Physics Laboratory Credits: 1 hour
PSY 1000 - General Psychology Credits: 3 hours
STAT 2160 - Business Statistics Credits: 3 hours
Aviation Flight Science, Certified Accelerated Pilot Training-Option B

This option contains the same content as Option A with the addition of a jet orientation class and the inclusion of the flight instructor rating as a part of the curriculum rather than an elective. The primary difference is the compressed format of the core flight program. In this core, courses will be conducted approximately six hours daily, five days per week. This non-traditional format may not be suitable for all students. Acceptance into this option is by College of Aviation recommendation only.

Required Courses

AREA I General Education Elective Credits: 3 hours
AREA II General Education Elective Credits: 3 hours
AREA III General Education Elective Credits: 3 hours at least six hours must be upper division (3000-4000-level) courses.
AREA IV General Education Elective Credits: 3 hours at least six hours must be upper division (3000-4000-level) courses.
AREA VIII General Education Elective Credits: 2 hours at least six hours must be upper division (3000-4000-level) courses.

AVS 1200 - Introduction to Aviation Credits: 2 hours
AVS 1410 - Certified Accelerated Pilot Training I Credits: 8 hours
AVS 1420 - Certified Accelerated Pilot Training II Credits: 8 hours
AVS 2410 - Certified Accelerated Pilot Training III Credits: 8 hours
AVS 2420 - Certified Accelerated Pilot Training IV Credits: 8 hours
AVS 2800 - Transportation Technology: Policy, Perils, and Promise Credits: 3 hours
AVS 3410 - Certified Accelerated Pilot Training V Credits: 8 hours
AVS 3420 - Certified Accelerated Pilot Training VI Credits: 8 hours
AVS 4030 - Flight Instructor Fundamentals Credits: 2 hours
AVS 4040 - Instrument Flight Instructing Credits: 1 hour
AVS 4060 - Flight Instructor Certification Credits: 2 hours
AVS 4090 - Multi-Engine Flight Instructor Credits: 1 hour
AVS 4270 - Airline Administration Credits: 4 hours
AVS 4280 - International Aviation Credits: 3 hours
AVS 4410 - Certified Accelerated Pilot Training VII Credits: 8 hours
AVS 4420 - Certified Accelerated Pilot Training VIII Credits: 8 hours
AVS 4990 - Studies in Aviation Sciences Credits: 1 to 8 hours
COM 1700 - Interpersonal Communication Credits: 3 hours
CS 1000 - Fluency With Information Technology Credits: 3 hours
GEOG 1050 - Physical Geography Credits: 4 hours
IME 1020 - Technical Communication Credits: 3 hours
MATH 2000 - Calculus with Applications Credits: 4 hours
PHYS 1070 - Elementary Physics Credits: 4 hours
PHYS 1080 - Elementary Physics Laboratory Credits: 1 hour
PSY 1000 - General Psychology Credits: 3 hours

Aviation Science and Administration (AVAJ) (124 hours)

The Aviation Science and Administration curriculum provides preparation for a variety of positions in operations management or technical support areas of the aviation industry. The program leads to careers in areas such as technical sales or service, aviation administration, and general aviation management.

Program Requirements for the AVAJ Curriculum

Baccalaureate Writing Requirement

Students who have chosen the Aviation Science and Administration curriculum will satisfy the Baccalaureate Writing Requirement by successfully completing:

AVS 4270 - Airline Administration Credits: 4 hours
Required Courses

AREA I General Education Elective Credits: 3 hours at least six hours must be upper division (3000-4000-level) courses.
AREA II General Education Elective Credits: 3 hours at least six hours must be upper division (3000-4000-level) courses.
AREA III General Education Elective Credits: 3 hours at least six hours must be upper division (3000-4000-level) courses.
AREA IV General Education Elective Credits: 3 hours at least six hours must be upper division (3000-4000-level) courses.
AREA VIII General Education Elective Credits: 2 hours at least six hours must be upper division (3000-4000-level) courses.
Approved Electives Credits: 9 hours See the Approved Elective Courses Core Below)

ACTY 2100 - Principles of Accounting I Credits: 3 hours
ACTY 2110 - Principles of Accounting II Credits: 3 hours
AVS 1200 - Introduction to Aviation Credits: 2 hours
AVS 1210 - Aerodynamics and Performance Credits: 2 hours
AVS 1220 - Aircraft Systems Credits: 3 hours
AVS 2050 - Aviation Safety Credits: 3 hours
AVS 2070 - Crew Resource Management Credits: 3 hours
AVS 2120 - Aviation Meteorology Credits: 3 hours
AVS 2800 - Transportation Technology: Policy, Perils, and Promise Credits: 3 hours
AVS 3070 - Advanced Aircraft Systems Credits: 3 hours
AVS 3190 - Aviation Legislation Credits: 3 hours
AVS 4100 - Airport Planning, Operations, and Administration Credits: 4 hours
AVS 4240 - Corporate Aviation Management Credits: 3 hours
AVS 4270 - Airline Administration Credits: 4 hours
AVS 4280 - International Aviation Credits: 3 hours
AVS 4900 - Senior Project I – Planning Credits: 1 hour
AVS 4910 - Senior Project II – Analysis Credits: 2 hours
BUS 1750 - Business Enterprise Credits: 3 hours
COM 1700 - Interpersonal Communication Credits: 3 hours
CS 1000 - Fluency With Information Technology Credits: 3 hours
ECON 2010 - Principles of Microeconomics Credits: 3 hours
ECON 2020 - Principles of Macroeconomics Credits: 3 hours
ECON 3040 - The Organization of Industries Credits: 3 hours
FIN 3200 - Business Finance Credits: 3 hours
GEOG 1050 - Physical Geography Credits: 4 hours
GEOG 2250 - Introduction to Meteorology and Climatology Credits: 4 hours
IME 1020 - Technical Communication Credits: 3 hours
LAW 3800 - Legal Environment Credits: 3 hours
MATH 2000 - Calculus with Applications Credits: 4 hours
MKTG 2500 - Marketing Principles Credits: 3 hours
PHYS 1070 - Elementary Physics Credits: 4 hours
PHYS 1080 - Elementary Physics Laboratory Credits: 1 hour
PSY 1000 - General Psychology Credits: 3 hours
STAT 2160 - Business Statistics Credits: 3 hours

Approved Elective Courses

AVS 2210 - Professional Flight I Theory Credits: 3 hours
AVS 2220 - Professional Flight I Lab Credits: 2 hours
AVS 4920 - Aviation Management Intern Credits: 1 to 6 hours
MGMT 2500 - Organizational Behavior Credits: 3 hours
MGMT 4100 - Multinational Management Credits: 3 hours
MGMT 4140 - Entrepreneurship Credits: 3 hours
MGMT 4470 - Airline Strategy Credits: 3 hours
Aviation Maintenance Technology (MTCJ) (126 hours)
The Aviation Maintenance Technology curriculum provides preparation for a variety of positions in the demanding field of aircraft maintenance. Options include such areas as: aircraft maintenance and repair, performance testing, engineering/maintenance liaison, maintenance logistics, flight test engineering, product technical support, aircraft maintenance engineering, aircraft systems reliability and maintainability, licensing requirements, and repair facility management. Satisfactory completion of all requirements prepares one to take the Federal Aviation Administration (FAA) Airframe and Powerplant written and practical examinations.

Baccalaureate Writing Requirement
Students who have chosen the Aviation Maintenance Technology curriculum will satisfy the Baccalaureate Writing Requirement by successfully completing AVS 4900 and AVS 4910.

Required Courses
AREA I General Education Elective Credits: 3 to 4 hours at least six hours must be upper division (3000-4000-level) courses.
AREA II General Education Elective Credits: 3 hours at least six hours must be upper division (3000-4000-level) courses.
AREA III General Education Elective Credits: 3 hours at least six hours must be upper division (3000-4000-level) courses.
AREA IV General Education Elective Credits: 3 hours at least six hours must be upper division (3000-4000-level) courses.
AREA VII General Education Elective Credits: 3 hours at least six hours must be upper division (3000-4000-level) courses.
AREA VIII General Education Elective Credits: 2 hours
Approved Elective Credits: 3 hours see an AVS advisor for the list of approved electives.
Approved Elective Credits: 3 hours see an AVS advisor for the list of approved electives.
Approved Elective Credits: 3 hours see an AVS advisor for the list of approved electives.
CS 1050 - Introduction to Computers Credits: 3 hours
AVS 1200 - Introduction to Aviation Credits: 2 hours
AVS 1210 - Aerodynamics and Performance Credits: 2 hours
AVS 2050 - Aviation Safety Credits: 3 hours
AVS 2610 - Maintenance Regulations Credits: 2 hours
AVS 2620 - Aircraft Structures I Credits: 3 hours
AVS 2630 - Basic Aircraft Engines Credits: 4 hours
AVS 2640 - Aircraft Electrical I Credits: 2 hours
AVS 2650 - Aircraft Propellers Credits: 2 hours
AVS 3600 - Reciprocating Engine Overhaul Credits: 3 hours
AVS 3620 - Aircraft Structures II Credits: 4 hours
AVS 3630 - Reciprocating Engine Systems Credits: 3 hours
AVS 3640 - Aircraft Electrical II Credits: 4 hours
AVS 3650 - Non-Destructive Testing Credits: 3 hours
AVS 3660 - Avionics Credits: 3 hours
AVS 3670 - Airframe Systems Credits: 4 hours
AVS 3690 - Testing Evaluation and Instrumentation Credits: 4 hours
AVS 4600 - Aircraft Inspection and Service I Credits: 4 hours
AVS 4610 - Aircraft Inspection and Service II Credits: 4 hours
AVS 4620 - Reliability, Maintainability and Supportability Credits: 3 hours
AVS 4640 - Aircraft Turbine Engines and Systems Credits: 4 hours
AVS 4730 - Advanced Airframe Systems Credits: 3 hours
AVS 4900 - Senior Project I – Planning Credits: 1 hour
AVS 4910 - Senior Project II – Analysis Credits: 2 hours
CHEM 1100 - General Chemistry I Credits: 3 hours
CHEM 1110 - General Chemistry Laboratory I Credits: 1 hour
COM 1700 - Interpersonal Communication Credits: 3 hours
IME 1020 - Technical Communication Credits: 3 hours
IME 1420 - Engineering Graphics Credits: 3 hours
MATH 2000 - Calculus with Applications Credits: 4 hours
PHYS 1070 - Elementary Physics Credits: 4 hours
PHYS 1080 - Elementary Physics Laboratory Credits: 1 hour
PSY 1000 - General Psychology Credits: 3 hours
STAT 2600 - Elementary Statistics Credits: 4 hours

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Haworth College of Business

P. David Shields
Dean

David Burnie
Associate Dean

Andrew A. Brogowicz
Director of Undergraduate Programs

Doralee N. DeRyke
Director of Services and Operations

Halbert Bates
Director of Academic Advising

Creed

Partners for Business Knowledge and Leadership

Mission

The Haworth College of Business is committed to partnerships among students, employers, faculty, alumni and the business community that advance the achievement of high quality education. Such active partnerships challenge the foundation of our knowledge and skills and enhance our ability to change. Meeting these challenges requires an evolving combination of teaching, research and service activities among partners.

Goals

• To deliver a comprehensive, high-quality student-centered undergraduate education that prepares students for business and professional careers and fosters a commitment to lifelong learning.
• To provide excellent targeted graduate education and business seminars primarily for business professionals and international students.
• To design, implement and support centers of excellence in designated, specialized educational programs.
• To achieve further cultural diversity among domestic and international partners.
• To develop business relationships which proactively support the mission of the Haworth College of Business.
• To build development programs for faculty and staff that increase their knowledge of contemporary business practices and technology innovations to improve the College's teaching and research programs.

Academic Units:
Accountancy
Business Information Systems
Finance and Commercial Law
Management
Marketing
Military Science

Center:
Southwest Michigan Technical Assistance Center

The Haworth College of Business offers three degree programs:
• Business Administration-Bachelor of Business Administration.
• Master of Business Administration for graduate students with Liberal Arts, Engineering, Business, or other undergraduate preparation.
• Master of Science in Accountancy for students desiring preparation for a professional accounting career.

Graduates of the Haworth College of Business, with a Bachelor of Business Administration (BBA) degree will be able to:

• Understand essential business knowledge,
• Make effective business decisions,
• Communicate effectively,
• Understand and apply global business knowledge and diverse perspectives,
• Demonstrate effective teamwork and leadership,
• Demonstrate an understanding of business operations and product and process technology,
• Understand and use computer-based information and systems and infrastructures,
• Practice acceptable standards of ethical and professional behavior, and
• Participate in professional development activities.

Southwest Michigan Technical Assistance Center
The Southwest Michigan Technical Assistance Center provides information, support, and counseling to help small and medium-sized businesses become federal contractors. Clients must reside in a nine-county region in southwest Michigan.

Business Administration Program (BBA Degree)

Pre-Business Program
Any entering or transfer student planning to pursue a business administration degree will be admitted to the pre-business program and will work with a business advisor in the development of a planned program of study.

The Minimum Pre-Business Requirements Are:

1. Completion of 48 Semester Hours.
2. An Acceptable Grade Point Average (Minimum of 2.50).
3. Minimum Grade of "C" in each of the Following Pre-Business Courses or Approved Alternatives:

   Students in the Integrated Supply Matrix Management major must elect either MATH 1220 or 2000.

   One Behavioral Science Course Credits: 3 hours
   ACTY 2100 - Principles of Accounting I Credits: 3 hours
   ACTY 2110 - Principles of Accounting II Credits: 3 hours
   BCM 1420 - Informational Writing Credits: 3 hours
   BUS 1750 - Business Enterprise Credits: 3 hours
   CIS 1020 - Introduction to End-User Computing Credits: 3 hours or
   CIS 1100 - End-User Computing Credits: 1 hour
   ECON 2010 - Principles of Microeconomics Credits: 3 hours
   ECON 2020 - Principles of Macroeconomics Credits: 3 hours
   MATH 1160 - Finite Mathematics with Applications Credits: 3 hours or
   MATH 1180 - Precalculus Mathematics Credits: 4 hours or
   MATH 1220 - Calculus I Credits: 4 hours or
   MATH 2000 - Calculus with Applications Credits: 4 hours
   STAT 2160 - Business Statistics Credits: 3 hours


Additional hours will be taken in the following areas to complete minimum pre-business administration requirements:

General Education Distribution Program Areas 1, 2, 3, 6, 7, and 8
Non-Business Electives

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Admission
After completion of the minimum pre-business program requirements listed above, students will be accepted into the BBA program. A formal application is required for acceptance.

Students must visit the Advising Office located in 2130 Schneider Hall and meet with an advisor to submit an application. Applications should be submitted in September or January, depending on when the PBA requirements will be completed. If the PBA requirements will be completed at the end of a Fall semester, the application should be completed in September of that Fall enrollment. If the PBA requirements will be completed during a Spring, Summer I or Summer II enrollment, the application should be completed in January of that year.

Admission decisions are made as the grades of the PBA courses become available. Students will be notified of the status of their application via their WMU email account.

Admission of transfer students from accredited two- and four-year institutions will be made on a similar basis. The same criteria for admission listed above will apply.

Students not meeting admission requirements will be informed of steps they may take to earn future admission.

The Haworth College of Business Advising Office will provide all advising services for business students throughout their academic careers. After a choice of major has been made, students will also be advised by a faculty member in that particular area.

Professional BBA Curriculum
In order to graduate from the professional BBA program, a student must complete a minimum of 122 non-repeated semester hours. In addition to the University requirements of general education and the specific requirements noted above, students must complete the following:

1. Business Administration Core Requirements:
   Note: A "C" average grade point is required in the upper level core courses
   
   An advanced economics course (as approved by student's major department) Credits: 3 hours
   BUS 2700 - Information and Communication Infrastructure Credits: 3 hours
   BUS 3700 - Integrated Communication in Business Credits: 3 hours
   BUS 3750 - Business Process Productivity Credits: 3 hours
   BUS 4750 - Strategic Business Solutions Credits: 3 hours
   FIN 3200 - Business Finance Credits: 3 hours
   LAW 3800 - Legal Environment Credits: 3 hours
   MGMT 2500 - Organizational Behavior Credits: 3 hours
   MKTG 2500 - Marketing Principles Credits: 3 hours

2. A Business Major Consisting Of At Least 21 hours

3. General Education to Complete Proficiency and Distribution Areas 1-8

Baccalaureate Writing Requirement
Students who have chosen to major in any area of business will satisfy the Baccalaureate Writing Requirement through successful completion of BUS 3700 Integrated Communication in Business.

Advising
For questions regarding BBA curriculum requirements and transfer credit equivalencies, contact the Haworth College of Business Office of Advising and Admissions (269) 387-5075.

Special Notes
All students who complete the BBA requirements will automatically graduate with a minor in General Business. A minimum of 50 percent of all BBA course work must be completed in areas other than business. Nine hours of economics and six hours of statistics may be included in this percentage.
With departmental approval, transfer courses from four-year schools (and appropriate lower division courses from community colleges) may be included in majors and minors. However, 50% of all required HCOB courses must be completed through Western Michigan University, including at least 50% of any business major and 50% of any business minor completed at Western Michigan University. Transfer work towards Business Administration Core Requirements must meet the following criteria:

- Approval by the Office of Student Development and the department
- Minimum grade of “C”

To declare a minor in any business area, except Marketing (see below), the student must meet with an advisor in Haworth College of Business Office of Advising and Admissions (2130 Schneider Hall). The requirements and restrictions for declaration of a minor are:

- Completion of a minimum of 56 credit hours
- A 2.5 overall grade point average
- The student must then meet with a departmental advisor for specific prerequisite and course requirements of the minor
- Non-business majors are limited to a maximum of 30 credit hours of business courses at the time of graduation

To be eligible to apply for a minor either in Advertising and Promotion or in Marketing, a student must have completed a minimum of 56 credit hours with an overall WMU grade point average of at least 2.50. However, meeting these minimum requirements does not guarantee admission into either minor, as the Department of Marketing receives far more minor applications than it has the capacity to accept. Admission into either minor will be based on space availability, overall grade point average, and a written statement on the application about how the minor will relate to the applicant's major field of study and career objectives.

To declare a minor in Advertising and Promotion or Marketing, a student must complete an application form and submit it to the Department of Marketing. This application form can be picked up in the department office (3210 Schneider Hall), and is also available on the Web at www.hcob.wmich.edu/mktg. The deadlines for submitting the application are as follows: October 15 for admission for the Spring semester; February 15 for admission for the Summer I and Summer II sessions; and July 10 for admission for the Fall semester.

Applicants will be notified by e-mail about the status of their applications within four weeks following the above deadline. If accepted into either the Advertising and Promotion or the Marketing minor, a student must meet with a department advisor to complete a minor slip and discuss specific requirements for the minor before registering for any marketing classes.

Enrollment in Haworth College of Business courses requires that students meet the following program status:

A. Open to All Undergraduate Students
   ACTY 2100 - Principles of Accounting I Credits: 3 hours
   ACTY 2110 - Principles of Accounting II Credits: 3 hours
   BUS 1750 - Business Enterprise Credits: 3 hours
   BUS 2200 - Introduction to Global Business Credits: 3 hours

B. All other 1000- and 2000-level business courses are open only to Pre-Business Administration and Business Administration students, declared business minors who have completed #4 or #5 above, and students enrolled in non-business programs that require these courses.

C. All 3000- and 4000-level business courses require acceptance into the Business Administration curriculum prior to enrollment, with the following exceptions:
   - Declared business minors will be eligible for those 3000- or 4000-level business courses that are required in their minors once they have achieved Junior status (completion of 56 credit hours) and completed #4 or #5 above.
   - Students enrolled in non-business programs which require 3000- or 4000-level business courses will be eligible to enroll in these courses once they have achieved Junior status (completion of 56 credit hours).
A major in accountancy prepares students for careers in business, industry, government, nonprofit organizations, and public accounting as auditors, tax accountants, corporate accountants, internal auditors, and consultants.

Accountancy Major (ACTJ)

Qualifications for Accounting Certification Exams
A graduate of the Haworth College of Business with a major in Accountancy will qualify to take many of the professional certification exams. Since the qualifying rules differ by state, and are subject to change, the student is responsible for determining if additional criteria need to be met for a specific exam or state.

Advisors
Report to the Department of Accountancy, 3190 Schneider Hall, for assignment to an accounting major advisor.

Transfer Credits
Up to 6 hours of introductory accounting may be accepted from other than a four-year accredited school. All accountancy majors must take a minimum of 12 hours of accounting courses at WMU.

Core Requirements
Accountancy majors must complete a minimum of 30 credit hours of accountancy courses. Eight core courses must be taken by all accountancy majors. The core courses are the following:

ACTY 2100 - Principles of Accounting I Credits: 3 hours
ACTY 2110 - Principles of Accounting II Credits: 3 hours
ACTY 3100 - Financial Accounting I Credits: 3 hours
ACTY 3110 - Financial Accounting II Credits: 3 hours
ACTY 3130 - Accounting Information Systems Credits: 3 hours
ACTY 3220 - Managerial Accounting - Concepts and Practices Credits: 3 hours
ACTY 3240 - Introductory Tax Accounting Credits: 3 hours
ACTY 4160 - Auditing Credits: 3 hours

Additional Requirements
Two additional courses to complete the accountancy major are to be selected from the following:

ACTY 4110 - Advanced Accounting Credits: 3 hours
ACTY 4130 - Advanced Accounting Systems Credits: 3 hours
ACTY 4140 - Governmental and Nonprofit Accounting Credits: 3 hours
ACTY 4220 - Cost Accounting - Theory and Practice Credits: 3 hours
ACTY 4240 - Advanced Tax Accounting Credits: 3 hours
Interdisciplinary Requirements:
Accountancy majors must complete at least 90 hours in courses outside the accounting discipline. The following must be taken as part of the 90 hours outside of accountancy:

PHIL 4100 - Professional Ethics Credits: 3 hours

Accountancy Minor (ACTN)

Requirements
Non-business majors can minor in accountancy by completing 21 hours of accounting and business courses. The following must be completed:
ACTY 2100 - Principles of Accounting I Credits: 3 hours
ACTY 2110 - Principles of Accounting II Credits: 3 hours

Additional Requirements
Fifteen additional hours in accounting at the 3000 and 4000 level must also be completed. The remaining six hours must be completed by selecting from:
FIN 3200 - Business Finance Credits: 3 hours
LAW 3800 - Legal Environment Credits: 3 hours
MGMT 2500 - Organizational Behavior Credits: 3 hours
MKTG 2500 - Marketing Principles Credits: 3 hours

Business Information Systems
Bernard Han, Chair
Roberta Allen, Business Communication Program Director
Kuriakose Athappilly
Kuanchin Chen
Elizabeth A. Hoger
Pairin Katerattanakul
Muhammad A. Razi
Alan I. Rea
Pamela S. Rooney
Nancy M. Schullery
Andrew S. Targowski
Mike Tarn

The Department of Business Information Systems offers undergraduate areas of concentration as shown below. The courses are to be taken in the sequence indicated, following prerequisites as listed after the catalog course descriptions.

Computer Information Systems Major (CMIJ) (24 hours)

Core Requirements for CMIJ Majors (18 hours)
CIS 2600 - Business Programming A Credits: 3 hours
CIS 2610 - Business Programming B Credits: 3 hours
CIS 3600 - Systems Analysis and Design Credits: 3 hours
CIS 4600 - Business Database Applications Credits: 3 hours
CIS 4640 - Business Data Mining Credits: 3 hours
CIS 4990 - Enterprise Project Credits: 3 hours

Elective Courses for CMIJ Majors (6 hours)
BCM 4960 - Independent Study Credits: 1 to 4 hours
BCM 4980 - Readings in Business Communication Credits: 1 to 4 hours
CIS 3260 - LAN Administration Credits: 3 hours
CIS 3660 - Computer Networking Credits: 3 hours
CIS 3900 - Business Web Architecture Credits: 3 hours
CIS 4900 - Electronic Commerce Development Credits: 3 hours
CIS 5550 - Topics in Computer Information Systems Credits: 3 hours

Other Requirements: Advanced Economics Course
Either of the following are required as an economics course for the CMIJ Major:
ECON 3040 - The Organization of Industries Credits: 3 hours
ECON 3100 - Labor Economics Credits: 3 hours
ECON 3200 - Money and Banking Credits: 3 hours
ECON 3800 - International Economics Credits: 3 hours
ECON 4000 - Managerial Economics Credits: 3 hours

Baccalaureate Writing Course:
BUS 3700 - Integrated Communication in Business Credits: 3 hours

**E-Business Design (e-BizD) Major (EBZJ) (27 hours)**

Core Requirements for EBZJ Majors (27 hours)
CIS 2800 - Internet Programming Credits: 3 hours
CIS 3600 - Systems Analysis and Design Credits: 3 hours
CIS 3900 - Business Web Architecture Credits: 3 hours
CIS 4600 - Business Database Applications Credits: 3 hours
CIS 4640 - Business Data Mining Credits: 3 hours
CIS 4700 - e-Portals Development Credits: 3 hours
CIS 4900 - Electronic Commerce Development Credits: 3 hours
CIS 4950 - Web Administration Credits: 3 hours
LAW 3850 - e-Business Law Credits: 3 hours

Note: Fifty percent (50%) or more of the required courses for eBizD majors must be taken at Haworth College of Business. CIS 2800 is the prerequisite for CIS 3600 and 3900 for all eBizD majors. Students must apply and be admitted in the eBizD major.

**Business Communication Minor (BCMN) (15 hours)**

Requirements
BCM 2420 - Organizational Communication Credits: 3 hours

6 Hours, as Advised From:
BCM 3800 - Business Web Design Credits: 3 hours
BCM 3880 - Records Management Credits: 3 hours
BCM 4000 - Topics in Business Communication Credits: 3 hours
BCM 4560 - Office Management Credits: 3 hours
BCM 4800 - Business Communication Technology Credits: 3 hours
BCM 4830 - Business Publications and Presentations Credits: 3 hours

6 Hours, as Advised From:
BCM 3430 - Advanced Writing for Business Credits: 3 hours
BCM 4000 - Topics in Business Communication Credits: 3 hours
BCM 4420 - Senior Seminar in Business Communication Credits: 3 hours
BCM 4540 - Intercultural Business Communication Credits: 3 hours
BCM 4960 - Independent Study Credits: 1 to 4 hours  
BCM 4980 - Readings in Business Communication Credits: 1 to 4 hours

**Computer Information Systems Minor (CMIN) (18 hours)**

Core Requirements for CMIN Minors (9 hours)  
CIS 2600 - Business Programming A Credits: 3 hours  
CIS 2610 - Business Programming B Credits: 3 hours  
CIS 3600 - Systems Analysis and Design Credits: 3 hours

Minors Select One of the Following Two Options (9 hours)

*Option 1: Information Technology Tools*  
(Choose 3 of 5 courses available in Option 1)  
CIS 3260 - LAN Administration Credits: 3 hours  
CIS 3660 - Computer Networking Credits: 3 hours  
CIS 4600 - Business Database Applications Credits: 3 hours  
CIS 4640 - Business Data Mining Credits: 3 hours  
CIS 5550 - Topics in Computer Information Systems Credits: 3 hours

*Option 2: Application Systems*  
(Choose 3 of 5 courses available in Option 2)  
CIS 3900 - Business Web Architecture Credits: 3 hours  
CIS 4600 - Business Database Applications Credits: 3 hours  
CIS 4640 - Business Data Mining Credits: 3 hours  
CIS 4900 - Electronic Commerce Development Credits: 3 hours  
CIS 4990 - Enterprise Project Credits: 3 hours

**E-Business Design (eBizD) Minor (EBZN) (18 hours)**

Requirements  
BUS 2700 - Information and Communication Infrastructure Credits: 3 hours  
CIS 2800 - Internet Programming Credits: 3 hours  
CIS 3600 - Systems Analysis and Design Credits: 3 hours  
CIS 3900 - Business Web Architecture Credits: 3 hours  
CIS 4600 - Business Database Applications Credits: 3 hours  
CIS 4900 - Electronic Commerce Development Credits: 3 hours

Note:  
- The minor can be pursued by all BBA students with a major other than EBZJ.  
- CIS 2800 is the prerequisite for CIS 3600 and 3900 for all eBizD minors.  
- The eBizD minor will be admitted based on the student's academic performance up through the completion of CIS 2800 and BUS 2700 and seat availability.

**Finance and Commercial Law**  
Ajay Samant, Chair  
Onur Arugaslan  
Robert Balik  
David Burnie
The Finance and Commercial Law Department offers majors in finance and personal financial planning and minors in finance, insurance, law, and real estate. In addition, it serves as advisor for majors and minors in general business and for minors in international business.

**Finance Major (FINJ)**
Advisor: Report to department office, 3290 Schneider Hall, for assignment to an advisor.

**Major Requirements**
In addition to the completion of the curriculum requirements for all students pursuing the Bachelor of Business Administration degree, for which FIN 3200 is required, all finance majors must complete
FIN 3100 - Introduction to Financial Markets Credits: 3 hours
FIN 3450 - Computer Applications in Finance Credits: 3 hours
FIN 3510 - Investment Analysis Credits: 3 hours

The remaining twelve hours shall be selected from Finance courses in the curriculum, in consultation with an advisor from the Finance faculty.

**Baccalaureate Writing Requirement**
The following course meets the baccalaureate writing requirement for the major:
BUS 3700 - Integrated Communication in Business Credits: 3 hours

**Advanced ECON Requirement**
The advanced ECON requirement may be met by taking one of the following:
ECON 3100 - Labor Economics Credits: 3 hours
ECON 3190 - Environmental Economics Credits: 3 hours
ECON 3870 - Studies in Asian Economies Credits: 3 hours
ECON 4000 - Managerial Economics Credits: 3 hours
ECON 4030 - Intermediate Microeconomics Credits: 3 hours or
ECON 4060 - Intermediate Macroeconomics Credits: 3 hours

**Advanced Courses**
Proper sequencing of advanced courses allows a student in finance to study:

*Financial Management*
FIN 4250 - Short Term Financial Management Credits: 3 hours
FIN 4260 - Corporate Finance: Theory and Practice Credits: 3 hours
Two other advisor-approved FIN courses

*Investments*
FIN 4530 - Securities Analysis Credits: 3 hours
Two other advisor-approved FIN courses
Financial Markets
FIN 4120 - Global Financial Markets Credits: 3 hours
FIN 4140 - Management of Financial Institutions Credits: 3 hours
Two other advisor-approved FIN courses

Personal Financial Planning (FNPJ) (24 hours)
Advisor: Report to department office, 3290 Schneider Hall, for assignment to an advisor.

Requirements for FNPJ majors (9 hours)
FIN 3100 - Introduction to Financial Markets Credits: 3 hours
FIN 3200 - Business Finance Credits: 3 hours
FIN 3510 - Investment Analysis Credits: 3 hours Required course for students planning to sit for the Certified Financial Planning (CFP) designation.

Elective Courses for FNPJ majors (15 hours)
ACTY 3240 - Introductory Tax Accounting Credits: 3 hours Required course for students planning to sit for the Certified Financial Planning (CFP) designation.
FIN 3300 - Real Estate Fundamentals Credits: 3 hours
FIN 3310 - Real Estate Finance Credits: 3 hours
FIN 3450 - Computer Applications in Finance Credits: 3 hours
FIN 3600 - Risk and Insurance Credits: 3 hours Required course for students planning to sit for the Certified Financial Planning (CFP) designation.
FIN 3710 - Personal Financial Planning Credits: 3 hours
FIN 3720 - Estate Planning Credits: 3 hours Required course for students planning to sit for the Certified Financial Planning (CFP) designation.
FIN 3730 - Retirement Planning and Employee Benefits Credits: 3 hours Required course for students planning to sit for the Certified Financial Planning (CFP) designation.
FIN 4320 - Real Estate Investments Credits: 3 hours
FIN 4330 - Real Estate Appraisal Credits: 3 hours
FIN 4370 - Real Estate Management Credits: 3 hours
FIN 4480 - Internships in Finance Credits: 1 to 5 hours
FIN 4530 - Securities Analysis Credits: 3 hours
LAW 4830 - Real Estate Law Credits: 3 hours

Finance Minor (FINN)
Advisors: Finance Area Faculty

Required hours
Students wishing to minor in finance are required to take 15 hours. Of the 15 hours, 9 hours are required, and 6 hours are elective finance courses as shown below:
FIN 3100 - Introduction to Financial Markets Credits: 3 hours
FIN 3200 - Business Finance Credits: 3 hours
FIN 3510 - Investment Analysis Credits: 3 hours

Additional hours
Six (6) additional hours from available finance courses at the 300-level or above must be selected in consultation with the advisor and with the student's professional objectives in mind.
Insurance Minor (INRN)
Advisors: Finance Area Faculty

Requirements (18 hours)
Students wishing to minor in insurance are required to take 18 hours. Fifteen of these hours are in insurance courses including:
ACTY 2100 - Principles of Accounting I Credits: 3 hours
FIN 3200 - Business Finance Credits: 3 hours
FIN 3600 - Risk and Insurance Credits: 3 hours

In addition, any three (3) of the following courses:
FIN 3510 - Investment Analysis Credits: 3 hours
FIN 3710 - Personal Financial Planning Credits: 3 hours
FIN 3720 - Estate Planning Credits: 3 hours
FIN 3730 - Retirement Planning and Employee Benefits Credits: 3 hours
FIN 4480 - Internships in Finance Credits: 1 to 5 hours Credits: 3 hours

Law Minor (LAWN)
Advisors: Law Area Faculty

Program Requirements
Students wishing to minor in law are required to take a minimum of 15 hours. The law minor consists of:
LAW 3800 - Legal Environment Credits: 3 hours
LAW 3820 - Business Law Credits: 3 hours or
LAW 3830 - Commercial Law Credits: 3 hours
Nine (9) additional semester hours in law

Real Estate Minor (REAN)
Advisor: Scheu

Program Requirements
Students wishing to minor in real estate are required to take 15 hours. FIN 3200 and FIN 3300 are required. The remaining 9 hours shall be from Real Estate courses selected in consultation with a Real Estate advisor.

Six (6) hours in required FIN courses:
FIN 3200 - Business Finance Credits: 3 hours
FIN 3300 - Real Estate Fundamentals Credits: 3 hours

Nine (9) hours in elective Real Estate courses from the Finance and Commercial Law Department.
FIN 3310 - Real Estate Finance Credits: 3 hours
FIN 4320 - Real Estate Investments Credits: 3 hours
FIN 4330 - Real Estate Appraisal Credits: 3 hours
FIN 4370 - Real Estate Management Credits: 3 hours
FIN 4480 - Internships in Finance Credits: 1 to 5 hours Credits: 3 hours

Management
Thomas A. Carey, Chair
Henry H. Beam
Marie-Laure Bougnol-Potter
Sime Curkovic
Satish Deshpande
Management Major (MGTJ) (24 hours)

Program Requirements

Six Management Courses (18 hours)
MGMT 2500 - Organizational Behavior Credits: 3 hours
MGMT 2750 - Analytical Foundations Credits: 3 hours
MGMT 3010 - Project Management Credits: 3 hours
MGMT 3520 - Human Resource Management Credits: 3 hours
MGMT 4010 - Project Leadership Credits: 3 hours (Prerequisite is MGMT 3010)
MGMT 4650 - Managing for Quality Credits: 3 hours

Two Elective Courses (6 hours)
The six remaining hours may be chosen from the list of “Department of Management Electives” or three hours may be
chosen from this list and three hours may be chosen from the list of “Electives from other Departments in the Haworth
College of Business,” in consultation with a Department of Management faculty advisor.

Department of Management Electives
MGMT 3140 - Small Business Management Credits: 3 hours
MGMT 4000 - Topics in Management Credits: 3 hours
MGMT 4040 - Business and Society Credits: 3 hours
MGMT 4100 - Multinational Management Credits: 3 hours
MGMT 4140 - Entrepreneurship Credits: 3 hours
MGMT 4600 - Decision Analysis Credits: 3 hours
MGMT 4640 - Production Management and Control Credits: 3 hours
MGMT 4800 - Materials Management Strategy Credits: 3 hours
MGMT 4810 - Integrated Materials Systems Credits: 3 hours

Electives from other Departments in the Haworth College of Business
ACTY 3220 - Managerial Accounting - Concepts and Practices Credits: 3 hours
FIN 3300 - Real Estate Fundamentals Credits: 3 hours
LAW 4830 - Real Estate Law Credits: 3 hours
MKTG 4760 - Retail Management Credits: 3 hours

Additional Curriculum Requirements
Additionally, to meet the requirements of the Professional Business Administration Curriculum, BUS 3700 Integrated
Communication in Business must be taken to meet the baccalaureate writing requirement for the Management Major, and the
advanced ECON requirement may be met by taking one of the following:
ECON 3040 - The Organization of Industries Credits: 3 hours
ECON 3100 - Labor Economics Credits: 3 hours
ECON 3190 - Environmental Economics Credits: 3 hours
ECON 3200 - Money and Banking Credits: 3 hours
ECON 3240 - Public Finance Credits: 3 hours
ECON 3800 - International Economics Credits: 3 hours
ECON 4000 - Managerial Economics Credits: 3 hours
ECON 4030 - Intermediate Microeconomics Credits: 3 hours
ECON 4060 - Intermediate Macroeconomics Credits: 3 hours

Human Resource Management Major (HRMJ) (24 to 25 hours)
In addition to the BBA requirements, the Human Resources Management major consists of seven required courses (21 hours) and one elective (3-4 hours).

Advanced economics requirement
As a part of the BBA curriculum, the advanced economics requirement can be met by taking one of the following:
ECON 3090 - Women and the Economy Credits: 3 hours
ECON 3100 - Labor Economics Credits: 3 hours
ECON 3190 - Environmental Economics Credits: 3 hours or
ECON 4000 - Managerial Economics Credits: 3 hours

Required Courses (21 hours)
MGMT 2750 - Analytical Foundations Credits: 3 hours
MGMT 3500 - Managing Diversity in Organizations Credits: 3 hours
MGMT 3520 - Human Resource Management Credits: 3 hours
MGMT 3530 - Organizational Competencies Credits: 3 hours
MGMT 4320 - Compensation and Benefits Credits: 3 hours
MGMT 4510 - Staffing Organizations Credits: 3 hours
MGMT 4540 - Employment Relations Credits: 3 hours

Electives (3 to 4 hours)
FIN 3600 - Risk and Insurance Credits: 3 hours
FIN 3730 - Retirement Planning and Employee Benefits Credits: 3 hours
LAW 3840 - Criminal Law and Procedure Credits: 4 hours
MGMT 3010 - Project Management Credits: 3 hours

Management Minor (MGTN) (18 hours)

Program Requirements
The minor in management requires eighteen credit hours consisting of the following four required courses and two electives:

Required Courses
BUS 1750 - Business Enterprise Credits: 3 hours
MGMT 2500 - Organizational Behavior Credits: 3 hours
MGMT 2750 - Analytical Foundations Credits: 3 hours
MGMT 3010 - Project Management Credits: 3 hours

Electives (two from among the following)
MGMT 3140 - Small Business Management Credits: 3 hours
MGMT 3520 - Human Resource Management Credits: 3 hours
MGMT 4000 - Topics in Management Credits: 3 hours
MGMT 4010 - Project Leadership Credits: 3 hours
MGMT 4040 - Business and Society Credits: 3 hours
MGMT 4100 - Multinational Management Credits: 3 hours
MGMT 4140 - Entrepreneurship Credits: 3 hours
MGMT 4470 - Airline Strategy Credits: 3 hours

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Marketing
Andrew A. Brogowicz, Chair
Joseph J. Belonax
Linda M. Delene
James Eckert
Bruce Ferrin
Frank Gambino
Karen Lancendorfer
Ronald Larson
Hanjoon Lee
Thaweephan Leingpibul
Mushtaq Luqmani
Michael McCardle
Stephen J. Newell
Betty Parker
Zahir A. Quraeshi
Robert Reck
JoAnn Roznowski
Robert Schultz
Ann Veeck
John Weitzel

Marketing involves the development, pricing, promotion, and distribution of goods and services to satisfy customer needs and achieve organizational goals. Because marketing applies to all industries and encompasses many different activities, it offers a wide variety of career opportunities in fields such as advertising, brand and product management, customer service, supply chain management, international marketing, marketing research, retail management, sales and sales management, and sport marketing. A growing number of nonprofit organizations, such as arts councils, educational institutions, government agencies, hospitals, and museums, also employ marketers.

The Department of Marketing offers students a choice of four majors: Marketing (MKTJ), Advertising and Promotion (ADVJ), Food and Consumer Package Goods Marketing (FMKJ), and Sales and Business Marketing (SBMJ). The Department also offers minors in Advertising and Promotion (ADVN) and in Marketing (MKTN).

The Marketing major is intended for students who wish to receive general training in marketing while having the flexibility to choose marketing electives that correspond to their particular career interests. Marketing majors can pursue a variety of careers, such as sales and sales management, consumer/marketing research, sport marketing, or international marketing.

The Advertising and Promotion major prepares students for a variety of promotion-related positions, such as account management, media planning, and advertising sales. Graduates typically find employment in the advertising industry or in firms with marketing communications, promotion, or interactive marketing departments. Students are encouraged to pursue a related minor in Art, Communication, English (Writing Emphasis), or Imaging to enhance their creative skills.

The Food and Consumer Package Goods Marketing major prepares students for sales and category management positions with food and consumer packaged goods manufacturers and brokers, and for management positions with food retailers and wholesalers. Western Michigan University is nationally recognized as one of only a few leading universities offering a specialized major in food and consumer package goods marketing to prepare students for food and CPG industry careers.

The Sales and Business Marketing major prepares students for sales and marketing careers with firms that emphasize business-to-business marketing. It is strongly recommended that Sales and Business Marketing majors complete a minor in
Biological Sciences, Chemistry, Computer Science, Imaging, Manufacturing Technology, or Physics to enhance their career opportunities with technology-oriented employers.

Program Requirements
Course requirements for each of the four majors and two minors are listed below. Course prerequisites are listed after the Marketing course descriptions later in this section. Any deviations from these course requirements and prerequisites must have the written approval of the department chairperson.

All Marketing major/minor programs must be approved in writing by a departmental advisor. Students should contact the Department of Marketing, 3210 Schneider Hall, for a list of faculty advisors and their office hours. BBA students wishing to declare a major must bring with them an approved Curriculum Guide issued by the College of Business Advising Office in 2130 Schneider Hall.

Applying for a minor
To be eligible to apply for a minor either in Advertising and Promotion or in Marketing, a student must have completed a minimum of 56 credit hours with an overall WMU grade point average of at least 2.50. However, meeting these minimum requirements does not guarantee admission into either minor, as the Department of Marketing receives far more minor applications than it has the capacity to accept. Admission into either minor will be based on space availability, overall grade point average, and a written statement on the application about how the minor will relate to the applicant's major field of study and career objectives.

To declare a minor in Advertising and Promotion or Marketing, a student must complete an application form and submit it to the Department of Marketing. This application form can be picked up in the department office (3210 Schneider Hall), and is also available on the Web at www.hcob.wmich.edu/mktg. The deadlines for submitting the application are as follows: October 15 for admission for the Spring semester; February 15 for admission for the Summer I and Summer II sessions; and July 10 for admission for the Fall semester.

Applicants will be notified by e-mail about the status of their applications within four weeks following the above deadlines. If accepted into either the Advertising and Promotion or the Marketing minor, a student must meet with a department advisor to complete a minor slip and discuss specific requirements for the minor before registering for any marketing classes. Non-business majors are limited to a maximum of 30 credit hours of business courses at the time of graduation.

Marketing Major (MKTJ) (24 hours)

Program Requirements
MKTG 2500 - Marketing Principles Credits: 3 hours
MKTG 3710 - Marketing Research Credits: 3 hours
MKTG 3740 - Advertising and Promotion Credits: 3 hours
MKTG 4750 - International Marketing Credits: 3 hours
MKTG 4770 - Consumer Behavior Credits: 3 hours
MKTG 4860 - Marketing Strategy Credits: 3 hours

Select two courses from the following (6 credit hours):
MKTG 2900 - Introduction to Food and CPG Industries Credits: 3 hours
MKTG 3600 - Professional Selling Credits: 3 hours
MKTG 3720 - Purchasing Management Credits: 3 hours
MKTG 3730 - Internet Marketing Credits: 3 hours
MKTG 3760 - Sales Administration Credits: 3 hours
MKTG 3770 - Sales Promotion Credits: 3 hours
MKTG 3800 - Sport Marketing Credits: 3 hours
MKTG 3920 - Applied Marketing Analysis Credits: 3 hours
MKTG 4700 - Business Marketing Strategy Credits: 3 hours
MKTG 4760 - Retail Management Credits: 3 hours
MKTG 4780 - Special Topics in Marketing Credits: 3 hours
MKTG 4840 - Marketing Logistics Credits: 3 hours
Other Requirements
Advertising and Promotion, Food and Consumer Package Goods Marketing, Marketing, and Sales and Business Marketing majors may satisfy their Advanced Economics requirement through completion of any 3000- or 4000-level economics course.

Advertising And Promotion Major (ADVJ) (24 hours)

Requirements
MKTG 2500 - Marketing Principles Credits: 3 hours
MKTG 3710 - Marketing Research Credits: 3 hours
MKTG 3740 - Advertising and Promotion Credits: 3 hours
MKTG 4720 - Media Planning and Research Credits: 3 hours
MKTG 4740 - Creative Strategy Credits: 3 hours
MKTG 4770 - Consumer Behavior Credits: 3 hours
MKTG 4810 - Integrated Marketing Communications Campaigns Credits: 3 hours

Select one course (3 hours) from the following:
MKTG 3730 - Internet Marketing Credits: 3 hours
MKTG 3770 - Sales Promotion Credits: 3 hours
MKTG 3800 - Sport Marketing Credits: 3 hours
MKTG 3920 - Applied Marketing Analysis Credits: 3 hours
MKTG 4730 - Interactive Marketing Strategy Credits: 3 hours
MKTG 4750 - International Marketing Credits: 3 hours
MKTG 4860 - Marketing Strategy Credits: 3 hours

Other Requirements
Advertising and Promotion, Food and Consumer Package Goods Marketing, Marketing, and Sales and Business Marketing majors may satisfy their Advanced Economics requirement through completion of any 3000- or 4000-level economics course.

Recommendation
It is strongly recommended that Advertising and Promotion majors complete the following course either to fulfill their General Education Distribution Area VI requirement or as an elective:
IMAG 1500 - Introduction to Imaging Credits: 4 hours

Sales And Business Marketing Major (SBMJ) (24 hours)

Program Requirements
MKTG 2500 - Marketing Principles Credits: 3 hours
MKTG 3600 - Professional Selling Credits: 3 hours
MKTG 3710 - Marketing Research Credits: 3 hours
MKTG 3720 - Purchasing Management Credits: 3 hours
MKTG 3760 - Sales Administration Credits: 3 hours
MKTG 4600 - Advanced Selling Strategies Credits: 3 hours
MKTG 4700 - Business Marketing Strategy Credits: 3 hours

Select one of the following courses (3 hours):
MKTG 3730 - Internet Marketing Credits: 3 hours
MKTG 3740 - Advertising and Promotion Credits: 3 hours
MKTG 3770 - Sales Promotion Credits: 3 hours
MKTG 3800 - Sport Marketing Credits: 3 hours
MKTG 3920 - Applied Marketing Analysis Credits: 3 hours
MKTG 4630 - Manufacturing Logistics Credits: 3 hours
MKTG 4750 - International Marketing Credits: 3 hours
MKTG 4780 - Special Topics in Marketing Credits: 3 hours
MKTG 4840 - Marketing Logistics Credits: 3 hours

Other Requirements
Advertising and Promotion, Food and Consumer Package Goods Marketing, Marketing, and Sales and Business Marketing majors may satisfy their Advanced Economics requirement through completion of any 3000- or 4000-level economics course.

Recommendation:
It is strongly recommended that students considering employment in manufacturing-related industries complete one or more of the following courses either to fulfill their General Education Distribution Area 7 requirement or as an elective:
IME 1420 - Engineering Graphics Credits: 3 hours (elective)
IME 1500 - Introduction to Manufacturing Credits: 3 hours (Distribution Area 7)
ME 2200 - Processes and Materials in Manufacturing Credits: 4 hours (Distribution Area 7)

Food and Consumer Package Goods Marketing Major (FMKJ) (29 hours)

Program Requirements
MKTG 2500 - Marketing Principles Credits: 3 hours
MKTG 2900 - Introduction to Food and CPG Industries Credits: 3 hours
MKTG 3710 - Marketing Research Credits: 3 hours
MKTG 3910 - Retail Merchandising Credits: 3 hours
MKTG 3970 - Food and CPG Internship Credits: 1 to 3 hours
MKTG 4840 - Marketing Logistics Credits: 3 hours
MKTG 4920 - Category Management Credits: 3 hours
MKTG 4930 - Food and CPG Sales Credits: 3 hours
MKTG 4940 - Food and CPG Marketing Issues and Strategies Credits: 3 hours

Select one of the following courses (3 hours):
MKTG 3730 - Internet Marketing Credits: 3 hours
MKTG 3740 - Advertising and Promotion Credits: 3 hours
MKTG 3770 - Sales Promotion Credits: 3 hours
MKTG 3920 - Applied Marketing Analysis Credits: 3 hours
MKTG 3960 - Survey of Food and CPG Industries Credits: 3 hours
MKTG 4760 - Retail Management Credits: 3 hours
MKTG 4770 - Consumer Behavior Credits: 3 hours

Other Requirements
The Advanced Economics requirement may be satisfied through the completion of any 3000-level or 4000-level economics course offered at Western Michigan University.

Advertising and Promotion Minor (ADVN) (21 to 22 hours)
Note: Nonbusiness majors are limited to only one minor in the Haworth College of Business.

Requirements
MKTG 2500 - Marketing Principles Credits: 3 hours
MKTG 3710 - Marketing Research Credits: 3 hours
MKTG 3740 - Advertising and Promotion Credits: 3 hours
MKTG 4770 - Consumer Behavior Credits: 3 hours
STAT 2160 - Business Statistics Credits: 3 hours or
STAT 3660 - Introduction to Statistics Credits: 4 hours
Select two courses (6 hours) from the following:
MKTG 3730 - Internet Marketing Credits: 3 hours
MKTG 3770 - Sales Promotion Credits: 3 hours
MKTG 4720 - Media Planning and Research Credits: 3 hours
MKTG 4730 - Interactive Marketing Strategy Credits: 3 hours
MKTG 4740 - Creative Strategy Credits: 3 hours
MKTG 4750 - International Marketing Credits: 3 hours

Marketing Minor (MKTN) (18 to 19 hours)
Note: Nonbusiness majors are limited to only one minor in the Haworth College of Business.

Program Requirements
MKTG 2500 - Marketing Principles Credits: 3 hours
MKTG 3710 - Marketing Research Credits: 3 hours
STAT 2160 - Business Statistics Credits: 3 hours (or equivalent)
or
STAT 3660 - Introduction to Statistics Credits: 4 hours

Select three courses (9 hours) from the following:
MKTG 2900 - Introduction to Food and CPG Industries Credits: 3 hours
MKTG 3600 - Professional Selling Credits: 3 hours
MKTG 3720 - Purchasing Management Credits: 3 hours
MKTG 3730 - Internet Marketing Credits: 3 hours
MKTG 3740 - Advertising and Promotion Credits: 3 hours
MKTG 3760 - Sales Administration Credits: 3 hours
MKTG 3770 - Sales Promotion Credits: 3 hours
MKTG 3800 - Sport Marketing Credits: 3 hours
MKTG 4700 - Business Marketing Strategy Credits: 3 hours
MKTG 4750 - International Marketing Credits: 3 hours
MKTG 4760 - Retail Management Credits: 3 hours
MKTG 4770 - Consumer Behavior Credits: 3 hours
MKTG 4780 - Special Topics in Marketing Credits: 3 hours
MKTG 4840 - Marketing Logistics Credits: 3 hours

Military Science
LTC Donald V. Phillips, Chair
LTC (RET) Brett E. Johnson
MAJ Timothy J. Russell
MAJ Max George
MAJ Heidi Fouty
CAPT Chad McDaniel
MSG Dennis Willman
SFC Douglas Merritt
Mr. Darrel Donaldson
Mr. Donald Johnson
Mrs. Cris Obreiter

The Department of Military Science lower courses are open to all University students. Courses are intended to develop responsibility, individual confidence, leadership and tactical skills, and to broaden students' knowledge of the role of the military in society. The department offers a four-year and a two-year Military Science program, which can lead to an officer's commission in the Army Reserve, Army National Guard, or Regular Army upon successful completion of the program. ROTC scholarships are available to highly qualified students.
The chair of the department and all instructors are officers or noncommissioned officers of the United States Army assigned to the department by permission of the University. They administer the military science program and conduct all classes offered by the department. The government provides uniforms for all Advanced Course students as well as additional financial assistance for students in the last two years of the program.

Career Opportunities
Army ROTC increases opportunities for students by giving them options and by developing leadership potential for a civilian and/or military career. To enter the Advanced Course, a student agrees to finish the ROTC instruction, then accept a commission and an assignment in either active or reserve forces duty.

The active duty career option is usually three years for non-scholarship students, and assignment to a leadership position similar to the junior management level in the civilian sector. Starting salary for a second lieutenant on active duty is approximately $33,600, plus benefits.

The reserve forces career option combines the benefits of a civilian job with the leadership and management experience gained in the Army Reserve or National Guard. The reserve forces obligation is three to six months on active duty (attending a military branch school for the Officer Basic Course) and the remainder of an eight-year obligation in the reserve forces.

ROTC Admission Requirements
ROTC courses are open to all University students with no military obligation as participating students.

To be eligible to enter into the Advanced Course (Commissioning Program) students must be a full time student; be a U.S. Citizen; be not more than 31 years of age at the time of commissioning; have a minimum cumulative GPA of 2.0; not be a single parent; satisfy the Basic Course requirements either through attendance at ROTC Camp Challenge, prior military service, or successfully passing all Basic Course academic requirements; be able to pass the Army Physical Fitness Test; be of good character as evidenced by no record of disciplinary problems or civil convictions; not be an alcohol abuser or drug user; and pass a Military Entrance Physical Exam.

Scholarships
Army ROTC has one of the largest scholarship programs in the nation.

Awards are competitively based on ability, not on income. ROTC scholarships are offered for two, three, and four years. Four-year scholarships are awarded to incoming college freshman. Three-year and two-year scholarships are awarded to students already enrolled in the university. It is not a requirement to be enrolled in ROTC to compete for a scholarship.

ROTC scholarships pay for fulfill tuition at WMU and provide $900 annually for books and fees. They also provide between $2,500 and $4,000 annually (depending on academic standing) living stipend. Nursing scholarships are available which cover all of the above plus pay for select nursing fees. Additionally, WMU may provide Army ROTC scholarship winners with a supplemental allocation up to $3,500.

Facilities
The department is located in the AT Building, with a drill hall and classroom facilities. Special training is also conducted at Fort Custer Army Reserve Training Center near Augusta, Michigan.

More information about the ROTC program is available at the ROTC office in the AT Building by calling (269) 387-8120 or (269) 387-8122.

Military Science - Four Year Program
The four-year military science program is divided into a Basic Course (first two years) and an Advanced Course (last two years) and is offered as a minor program by the University. Students who participate in the Basic Course are under no obligation to the active Army or the reserves.

Basic Course
The Basic Course is designed to give students a general knowledge of the role of national defense and also provides knowledge of leadership skills needed by military officers. Students completing the Basic Course have an opportunity to be
considered for the Advanced Course program and obtain a commission in the active Army or Reserve Components. ROTC students take at least one military science course each semester. First year students normally take MSL 1010 in the fall and MSL 1020 in the spring semester. Sophomore students take MSL 2010 during the fall and MSL 2020 during the spring.

Exceptions to the above requirements must be approved by the chair of the department. Students who have had three years of junior ROTC (High School JROTC) or more than six months of active military service may, with the approval of the chair of the department, have certain portions of the Basic Course waived. Students transferring from other institutions who have started either Army or Air Force ROTC will have their records reviewed to determine proper placement credit.

**Advanced Course**

Students successfully completing the Basic Course may be enrolled in the Advanced Course with the permission of the chair of the department. The major emphasis of the Advanced Course is the development of individual leadership and military skills. During the junior year, students complete MSL 3010 and 3020. Between the junior and senior year, students will attend a five-week camp. During the senior year, students complete MSL 4010 and MSL 4020. Course work is also required of students in the areas of history, behavioral sciences, written communications, mathematics, and computer science in order to complete the Military Science minor. These courses will be taken in the general education distribution program areas. The Department of Military Science advisor should be consulted on the specific courses which satisfy these requirements. Exceptions must be approved by the chair of the department.

**Military Science - Two Year Commissioning Program**

For those students who are transferring into the University, graduate students, and currently enrolled students who have not taken military science classes, but desire to be commissioned as a second lieutenant, a two year program is available. Students enter this program by applying for attendance to a four-week Leaders Training Course at Fort Knox, Kentucky. Attendance and successful completion of the Leaders Training Course is substituted for the Basic Course classes. The student is trained, fed, and housed at the expense of the government. The student also receives travel pay plus a salary of approximately $761. Contact the Department of Military Science for details.

Veterans need only to complete the Advanced Course requirements while they are finishing the overall degree requirements in order to be eligible for a commission.

Contracted students in the two-year program receive uniforms and a non-taxable subsistence allowance of $350 per month during the junior year and $400 per month during the senior year.

**Military Science Minors**

A department minor slip is required.

**Four-Year Program**

_**Freshman Year (2 hours)**_

- MSL 1010 - Foundations of Officership Credits: 1 hour and
- MSL 1020 - Basic Leadership Credits: 1 hour

_**Sophomore Year (4 hours)**_

- MSL 2010 - Individual Leadership Studies Credits: 2 hours and
- MSL 2020 - Leadership and Teamwork Credits: 2 hours

_**Junior Year (6 hours)**_

- MSL 3010 - Leadership and Problem Solving Credits: 3 hours and
- MSL 3020 - Leadership and Ethics Credits: 3 hours

_**Senior Year (6 hours)**_

- MSL 4010 - Leadership and Management Credits: 3 hours and
- MSL 4020 - Officership Credits: 3 hours
Two-Year Commissioning Program
Prerequisite: Veteran or Leaders Training Course, or approval of department chair.

**Junior Year (6 hours)**
MSL 3010 - Leadership and Problem Solving Credits: 3 hours and
MSL 3020 - Leadership and Ethics Credits: 3 hours

**Senior Year (6 hours)**
MSL 4010 - Leadership and Management Credits: 3 hours and
MSL 4020 - Officership Credits: 3 hours

**Additional Requirements**
In addition to the courses listed above, all students in the military science minor program must complete one course from each group below:

A. History
HIST 3200 - American Military History Credits: 3 hours

B. Mathematics, Statistics
MATH 1110 - Algebra II Credits: 3 hours
MATH 1160 - Finite Mathematics with Applications Credits: 3 hours
STAT 3660 - Introduction to Statistics Credits: 4 hours

C. Political Science
PSCI 2500 - International Relations Credits: 4 hours
PSCI 3500 - American Foreign Policy Credits: 4 hours

D. Psychology
PSY 1000 - General Psychology Credits: 3 hours

**Interdisciplinary Programs**

**Related Major**
Students who complete the B.B.A. program requirements may major in Economics and other related majors and receive the B.B.A. degree. All students electing a “related major” option must meet the minimum requirement of 50 percent of their course work in business and upper division economics courses, in addition to the 50 percent in non-business requirement.

**Economics (ECBJ) 21 Semester Hours**
Elect, in conjunction with an Economics advisor, an additional 21 semester hours of advanced courses (3000–5000 level) to include:
ECON 4020 - Introductory Economic Statistics Credits: 3 hours
ECON 4030 - Intermediate Microeconomics Credits: 3 hours
ECON 4060 - Intermediate Macroeconomics Credits: 3 hours
ECON 4090 - Econometrics Credits: 3 hours

**General Business (GBZJ) (24 hours)**
Advisors: Please contact the Finance and Commercial Law department office, 3290 Schneider Hall, for an advisor.

In addition to the completion of the program requirements for all students pursuing the Bachelor of Business Administration degree, all students must complete satisfactorily the following:
1) Choose six advanced (3000-level or above) Business College Courses from The Departments of Accountancy, Business Information Systems, Finance and Commercial Law, Management, and Marketing with a maximum of two courses from any one department.

2) One advanced Economics course from among:
   ECON 3100 - Labor Economics Credits: 3 hours
   ECON 3190 - Environmental Economics Credits: 3 hours
   ECON 3200 - Money and Banking Credits: 3 hours
   ECON 3800 - International Economics Credits: 3 hours
   ECON 3870 - Studies in Asian Economies Credits: 3 hours or
   ECON 4000 - Managerial Economics Credits: 3 hours

3) Baccalaureate-level Writing Requirement
The following course meets the baccalaureate-level writing requirement for the major
BUS 3700 - Integrated Communication in Business Credits: 3 hours

**Integrated Supply Matrix Management (ISMJ) (39-40 hours)**

**Requirements**
Students with this major must complete satisfactorily either MATH 1220 or MATH 2000 to meet the mathematics requirement for the Pre-Business program. In addition to the program requirements for all students pursuing the Bachelor of Business Administration Degree, Integrated Supply Matrix Management majors must complete the following:

- ECE 1000 - Fundamentals of Circuits and Electronics Credits: 3 hours
- IME 1420 - Engineering Graphics Credits: 3 hours
- IME 3280 - Quality Assurance and Control Credits: 3 hours
- IME 4870 - Manufacturing Productivity Techniques Credits: 3 hours
- LAW 4860 - Marketing and Sales Law Credits: 3 hours
- ME 2200 - Processes and Materials in Manufacturing Credits: 4 hours
- MGMT 4640 - Production Management and Control Credits: 3 hours
- MGMT 4800 - Materials Management Strategy Credits: 3 hours
- MGMT 4810 - Integrated Materials Systems Credits: 3 hours
- MKTG 3720 - Purchasing Management Credits: 3 hours
- MKTG 4630 - Manufacturing Logistics Credits: 3 hours
- ME 2200 - Processes and Materials in Manufacturing Credits: 4 hours
- MGMT 4640 - Production Management and Control Credits: 3 hours
- MGMT 4800 - Materials Management Strategy Credits: 3 hours
- MGMT 4810 - Integrated Materials Systems Credits: 3 hours
- MKTG 3720 - Purchasing Management Credits: 3 hours
- MKTG 4630 - Manufacturing Logistics Credits: 3 hours

One of the following (2-3 hours):
- CS 1040 - Introductory C/C++ Credits: 2 hours
- CS 1110 - Computer Science I Credits: 4 hours
- ECE 1010 - Fundamentals of Electronics and Machines Credits: 3 hours
- IME 3050 - Work Analysis Credits: 3 hours
- IME 5080 - Advanced Quality Management Credits: 3 hours

Either
- IME 4880 - Applied Process Reengineering Credits: 3 hours or
- MKTG 4850 - Applied Process Reengineering Credits: 3 hours

**Public Administration (PABJ)**

**Major Requirements: 24 hours**
Advisor: Please contact the Finance and Commercial Law Department, 3290 Schneider Hall.

In addition to the program requirements for all students pursuing the Bachelor of Business Administration Degree, complete 24 hours from the following courses:
Select one of the following required courses:
FIN 3200 - Business Finance Credits: 3 hours
LAW 3800 - Legal Environment Credits: 3 hours

Select seven (7) courses (21 hours) from the following list of elective courses:
ACTY 3220 - Managerial Accounting - Concepts and Practices Credits: 3 hours
ACTY 3240 - Introductory Tax Accounting Credits: 3 hours
ACTY 4140 - Governmental and Nonprofit Accounting Credits: 3 hours
BCM 3430 - Advanced Writing for Business Credits: 3 hours
BCM 3880 - Records Management Credits: 3 hours
BCM 4560 - Office Management Credits: 3 hours
FIN 3300 - Real Estate Fundamentals Credits: 3 hours
FIN 3310 - Real Estate Finance Credits: 3 hours
LAW 4820 - Employment Law Credits: 3 hours
LAW 4830 - Real Estate Law Credits: 3 hours
MGMT 3520 - Human Resource Management Credits: 3 hours
MKTG 3720 - Purchasing Management Credits: 3 hours

Minor Requirements: 21 hours
PSCI 2000 - National Government Credits: 3 hours
PSCI 2020 - State and Local Government Credits: 4 hours
PSCI 3300 - Introduction to Public Administration Credits: 3 hours
PSCI 5260 - Administrative Law and Public Regulation Credits: 3 hours

Plus one of the following:
PSCI 5310 Administration in Local and National Governments Credits: 3 hours
PSCI 5340 Administrative Theory Credits: 3 hours
PSCI 5910 Statistics for Political Science Credits: 3 hours
PSCI 4040 - Making of Public Policy in the U.S. Credits: 3 hours

Statistics (STBJ) (40 to 41 hours)
Advisor: Sievers, Department of Statistics

Program Requirements
The following courses from the Department of Mathematics and the Department of Statistics, plus one business elective, comprise the major in statistics. All students electing the statistics option must make sure they meet the minimum requirement of 50 percent of their course work in business and upper division economics courses.

CS 1070 - Introductory Programming: FORTRAN Credits: 2 hours
MATH 1220 - Calculus I Credits: 4 hours
MATH 1230 - Calculus II Credits: 4 hours
MATH 2300 - Elementary Linear Algebra Credits: 4 hours
MATH 2720 - Multivariate Calculus and Matrix Algebra Credits: 4 hours
STAT 3620 - Probability Credits: 4 hours Credits: 3 hours
STAT 3640 - Statistical Methods Credits: 4 hours
STAT 4620 - Introduction to Mathematical Statistics Credits: 3 hours

Two of STAT:
Elective (one upper-level business course emphasizing statistical applications) Credits: 3 hours
STAT 5630 - Sample Survey Methods Credits: 3 hours
STAT 5660 - Nonparametric Statistical Methods Credits: 3 hours
STAT 5670 - Statistical Design and Analysis of Experiments Credits: 4 hours
STAT 5680 - Regression Analysis Credits: 3 hours This program requires 4 hours in this course.
General Business Minor (GBZN) (18 hours)
Advisors: Please contact the Finance and Commercial Law department, 3290 Schneider Hall

With the exception of general business majors, any student who has completed the BBA program requirements will automatically receive a general business minor. Students pursuing a degree other than a BBA degree may minor in General Business by completing the following 18 hours of course work approved by a general business advisor (3290 Schneider Hall):

Core requirements (9 hours)
ACTY 2100 - Principles of Accounting I Credits: 3 hours
BUS 1750 - Business Enterprise Credits: 3 hours (BUS 1750 must be completed during the freshman or sophomore year.)
BUS 2700 - Information and Communication Infrastructure Credits: 3 hours

Three of the following four courses (9 hours)
FIN 3200 - Business Finance Credits: 3 hours
LAW 3800 - Legal Environment Credits: 3 hours
MGMT 2500 - Organizational Behavior Credits: 3 hours
MKTG 2500 - Marketing Principles Credits: 3 hours

International Business Minor (INTN) (15 to 16 hours)
Advisors: Please contact the Finance and Commercial Law department, 3290 Schneider Hall

Business Content Courses
Select four courses from the following list (12 hrs.). The prerequisites are shown in parentheses.
BCM 4540 - Intercultural Business Communication Credits: 3 hours
FIN 4420 - International Finance Credits: 3 hours
FIN 4940 - International Business Seminar Credits: 1 to 6 hours
LAW 4840 - International Business Law Credits: 3 hours
MGMT 4100 - Multinational Management Credits: 3 hours
MKTG 4750 - International Marketing Credits: 3 hours

Language or Cultural Content Courses:
Select one course that meets one of the following:

If you have not already completed a course meeting the requirement in Foreign Language Option below, you must complete that requirement. If you can demonstrate a medium fluency level in a foreign language—one that is neither your native language nor is English, or if you already have completed a course for your major or another minor that meets the requirement in Foreign Language Option below, you can complete either the Foreign Language Option or Cultural Content Option below. University regulations provide that a course used in a major or minor cannot be used in another major or minor.

1. Foreign Language Option
A foreign language course that is at the second semester or higher level meets this requirement. Such courses include, for example, the following:

2. Cultural Content Option
As a wide variety of courses may fulfill this requirement, only a partial list of such classes is included. Please check with an International Business Advisor to determine if a course not listed below would meet this requirement.
PSCI 3420 - Asian Political Systems
ANTH 3400 - Cultures of Asia Credits: 3 hours
ECON 3890 - Latin American Economies Credits: 3 hours
GEOG 3830 - Western and Southern Europe Credits: 3 hours
HIST 4660 - Russia since 1855 Credits: 3 hours
REL 3080 - Japanese Religion Credits: 4 hours
College of Education

Gary Wegenke
Dean

Katharine Cummings
Associate Dean

In general, the College of Education performs eight functions:

1. Supervises the selection, admission, and retention of students in advanced teacher education curricula;
2. Provides professional education courses designed to develop competent, efficient performance in the classroom and within a school system;
3. Provides advanced specialized courses in selected major and minor fields in departments within the college;
4. Provides service courses to students in other colleges within the University;
5. Provides clinical and curricular development services to teachers and school personnel;
6. Conducts experimentation and research at all levels of professional education;
7. Maintains liaison with professional organizations and learned societies involved in teacher education;
8. Prepares professionals for careers related to improving the quality of life of individuals and families and management of consumer resources.

Academic Units:
Counselor Education and Counseling Psychology
Educational Studies
  Educational Studies
  Educational Technology
  Evaluation, Measurement, and Research
  Special Education
Family and Consumer Sciences
  Career and Technical Education
Health, Physical Education, and Recreation
Teaching, Learning, and Leadership
  Educational Leadership
  Teaching, Learning, and Leadership

Centers and Offices:
Office of Admissions and Advising
Office of Field Placements
Office of Teacher Certification
Counseling and Psychological Services Center
Merze Tate Center
Reading Center and Clinic

Curricula for Teachers
The program for prospective teachers consists of three parts: (1) general education, designed to develop an intellectual foundation of appropriate depth and breadth in liberal arts and general studies; (2) advanced specialized study, in a major and minor field structured to develop a high level of academic competence and understanding; and (3) professional education study organized to prepare teacher candidates to work effectively in schools.

Prospective teachers choose to work for the Michigan Elementary Provisional Certificate (valid for teaching all subjects in grades kindergarten through fifth, all subjects in self-contained classrooms in grades kindergarten through eighth, and major/minor subjects in grades sixth through eighth) OR the Michigan Secondary Provisional Certificate (valid for major and minor subjects in grades seven through twelve).
The following undergraduate curricula lead to certification and are offered in the College of Education: Elementary Education, Secondary Education, Special Education, and Physical Education. Students seeking admission to these curricula must contact the Office of Admissions and Advising, 2504 Sangren Hall.

Students electing to major in Art, Career and Technical Education, Music, Physical Education, Health Education, and Special Education may be certified to teach in their specialized area in grades K-12 by completing the curriculum and certification requirements.

Students seeking admission to one of the following curricula must see the appropriate college or department advisor as well as the Office of Admissions and Advising:

- Art (see School of Art advisor)
- Music (see School of Music for audition)
- Special Education (see Department of Educational Studies, Special Education advisor)
- Speech Pathology and Audiology (see Department of Speech Pathology and Audiology advisor)
- Teaching certificates are granted only to those students who satisfactorily complete an approved teacher education program with an overall grade point average of 2.5, passing scores on MTTC subject area test(s), and a bachelor's degree. Students in Speech Pathology and Audiology must complete a master's degree to be eligible to receive teacher certification.

Office of Admissions and Advising
2504 Sangren Hall
387-3474

Advisors:
Joyce DeRight, Director
Annemarie Bates
Sheena Bolton
Cynthia DeRyke
Douglas Engebretsen
Paul Hildenbrand

The Office of Admissions and Advising provides information regarding teacher education curricula and processes applications for admissions to those curricula in the College of Education. The office also provides academic advisement for students enrolled in non-teaching and teaching curricula within the College and advises post-baccalaureate students seeking initial teacher certification.

All students seeking admission to teacher education curricula as entering freshmen, transfers, or as students changing curricula must contact the Office of Admissions and Advising. All students declaring a preference for a curriculum leading to a teaching certificate will be assigned a pre-education designator at the time of admission to the University.

Students wishing to enter the Elementary Education or Secondary Education program must meet the following minimum requirements at the time of application:

- Completion of at least 35 credit hours
- Completion of all Western Michigan University Intellectual Skills Development courses if required (e.g. MATH 1090, ED 1040, ENGL 1000)
- Completion of an approved college level writing course
- Completion with a grade of "C" or better ED 2500 Human Development (for Elementary and K-12 programs) or ED 2000 Introduction to American Education (for Secondary 7-12 programs)
- Achievement of a cumulative grade point average (GPA) of 2.5 or better
- Achievement of passing scores on the Michigan Test for Teacher Certification (MTTC) - Basic Skills Section
- Once all of the above requirements have been met, a formal application requesting admission to the program must be submitted to the Office of Admissions and Advising, 2504 Sangren Hall.

Students wishing to enter the Special Education program must meet the following minimum requirements at the time of application for consideration-admission is not guaranteed:
• Completion of 56 hours (Spring semester hours may be counted)
• Completion of all Western Michigan University Intellectual Skills Development courses if required (e.g., MATH 1090, ED 1040, ENGL 1000)
• Completion of an approved college level writing course
• Completion of ED 2500 Human Development or an approved course, with a grade of “C” or better
• Achievement of a cumulative grade point average (GPA) of 2.5 or better
• Achievement of passing scores on the Michigan Test for Teacher Certification (MTTC) - Basic Skills Section
• Documentation of thirty clock hours of experience with person(s) with a disability and a current T.B. test.
• Completion of a formal application for admission to Special Education by January 15. Admission applications will be processed once a year.

Teacher Testing
Public Act 282 (1992) amends Section 1531 of Public Act 451 (1976), as amended by Public Act 267 (1986), mandates the implementation of a teacher certification testing program in Michigan effective July 1, 1992. Under the provisions of this act, all candidates for teacher certification in Michigan must pass a basic skills (reading, writing, math) test. Candidates for a secondary level teaching certificate must pass the appropriate available major/minor subject area examination for each subject area in which they are to be certified. Candidates for an elementary level teaching certificate must pass the elementary certification examination, and the appropriate available subject area examination for each subject area, if any, for which they apply to be certified. The basic skills examination must be passed prior to enrollment in intern teaching. The elementary examination and the subject area examinations must be passed before a person is recommended for certification.

This act requires the passing of appropriate and available test(s) prior to the addition of new subjects or grade-levels.

Information regarding required teacher testing and test booklets may be obtained from the Office of Admissions and Advising, 2504 Sangren Hall.

Appeals
A student aggrieved by an action taken within the College of Education has the right to appeal such action by filing an appeal form in the Office of Admission and Advising within twenty-one (21) days of the aggrieved action. Appeals may be reviewed by the Academic and Professional Standards Committee. Information about the appeal procedure is available in the Office of Admission and Advising.

Office of Teacher Certification
Jane Kramer, Certification Officer
Pamela Miller, Certification Assistant
2104 Sangren Hall
(269) 387-3473
www.wmich.edu/coe/tc

The Office of Teacher Certification processes all recommendations for certification and advises students seeking additional teaching endorsements. Further information about available certifications can be found under Types of Michigan Certificates elsewhere in this catalog.

Certificates

Michigan Teaching Certificates, Validity Level
There are two basic levels of Michigan teaching certificates currently available:

1. Elementary certificates issued after September 1, 1988 have the following validity: Kindergarten through fifth grade all subjects; kindergarten through eighth grade all subjects in a self-contained classroom; and sixth to, and including, eighth grade in the teachable major(s) and/or minor(s) for which a subject area test has been passed.
2. Secondary certificates issued after September 1, 1988 have the following validity: Seventh through twelfth grade in teachable major(s) and minor(s).
Types of Michigan Certificates

There are four basic types of Michigan regular and vocational certificates currently available: the required initial certificate, called the Provisional; the Professional certificate, which may eventually be obtained when the holder of a Provisional certificate meets requirements as outlined in the “Professional Certificate” section below; the Interim Occupational certificate; and the Occupational Education certificate.

Provisional Certificate

A Provisional certificate is issued by the Michigan Department of Education upon satisfactory completion of an approved program, including a bachelor's degree, offered by a teacher preparation institution and payment of a $125.00 certificate fee. An overall grade point average of 2.5 is required at Western Michigan University for a Provisional certificate. Effective September 1, 1991, the Michigan Board of Education issues a teaching certificate to a person only after that person passes both a basic skills examination and an appropriate subject area examination for each subject in which certification is granted. Effective July 1, 2004, candidates for initial teacher certification must also present evidence that they have successfully completed an approved course in first aid and adult and child cardiopulmonary resuscitation and hold valid certification from the American Red Cross or the American Heart Association.

Professional Certificate

The requirements for the Professional certificate are:

Experience. The candidate must have taught successfully for the equivalent of three years following the issuance of and within the grade level and subject area validity of the Provisional certificate. The success of the teaching experience is determined by the State Board of Education upon recommendation of the University and of the local school district(s) in which the candidate taught.

Experience can be accumulated through part-time (including substitute teaching under the following pro-rating formula: one half or more of a teaching day (2-1/2 or more clock hours) is the equivalent of one day, and 150 accumulated days is the equivalent of one year. There is no requirement that such experience be under contract, in consecutive years, be completed in Michigan, nor be completed before expiration of the Provisional certificate. All experience stays forever cumulative toward the Professional certificate.

Planned Program. The candidate must earn eighteen semester hours after the issuance of the Provisional certificate in a course of study established and/or approved as a “planned program” by an approved teacher education institution. A person with an approved master's or higher degree (regardless of when earned) is not required to complete the eighteen semester hour program.

A “planned program” is a master's degree program, an additional subject endorsement (a major or minor program), an additional grade level program, or an eighteen hour professional development program signed by the Certification Officer.

Beginning September 1, 1993, Public Act 182 of 1992 was implemented. This act requires subject area testing prior to adding additional subject or grade-level endorsement(s).

WMU students who wish to be recommended for the Professional certificate by WMU must earn at least twelve semester hours of the eighteen semester hour program from WMU.

Credits may not be earned by correspondence, from a two-year college, or from a non-accredited institution. The candidate must earn a grade equivalent to a “C” or better in all courses.

All candidates for the Michigan Professional certificate must present a minimum of six semester hours of reading methodology credit for the elementary level certificate or three semester hours of reading methodology credit for the secondary level certificate. Such credit may have been completed at any stage of the candidate's college level preparation; it has been an integral part of teacher preparation programs at Michigan colleges and universities since July 1, 1983.

Occupational Education Certificate

Individuals holding a Provisional certificate with a vocational education endorsement are required to complete ten semester hours of relevant vocational education credit within the eighteen semester hour planned program in order to earn an Occupational Education certificate.
Certification Application Procedures
The Professional and the Occupational Education certificate and the Provisional Renewal will be recommended by the approved Michigan teacher education institution which “planned” or approved the eighteen semester hour program of additional credit. The candidate applies directly to such Michigan college or university regardless of what other college or university may have recommended the initial Provisional certificate. Public Act 339 of 1988 requires the collection of certification fees by the Michigan Department of Education “as a condition of having the application evaluated for conformance with the application requirements.” After payment is made, the certificate will be issued by the Michigan Department of Education.

Applications are available from the Certification Office, College of Education, Sangren Hall, 269-387-3473 or on our website at www.wmich.edu/coe/tc

Certification And Criminal Convictions
The Michigan State Board of Education has authority under Part 10 Administrative Hearings of the Administrative Rules Governing the Certification of Michigan Teachers to deny, suspend, or revoke a teaching certificate (R 390.1201). Rule 101 states: "The State Board may refuse to grant or renew, or may revoke or suspend for a fixed term, or may impose reasonable conditions on, a teaching certificate pursuant to these rules for the following reasons:

Fraud, material misrepresentation, or concealment in the application for a certificate.
Failure or ineligibility of the applicant or certificate holder to meet the criteria for eligibility for the certificate.
Conviction, as an adult, of an act of immoral conduct contributing to the delinquency of a child, or of a felony involving moral turpitude.

Students are asked to provide information indicating whether they have been convicted as an adult of felonies or misdemeanors involving moral turpitude prior to (1) admission to teacher education programs, (2) field placement, and (3) recommendation for certification. It is the student's responsibility to report convictions at any time between these application periods.

An applicant who has been convicted as an adult of a felony or misdemeanor involving moral turpitude may be denied admission to teacher education or field placement or recommendation for certification. An applicant will be granted a hearing prior to such a final decision. Such a hearing will be initiated by the College of Education and referred to the College of Education Academic and Professional Standards Committee for review and recommendation.

Completion of our program does not guarantee final certification by the Michigan Department of Education. That decision rests with the Michigan Department of Education.

Validity Span of Michigan Certificates
All initial Michigan Provisional certificates, Provisional Renewal certificates, Professional Education certificates, Occupational Education certificates, and Interim Occupational certificates expire on June 30 of the appropriate year, determined by the month and year of issuance. The initial Michigan Provisional certificate and the Interim Occupational certificate are valid for 5-1/4 to 6-1/4 years, depending on the month of issuance. A Provisional Renewal is valid for 2-1/2 to 3 years depending on the month of issuance.

Continuing certificates (issued prior to July 1, 1992-predating the present Professional certificate); Permanent certificates (issued prior to July 1, 1976 - predating the Continuing certificate); and Full Vocational Authorizations (issued prior to July 1, 1992 - predating the Occupational Education certificate), have identical validity spans and identical reinstatement requirements. They automatically remain valid as long as the holder serves in an “educational capacity” (any full- or part-time education employment at any level) for a minimum of 100 days (need not be consecutive days) in any given five-year period. (The “given five-year period” is determined by looking backward - NOT forward - from any current date to the equivalent date five years earlier.)

Certification Renewal Requirements
Provisional Certificate: When the Provisional certificate expires before the holder is able to fulfill all requirements for the subsequent certificate, such holder can, at any future time(s), qualify in the following manner for a renewal of the Provisional certificate: The first three-year renewal is available any time after actual completion of the first ten semester hours of the eighteen semester hour “planned program.” After expiration of the first three-year renewal, if the holder has not completed the teaching experience requirement or the reading methods course requirement for the Professional certificate, a
second three-year renewal is available any time after actual completion of the entire eighteen semester hour “planned program.”

Professional Education and Occupational Education: Beginning July 1, 1992, persons receiving a Professional Education certificate or an Occupational Education certificate will be subject to the provisions of Rule 390.1135. The certificate(s) will be renewed every five years on the basis of six (6) semester hours of appropriate academic credit from a two- or four-year Michigan approved institution, or the equivalent in State Board approved professional development programs that will award credits obtained as Continuing Education Units (SB-CEU’s). Three SB-CEU's are equivalent to one semester hour of credit. This renewal process is completed directly with the Michigan Department of Education. Applications are available from the Michigan Department of Education.

Office of Field Placements
Kathy Mitchell, Coordinator
2206 Sangren Hall
387-3466
www.wmich.edu/coe/intern

The Office of Field Placements is responsible for the coordination and oversight of all field experiences, including intern teaching associated with teacher education curricula.

Intern Teaching

The following criteria must be met prior to undertaking intern teaching:

- Completion of all required course work.
- A cumulative grade point average of 2.5 or above.
- An overall grade point average of 2.5 in the professional education sequence and no grade lower than a “C” in any professional education course.
- Recommendation from major and minor departments.
- Completion of methods course(s) in major and/or minor with a minimum grade of “C”.
- Passing scores on the Michigan Basic Skills Test.

Students must contact the Office of Field Placements at least one year prior to the semester in which they plan to complete their intern teaching requirements. The deadline for submitting intern teaching applications for the Fall Semester is October 1 of the preceding fall. The deadline for submitting intern teaching applications for the Spring Semester is April 1 of the preceding Spring. Students may not select their placements for intern teaching. Placements are made by the Office of Field Placements based on programmatic needs and are usually within a 50 mile radius from the main campus and/or in designated partnership schools. Students may not enroll in other course work during intern teaching.

Please note: To be recommended for teacher certification, students must achieve at least a grade of “C” in ED 4100 Seminar in Education and “credit” in Intern Teaching, in addition to having met all other requirements for graduation.

Health and Liability Insurance

Students engaged in field experiences or intern teaching must give evidence of having health insurance at the time of course enrollment. Liability insurance coverage will be provided by the University through a fee assessed at the time of enrollment in courses requiring field experiences.

Dorothy J. McGinnis Reading Center and Clinic
3514 Sangren Hall
(616) 387-3470

The primary purpose of the Dorothy J. McGinnis Reading Center and Clinic is to provide clinical experiences in literacy (reading and writing) assessment and instruction for students enrolled at Western Michigan University who are preparing to work with children and adults in literacy instruction. All activities and experiences designed by clinic instructors and students provide literacy assessment, diagnosis, and tutoring in one-on-one or small class clinical settings. Additional services of the Reading Center offer consultative literacy workshops and seminars for teachers and schools in southwestern Michigan. The Reading Center also houses a library serving educators in the community with a large collection of children's and young
adults' literature for use in all contents categorized on database. Furthermore, the clinic provides students in education an opportunity to observe and participate in the administration of educational and clinical assessments, and the procedures employed in interviewing children, parents as well as procedures in interviewing children, parents, and school personnel. See Department of Teaching, Learning, and Leadership course listings for reading courses offered.

Elementary Education Curriculum (128 hours)
Michigan Elementary Provisional Certificate

The Elementary Education Curriculum is designed to prepare students to assume teaching responsibilities in self-contained classrooms in grades K-8 all subjects, K-5 all subjects, 6-8 in minors.

Additional information may be obtained from the Office of Admissions and Advising, 2504 Sangren Hall.

University General Education Requirement (40 hours)
The University General Education Requirement is 37 hours. An additional three hours in General Education courses from the College of Arts and Sciences (nonprofessional courses only) are required for Michigan certification. The majority of the student's University General Education Requirements will be met by options within the professional education program and the approved minors. (Two courses at the 3000-4000 level are required.)

Minors/Majors Approved for Elementary Education
Students who would like to become elementary teachers or early childhood teachers are required to complete:
2. Two subject-matter minors. This is to be accomplished by completing additional course work in two of the four concentrations listed in 1. above.
3. Either the Elementary Professional Education minor or the Early Childhood Professional Education minor. or Students may elect one of the following major and minor combinations:
   - Art major** with appropriate Elementary Education minor.
   - Music major** with Elementary Education minor.
   - Physical Education major with Elementary Education minor.
   - Speech Pathology and Audiology major*** with Elementary Education minor. Teaching certificate awarded upon completion of master's degree.
   - Special Education, Emotional Impairment and Learning Disabled/Elementary major.** Contact Department of Educational Studies to determine acceptable minors and desired level of preparation.
   - Special Education, Cognitive Impairment and Learning Disabled/Elementary major.** Contact Department of Educational Studies to determine acceptable minors and desired level of preparation.

Notes: **Special Education majors require admission to Special Education Curriculum. Music majors and Art majors require admission to College of Fine Arts. ***Speech Pathology and Audiology majors are certified upon successful completion of the master's degree in speech pathology and audiology.

Requirements and approval for these required minors are available in the Office of Admissions and Advising. All students must have minor slips signed by an approved elementary education advisor.

Elementary and Early Childhood Curricula
Students selecting these curricula are required to:
1. Complete the four subject-matter concentrations below,
2. minor in two of these subjects by taking additional courses, and
3. complete the appropriate professional education minor, either the Elementary Professional Education minor or the Early Childhood Professional Education minor.
Requirements for Concentrations and Minors

Subject-matter Concentrations

Subject 1. Mathematics
A minimum overall grade point average of 2.5 and a "B" grade or better in MATH 1500, 1510, 2650, and 3520 must be attained to satisfy the requirements of this concentration and minor.

Elementary Mathematics Concentration (15 hours)
Additional Courses, to be completed with a "C" or better, required to complete the Elementary and Middle School Teaching Minor (8 hours)
MATH 1500 - Number Concepts for Elementary/Middle School Teachers Credits: 4 hours
MATH 1510 - Geometry for Elementary/Middle School Teachers Credits: 4 hours
MATH 2650 - Probability and Statistics for Elementary/Middle School Teachers Credits: 4 hours
MATH 3520 - Teaching of Elementary/Middle School Mathematics Credits: 3 hours
MATH 5540 - Algebra in the Elementary/Middle School Curriculum Credits: 4 hours
MATH 5550 - Mathematical Modeling and Problem Solving in the Elementary/Middle School Curriculum. Credits: 4 hours

Subject 2. Science
A minimum overall grade point average of 2.0 and a "C" grade or better in each course must be attained to satisfy the requirements of this concentration and minor.

Elementary Science Concentration (18 hours)
To complete the concentration, choose one course from each of two different science areas below: Life, Physical, and Earth (two courses = 6 - 8 hrs.)
BIOS 1700 - Life Science for Elementary Educators I Credits: 3 hours
GEOG 1900 - Earth Science for Elementary Educators I Credits: 3 hours
PHYS 1800 - Physical Science for Elementary Educators I Credits: 3 hours

Life Science Courses
Students who choose the Elementary Integrated Science minor (28 hours) must complete the four courses listed above (BIOS 1700, PHYS 1800, GEOG 1900, ED 4010) and the courses below as noted by (EIS minor).
BIOS 1050 - Environmental Biology Credits: 3 hours
BIOS 1120 - Principles of Biology Credits: 3 hours
BIOS 1500 - Molecular and Cellular Biology Credits: 4 hours
BIOS 2400 - Human Physiology Credits: 4 hours
BIOS 2700 - Life Science for Elementary Educators II Credits: 3 hours (EIS Minor)

Physical Science Courses
Students who choose the Elementary Integrated Science minor (28 hours) must complete the four courses listed above (BIOS 1700, PHYS 1800, GEOG 1900, ED 4010) and the courses below as noted by (EIS minor).
ENGR 1010 - Introduction to Engineering Credits: 3 hours
CHEM 1100 - General Chemistry I Credits: 3 hours (EIS Minor)
CHEM 1510 - Chemistry for Health Professionals I Credits: 3 hours
CHEM 1900 - Chemistry in Society Credits: 3 hours
PHYS 1000 - How Things Work Credits: 4 hours
PHYS 1020 - Energy and the Environment Credits: 3 hours
PHYS 1040 - Introduction to the Sky and Solar System Credits: 3 hours (EIS Minor)
PHYS 1060 - Introduction to Stars and Galaxies Credits: 3 hours
SCI 2800 - Physical Science for Elementary Educators II Credits: 3 hours (EIS Minor)

Earth Science Courses
Students who choose the Elementary Integrated Science minor (28 hours) must complete the four courses listed above (BIOS 1700, PHYS 1800, GEOG 1900, ED 4010) and the courses below as noted by (EIS minor).
GEOS 1000 - Earth Studies Credits: 4 hours
GEOS 1440 - Environmental Earth Science Credits: 3 hours
GEOS 2000 - Evolution of Life - A Geological Perspective Credits: 4 hours

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GEOS 2900 - Earth Science for Elementary Educators II Credits: 3 hours (EIS Minor)  
GEOS 3010 - Minerals and Rocks Credits: 4 hours  
GEOS 3120 - Geology of the National Parks and Monuments Credits: 3 hours  
GEOS 3220 - Ocean Systems Credits: 3 hours

Subject 3. Language Arts  
A minimum overall grade point average of 2.0 and a "C" grade or better in each course must be attained to satisfy the requirements of this concentration and minor.

Elementary Language Arts Concentration (20 hours)  
ED 3770 - Literacy I: Literacy/Language Development in Emergent and Beginning Literacy Credits: 3 hours  
ED 3780 - Literacy II: Literacy/Language Arts Development in the Content Areas Credits: 3 hours  
ED 3790 - Literacy III: Literacy/Language Inquiry and Multiple Media Credits: 3 hours  
ED 4300 - Creativity in the Elementary Classroom Credits: 3 hours  
ENGL 3690 - Writing in the Elementary School Credits: 4 hours  
ENGL 3820 - Literature for the Young Child Credits: 4 hours or  
ENGL 3830 - Literature for the Intermediate Reader Credits: 4 hours

Elementary Language Arts Minor  
Additional Courses required to complete Elementary Language Arts minor (6 hrs.) Choose two courses to complete the Language Arts minor. ENGL 3820 or 3830 may be taken to fulfill the minor requirement only if not taken to fulfill the concentration area requirements (above). ENGL 3840 and 4840 appear in both sets of optional courses below but each may only be taken as fulfilling the requirement for one option.

Choose One From The Following:  
ENGL 3740 - Language in the Elementary School Credits: 3 hours  
ENGL 3770 - Language and Learning in Multilingual Classrooms Credits: 3 hours  
ENGL 3840 - Adolescent Literature Credits: 3 hours  
ENGL 4720 - American Dialects Credits: 4 hours  
ENGL 4840 - Multi-Cultural American Literature for Children Credits: 4 hours

Choose One From The Following:  
ENGL 1110 - Myth and Folk Literature Credits: 4 hours  
AFS 2230 - African American Literature/Criticism and Culture Credits: 4 hours  
ENGL 1070 - Good Books Credits: 4 hours  
ENGL 1100 - Literary Interpretation Credits: 4 hours  
ENGL 1120 - Literary Classics Credits: 4 hours  
ENGL 1500 - Literature and Other Arts Credits: 4 hours  
ENGL 2220 - Literatures and Cultures of the United States Credits: 4 hours  
ENGL 2230 - Black American Literature Credits: 4 hours  
ENGL 3120 - Western World Literature Credits: 3 hours  
ENGL 3820 - Literature for the Young Child Credits: 4 hours  
ENGL 3830 - Literature for the Intermediate Reader Credits: 4 hours  
ENGL 3840 - Adolescent Literature Credits: 3 hours  
ENGL 4840 - Multi-Cultural American Literature for Children Credits: 4 hours  
ENGL 5820 - Studies in Children's Literature Credits: 3 hours  
ENGL 5830 - Multi-Cultural Literature for Adolescents Credits: 3 hours

Subject 4. Social Studies  
A minimum overall grade point average of 2.0 and a "C" grade or better in each course must be attained to satisfy the requirements of this concentration and minor.

Elementary Social Studies Concentration (21 hours)  
ECON 1000 - Economics for Elementary Education Credits: 3 hours  
ED 4070 - Teaching Elementary Social Studies Credits: 3 hours  
GEOG 1020 - World Geography Through Media and Maps Credits: 3 hours

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HIST 2100 - American History to 1877 Credits: 3 hours or
HIST 2110 - American History since 1877 Credits: 3 hours
HIST 3020 - World History to 1500 Credits: 3 hours or
HIST 3030 - World History since 1500 Credits: 3 hours
PSCI 2000 - National Government Credits: 3 hours

Select Either
A-S 3040 - Nonwestern World Credits: 4 hours or
ANTH 1200 - Peoples of the World Credits: 3 hours or
SOC 3040 - Nonwestern World Credits: 4 hours

Elementary Social Studies Minor
Additional Courses required to complete Elementary Social Studies minor (6 hrs.) Choose one course from each of two different departments below. Courses listed below may be taken to fulfill the Elementary Social Studies minor requirements only if they have not been applied to fulfill the requirements for the concentration (above). Students may not take both SOC 3040 and A-S 3040.

Choose Two From The Following, Each From A Different Department:
ANTH 1200 - Peoples of the World Credits: 3 hours Credits: 4 hours
GEOG 2050 - Human Geography Credits: 3 hours
GEOG 2440 - Economic Geography Credits: 3 hours
GEOG 3110 - Geography of Michigan Credits: 3 hours
GEOG 3800 - United States and Canada Credits: 3 hours
HIST 2100 - American History to 1877 Credits: 3 hours
HIST 2110 - American History since 1877 Credits: 3 hours
HIST 3020 - World History to 1500 Credits: 3 hours
HIST 3030 - World History since 1500 Credits: 3 hours
HIST 3100 - Topics in History Credits: 1 to 3 hours Credits: 3 hours
HIST 3240 - Everyday Life in America Credits: 3 hours
HIST 3290 - Michigan History Credits: 3 hours

Select Either
A-S 3040 - Nonwestern World Credits: 4 hours Credits: 3 hours
or
SOC 3040 - Nonwestern World Credits: 4 hours Credits: 3 hours

Professional Education Minors
1. Elementary Professional Education Minor (35 hrs.)
For students in Elementary Education. A minimum overall grade point average of 2.0 and a "C" grade or better in each course must be attained to satisfy the requirements of this concentration and minor.
ED 3100 - Educational Psychology of Childhood Credits: 3 hours
ED 3710 - Elementary Classroom Organization and Management Credits: 3 hours
ED 4100 - Seminar in Education Credits: 1 to 2 hours
ED 4500 - Pre-Internship in Elementary Education Credits: 3 hours
ED 4710 - Intern Teaching: Elementary/Middle School Credits: 5, 8, or 10 hours
EDT 3470 - Technology for Elementary Education Credits: 2 hours
ES 3950 - School and Society Credits: 3 hours
SPED 4270 - Learners with Disabilities in Elementary and Middle School Programs Credits: 3 hours

Fine Arts electives (6 hours)
Choose from the sections below

One Course from the Following: (3 hours)
ART 1200 - Introduction to Art Credits: 3 hours
ART 1480 - Direct Encounter with the Arts Credits: 4 hours
DANC 1450 - Experiencing Dance Credits: 3 hours
MUS 1480 - Direct Encounter with the Arts ($50 fee) Credits: 4 hours
MUS 1500 - Music Appreciation: Live Music Credits: 4 hours
THEA 1000 - Introduction to Theatre Credits: 3 hours

One Course from the Following: (3 hours)
ART 2000 - The Creative Process Through Art Credits: 3 hours
MUS 2400 - Music for the Classroom Teacher Credits: 3 hours

2. Early Childhood Professional Education Minor (44 hrs.)
For students in Early Childhood Education. Leads to a Michigan Elementary Provisional Certificate and ZA endorsement. A minimum overall grade point average of 2.0 and a "C" grade or better in each course must be attained to satisfy the requirements of this concentration and minor.
ED 3090 - Educational Psychology of Early Childhood Credits: 3 hours
ED 3500 - Young Children, Their Families, and Their Society Credits: 3 hours
ED 3690 - Early Childhood Classroom Organization and Management Credits: 3 hours
ED 3950 - School and Society Credits: 3 hours
ED 4090 - Seminar in Early Childhood Education Credits: 1 hour
ED 4100 - Seminar in Education Credits: 1 to 2 hours
ED 4710 - Intern Teaching: Elementary/Middle School Credits: 5, 8, or 10 hours
ED 5750 - Administration of Child Development Centers Credits: 3 hours
EDT 3470 - Technology for Elementary Education Credits: 2 hours
SPED 4270 - Learners with Disabilities in Elementary and Middle School Programs Credits: 3 hours

Fine Arts electives (6 hours)
Choose from the sections below

One Course from the Following: (3 hours)
ART 1200 - Introduction to Art Credits: 3 hours
ART 1480 - Direct Encounter with the Arts Credits: 4 hours
DANC 1450 - Experiencing Dance Credits: 3 hours
MUS 1480 - Direct Encounter with the Arts ($50 fee) Credits: 4 hours
MUS 1500 - Music Appreciation: Live Music Credits: 4 hours
THEA 1000 - Introduction to Theatre Credits: 3 hours

One Course from the Following: (3 hours)
ART 2000 - The Creative Process Through Art Credits: 3 hours
MUS 2400 - Music for the Classroom Teacher Credits: 3 hours

Other Requirements
The computer usage requirement is met by completing MATH 1510, 2650, 3520. The college-level writing may be met by completing ENGL 1050 or BIS 1420. The baccalaureate-level writing requirement is met by completing ES 3950.

Elementary Education Music Curriculum
Grants certification to teach in elementary grade room (K-5) and music (K-8).

Margaret J. Hamilton, Advisor
School of Music
2132 Dalton Center
387-4672

University General Education Requirements (37 hours)

Baccalaureate Writing Requirement (3 hours)
Students who have chosen the Elementary Education Music Curriculum major will satisfy the Baccalaureate Writing Requirement by successfully completing ES/ED 3950 School and Society.
Music Major (42 hours)

Music Convocation (4 semesters)
MUS 1010 - Music Convocation Credits: No Credit

Basic Music (6 hours)
MUS 1600 - Basic Music I Credits: 3 hours
MUS 1610 - Basic Music II Credits: 3 hours

Aural Comprehension (3 hours)
MUS 1620 - Aural Comprehension I Credits: 1 hour
MUS 1630 - Aural Comprehension II Credits: 1 hour
MUS 2590 - Aural Comprehension III Credits: 1 hour

Music History and Literature (8 hours)
MUS 1700 - Music History I Credits: 2 hours
MUS 2700 - Music History II: Medieval/Renaissance Credits: 3 hours
MUS 2710 - Music History III: Nineteenth/Twentieth Century Credits: 3 hours

Conducting (1 hour)
MUS 2150 - Conducting Credits: 1 hour

Keyboard Musicianship (4 hours)
MUS 2200 - Keyboard Musicianship Credits: 1 hour
MUS 2210 - Keyboard Musicianship Credits: 1 hour
MUS 3200 - Advanced Keyboard Musicianship Credits: 1 hour
MUS 3210 - Keyboard Skills for Singers Credits: 1 hour

Note: All students in this curriculum will complete four semesters of keyboard, and/or pass an examination given by the Keyboard and Professional Education areas. No class piano course is to be counted twice. Students who do not qualify for entry in 2200 must complete 1200 and/or 1210 as a deficiency. Students who test out of Advanced Keyboard Musicianship (3210) are urged to consider taking Basic Music (2600); American Music (3500); Non-Western Music (3520); Voice (2000); or courses not taken in the choral or instrumental elective areas.

Voice Class (4 hours)
Four semesters of voice, including one of Vocal Techniques for Music Educators (1170) and one at 1000- or 2000-level Voice. Only one voice class is to be counted per semester.

Choral Ensemble (4 hours)
Four semesters of major choral ensembles (one hour each), plus two additional semesters of Grand Chorus (zero credits). Only one ensemble is to be counted per semester.
MUS 1070 - University Choruses Credits: 1 hour
MUS 1080 - Collegiate Singers Credits: 1 hour
MUS 1120 - University Chorale Credits: 1 hour

General Music Methods (3 hours)
MUS 3360 - General Music Methods Credits: 3 hours

Choral Conducting & Literature in Elementary/Middle School Choirs (2 hours)
MUS 3290 - Choral Conducting and Literature for Elementary and Middle School Choirs Credits: 2 hours

Instrumental Elective (2 hours)
Select two of the following one-credit hour classes:
MUS 1260 - Fundamentals of Guitar Credits: 1 hour
MUS 2790 - Instruments of the Band and Orchestra Credits: 1 hour
MUS 2800 - Instruments of the Music Classroom Credits: 1 hour
Teaching and Learning in Music (3 hours)
MUS 3480 - Teaching and Learning in Music Credits: 3 hours

Music for the Special Student (2 hours)
MUS 3850 - Music for the Special Student Credits: 2 hours

**Elementary Education Minor with a Major of Art, Music, or Physical Education**
This interdepartmental program is designed to prepare students to assume teaching responsibilities in a self-contained classroom in grades K-8.

Minimum 2.0 GPA required in this minor.

**Program Requirements**
ED 2500 - Human Development Credits: 3 hours
ENGL 3820 - Literature for the Young Child Credits: 4 hours
MATH 1500 - Number Concepts for Elementary/Middle School Teachers Credits: 4 hours

One of the Following:
GEOG 1050 - Physical Geography Credits: 4 hours or
PHYS 1800 - Physical Science for Elementary Educators I Credits: 3 hours

One of the Following:
GEOG 1020 - World Geography Through Media and Maps Credits: 3 hours or
HIST 2110 - American History since 1877 Credits: 3 hours or
PSCI 2000 - National Government Credits: 3 hours

One of the Following:
HIST 3160 - Women in United States History Credits: 3 hours or
WMS 3000 - Working Women, Past and Present Credits: 3 hours or
WMS 3300 - Gender Issues in Education Credits: 3 hours or
WMS 3500 - Male/Female Psychological Perspectives Credits: 3 hours

Admission to the Upper Professional Level is a prerequisite for the following:
ED 3100 - Educational Psychology of Childhood Credits: 3 hours (Early Childhood students take ED 3090)
ED 3710 - Elementary Classroom Organization and Management Credits: 3 hours (Early Childhood students take ED 3690)

And concurrently
ED 3770 - Literacy I: Literacy/Language Development in Emergent and Beginning Literacy Credits: 3 hours
ED 3780 - Literacy II: Literacy/Language Arts Development in the Content Areas Credits: 3 hours
ED 3790 - Literacy III: Literacy/Language Inquiry and Multiple Media Credits: 3 hours
ED 4070 - Teaching Elementary Social Studies Credits: 3 hours
EDT 3470 - Technology for Elementary Education Credits: 2 hours
ENGL 3690 - Writing in the Elementary School Credits: 4 hours
ES 3950 - School and Society Credits: 3 hours
SPED 4270 - Learners with Disabilities in Elementary and Middle School Programs Credits: 3 hours

If Elementary Education minor, elect only the following:
ED 4100 - Seminar in Education Credits: 1 to 2 hours
ED 4710 - Intern Teaching: Elementary/Middle School Credits: 5, 8, or 10 hours

If Early Childhood Education minor, elect only the following:
ED 3500 - Young Children, Their Families, and Their Society Credits: 3 hours
ED 4090 - Seminar in Early Childhood Education Credits: 1 hour
ED 4700 - Intern Teaching: Early Childhood Credits: 5 hours
ED 5750 - Administration of Child Development Centers Credits: 3 hours or
FCS 5750 - Administration of Child Development Centers Credits: 3 hours

**Elementary Education Minor with a Major of Speech Pathology and Audiology**

This interdepartmental program is designed to prepare students to assume teaching responsibilities in a self-contained classroom in grades K-8.

Minimum 2.0 GPA required in this minor.

**Program Requirements**

BIOS 1120 - Principles of Biology Credits: 3 hours  
ED 2500 - Human Development Credits: 3 hours  
ENGL 3820 - Literature for the Young Child Credits: 4 hours  
MATH 1500 - Number Concepts for Elementary/Middle School Teachers Credits: 4 hours  
PHYS 1070 - Elementary Physics Credits: 4 hours  
PHYS 1080 - Elementary Physics Laboratory Credits: 1 hour

One of the Following:  
GEOG 1020 - World Geography Through Media and Maps Credits: 3 hours or  
HIST 2110 - American History since 1877 Credits: 3 hours or  
PSCI 2000 - National Government Credits: 3 hours

One of the Following:  
HIST 3160 - Women in United States History Credits: 3 hours or  
WMS 3000 - Working Women, Past and Present Credits: 3 hours or  
WMS 3300 - Gender Issues in Education Credits: 3 hours or  
WMS 3500 - Male/Female Psychological Perspectives Credits: 3 hours

Admission to the Upper Professional Level is a prerequisite for the following:  
ED 3100 - Educational Psychology of Childhood Credits: 3 hours (Early Childhood students take ED 3090)  
ED 3710 - Elementary Classroom Organization and Management Credits: 3 hours (Early Childhood students take ED 3690)

And concurrently  
ED 3770 - Literacy I: Literacy/Language Development in Emergent and Beginning Literacy Credits: 3 hours  
ED 3780 - Literacy II: Literacy/Language Arts Development in the Content Areas Credits: 3 hours  
ED 3790 - Literacy III: Literacy/Language Inquiry and Multiple Media Credits: 3 hours  
ED 4070 - Teaching Elementary Social Studies Credits: 3 hours  
EDT 3470 - Technology for Elementary Education Credits: 2 hours  
ENGL 3690 - Writing in the Elementary School Credits: 4 hours  
ES 3950 - School and Society Credits: 3 hours  
SPED 3300 - Introduction to Special Education Credits: 3 hours

If Elementary Education minor, elect only the following:  
ED 4100 - Seminar in Education Credits: 1 to 2 hours Credits: 2 hours  
ED 4710 - Intern Teaching: Elementary/Middle School Credits: 5, 8, or 10 hours

If Early Childhood Education minor, elect only the following:  
ED 3500 - Young Children, Their Families, and Their Society Credits: 3 hours  
ED 4090 - Seminar in Early Childhood Education Credits: 1 hour  
ED 4700 - Intern Teaching: Early Childhood Credits: 5 hours  
ED 5750 - Administration of Child Development Centers Credits: 3 hours or  
FCS 5750 - Administration of Child Development Centers Credits: 3 hours
Secondary Education Curriculum (122 hours)
State Secondary Provisional Certificate
(For the preparation of teachers in Grades 7-12)

Minimum hours required (122 hours)
This curriculum may require more than 122 credit hours.

A minimum grade point average of 2.5 must be attained for advancement from the Pre-Education curriculum to the Secondary Education curriculum. A minimum grade point average of 2.5 must be attained for enrollment in Intern Teaching and for recommendation for the teaching certificate. Pre-Education curriculum students are not permitted to enroll in upper-level professional education courses until admission requirements are met and application is approved.

University General Education Requirement (Minimum 40 hours)
The University General Education Requirement is 37 hours. An additional 3 hours from the General Education Program and/or courses in language and literature, science, or social studies areas (non-professional courses only).

Professional Education Program (34 hours)
Minimum grade of “C” required in each of these courses and a grade point average of 2.5 maintained in all courses after admission to teacher education. To be taken in sequence.

Secondary Education for students with majors in the College of Arts and Sciences.
ED 2500 - Human Development Credits: 3 hours
ED 3000 - The Adolescent and School Learning Credits: 3 hours Prerequisite: ED 2500
ED 3010 - Secondary Content Literacy Credits: 3 hours Prerequisite: ED 3000, must be at least a junior. To be taken concurrently with ED 3020.
ED 3020 - Teaching and Learning in the Secondary School Credits: 4 hours Prerequisite: ED 3000; must be at least a junior. To be taken concurrently with ED 3020.
ED 3030 - Organization and Management in Education Credits: 3 hours Prerequisites: ED 3010 and ED 3020.
A “methods of teaching” course in either the major or minor Credits: 3 hours (both, if required by the respective major and minor departments.)
ED 4100 - Seminar in Education Credits: 1 to 2 hours Credits: 2 hours (Must be taken concurrently with ED 4750)
ED 4750 - Intern Teaching: Middle School/Secondary Credits: 5 or 10 hours Credits: 10 hours (Secondary) Prerequisite: All of the above and successful completion of all course work.

Note: ED 4750 and ED 4100 comprise the “intern teaching semester.”

Major/Minor Requirements
A minimum of one major (at least 30 semester hours or 36 for a group major) plus a minimum of one minor (at least 20 semester hours or 24 for a group minor) must be selected from the list below of Approved Majors and Minors for the Secondary Education Curriculum.

Electives
Elective credit may be used as needed to complete minimum graduation requirements and/or credits that do not qualify in the above categories. The candidate must satisfy the requirements for the B.A. or B.S. degree.

Approved Majors And Minors For The Secondary Education Curriculum,
Only programs listed below are acceptable for secondary education.

Majors-At least 30 semester hours. Choose one.
See catalog entry or advisor for information about major requirements.
Art Education (ARSJ)
Biology (BYSJ)
Chemistry (CHSJ)
Earth Science (ERSJ)
English (ENSJ)
Family and Consumer Sciences Teacher Education (FCSJ)
French (FHSJ)
Geography (GGSJ)
German (GRSJ)
Health Education, School (HESJ)
History (HYSJ)
Industrial Technology (INSJ)
Latin (LTSJ)
Mathematics (MHSJ)
Music Education (MSSJ)
Physical Education, Teacher/Coach (PDSJ)
Physics (PHSJ)
Political Science (PSSJ)
Secondary Education in Business (SUSJ)
Secondary Education in Marketing (SKSJ)
Spanish (SPSJ)
Technology and Design (TDSJ)

Minors—At least 20 semester hours. Choose one.
See catalog entry or advisor for information about minor requirements.
Biology (BYSN)
Chemistry (CHSN)
Communication (CMSN)
Drafting (DRSN)
Earth Science (ERSN)
English (ENSN)
Environmental Studies (EVSN)
French (FHSN) Geography (GGSN)
German (GRSN)
Graphic Arts (GASN)
Health Education (HESN)
History (HYSN)
Industrial Technology (ITSN)
Latin (LTSN)
Mathematics (MHSN)
Metalworking (MWSN)
Occupational Child Care (OCSN)
Occupational Foods (OFSN)
Physics (PHSN)
Political Science (POSN)
Power/Automotives (PWSN)
Russian (RSSN)
Secondary Education in Marketing (SKSN)
Spanish (SPSN)
Woodworking (WDSN)

Baccalaureate Writing Requirement
Students who have chosen the Secondary Curriculum will satisfy the Baccalaureate Writing Requirement by successfully completing ES/ED 3950 School and Society.

Notes:
Professional Education Program for Art and Music majors—See the School of Art and the School of Music in this catalog.
Professional Education Program for Teacher/Coach and Health Education—See the Department of Health, Physical Education, and Recreation in this catalog.

Professional Education Program for Career and Technical Education, Industrial Education, and Secondary Education in Business—See the Department of Family and Consumer Sciences in this catalog.

**Counselor Education and Counseling Psychology**

Patrick H. Munley, Interim Chair  
Carla R. Adkison-Bradley  
Diane K. Anderson  
Mary Z. Anderson  
Nicholas A. Andreadis  
Gary H. Bischof  
Stephen E. Craig  
James M. Croteau  
Lonnie E. Duncan  
Suzanne M. Hedstrom  
Alan J. Hovestadt  
Phillip D. Johnson  
Norman M. Kiracofe  
Kelly A. McDonnell  
Jerry E. McLaughlin  
Joseph R. Morris  
Eric M. Sauer  
Donna M. Talbot  
Sheila Witherspoon

The Department of Counselor Education and Counseling Psychology offers professional education in the field of counseling psychology, human resources development, and in the following concentrations in counselor education: community counseling, rehabilitation counseling and teaching, school counseling, and student affairs in higher education (with options in college counseling and in administration of college student affairs. Most of the courses are open to graduate students only, but the following courses are open to qualified undergraduates.

**Educational Studies**

Paula Kohler, Interim Chair  
Brooks Applegate  
Kristal Ehrhardt  
Paul Farber  
Monica Harris  
George Haus  
Gunilla Holm  
Brian Horvitz  
Robert Leneway  
Elena Lisovskaya  
Gerald Pillsbury  
Shaila M. Rao  
G. Thomas Ray  
Liliana Rodriguez  
Sarah Summy  
Elizabeth Whitten
The Department of Educational Studies offers an undergraduate program for the preparation of special education teachers, service, and elective courses in educational technology, and service courses in educational foundations. The special education program prepares teachers in the area of learning disabilities and endorsements in either emotional impairments or cognitive impairments at the K-12 level of special education. Students completing the special education undergraduate curricula and who successfully complete the Michigan Test for Teacher Certification earn an Elementary Provisional Teaching Certificate in one of the above areas of specialization.

Special Education

Admission

Students who desire to major in Special Education must be admitted to the pre-education curriculum of the College of Education. This status, however, does not assure admission to the Professional Education Curriculum of the department. The selection of students to the Professional Education Curriculum in Special Education occurs in January each year after review of all applications by a departmental faculty committee.

Each year the Department of Educational Studies establishes the maximum number of new students who can be admitted to each of the special education curricula for the following year. The minimum criteria for admission consideration include:
1. Completion of the Western Michigan University College of Education Pre-Education Curriculum.
2. Attainment of junior status (at least 56 semester hours completed or in process at the time of application).
3. Attainment of a minimum 2.5 grade point average.
4. Achievement of passing scores on the Michigan Test for Teacher Certification (MTTC) - Basic Skills Section.
5. Completion of a minimum of 30 clock hours of documented contact with a person(s) with disabilities. Students must contact the department to secure the appropriate forms for documenting this experience or to secure assistance in meeting this requirement.
6. Submission of an application for admission to the Special Education Professional Education Curriculum by the announced date.

All completed applications will be evaluated using the following specific criteria:
1. Forty percent weighting based on grade point average at the time of application.
2. Thirty percent weighting based on performance on the Basic Skills Test (state required literacy test).
3. Ten percent weightings each for semester hours completed, under-represented group membership, and other (subjective) criteria.

Students selected for admission will comprise a cohort which will begin taking courses in the Special Education sequence the following fall semester. Courses must be taken in the prescribed sequence. Six semesters (course work plus intern teaching) are required to complete the Professional Curriculum in Special Education.

Further information regarding admission requirements and procedures may be obtained by directly contacting the department.

Advising

The Department provides advising to all students who wish to major in Special Education, whether or not they are currently enrolled in the Department's curricula. Students are expected to meet with College of Education advisors and Special Education advisors early in their college careers.

Intern Teaching

Students complete three, ten-week intern teaching assignments, one in General Education, one in Learning Disabilities, and one in Emotional Impairments or Cognitive Impairments. Intern teaching placement is made only within prescribed areas in Southwest Michigan, Detroit area, and Germany. Intern Teaching placement in or near home school districts should not be anticipated or expected.

Special Education Curricula

Bachelor of Science or Bachelor of Arts

State Elementary Provisional Certificate
Minimum Hours Required 130 hours
University General Education Requirement (40 hours)
The University General Education Requirement is 37 hours. An additional three hours in General Education courses from the College of Arts and Sciences (nonprofessional courses only) are required for Michigan certification.

Baccalaureate Writing Requirement
Students who have chosen the Special Education Curriculum will satisfy the Baccalaureate Writing Requirement by successfully completing ED/ES 3950 School and Society, which is included in the curriculum requirements for each of the special education endorsements.

Academic Minor (20-24 hours)
Students may select from any minors approved for elementary or secondary education except for Integrative Creative Arts and Early Childhood Education. These latter two minors may be selected as a second minor.

Endorsement Major
Students who have chosen the Special Education Curriculum will complete one of two endorsement majors; the requirements for each are listed in the endorsement programs.

Special Education Curricula Endorsement - Emotional Impairments and Learning Disabilities K-12 (130 hours)
For the preparation of teachers who wish to receive endorsements in emotional impairments and learning disabilities.

Curriculum Requirements (25 hours)
COM 1040 - Public Speaking Credits: 3 hours
ED 2500 - Human Development Credits: 3 hours
EDT 3470 - Technology for Elementary Education Credits: 2 hours
ENGL 3820 - Literature for the Young Child Credits: 4 hours
MATH 1500 - Number Concepts for Elementary/Middle School Teachers Credits: 4 hours
PSY 1000 - General Psychology Credits: 3 hours Approved for General Education and is counted as fulfilling General Education requirements.

Select Either:
ED 3950 - School and Society Credits: 3 hours or
ES 3950 - School and Society Credits: 3 hours and
HIST 2110 - American History since 1877 Credits: 3 hours or
PSCI 2000 - National Government Credits: 3 hours

Course Requirements In Emotional Impairments Major (45 hours)
A minimum grade of "C" must be earned in all courses listed as part of this major. Note: Students must see a department advisor regarding the sequence in which the courses must be completed.

ED 3770 - Literacy I: Literacy/Language Development in Emergent and Beginning Literacy Credits: 3 hours
ED 3780 - Literacy II: Literacy/Language Arts Development in the Content Areas Credits: 3 hours
ED 4070 - Teaching Elementary Social Studies Credits: 3 hours
SPED 3150 - Introduction to Early Childhood Special Education Credits: 1 hour
SPED 3250 - Introduction to Transition Issues for Learners with Disabilities Credits: 2 hours
SPED 3300 - Introduction to Special Education Credits: 3 hours
SPED 3310 - Classroom Practicum in Special Education Credits: 1 hour
SPED 3380 - Introduction to Classroom Management Credits: 3 hours
SPED 3390 - Consultation and Communication in Special Education Credits: 3 hours
SPED 3700 - Introduction to Emotional Impairments Credits: 3 hours
SPED 3710 - Classroom Practicum with Learners with Emotional Impairments Credits: 1 hour
SPED 3750 - Education Of Learners with Emotional Impairments Credits: 3 hours
SPED 4040 - Classroom Practicum: Assessment for Intervention Credits: 1 hour
SPED 4330 - Assessment for Intervention in Special Education Credits: 3 hours
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>SPED 4340</td>
<td>Curriculum and Intervention in Special Education</td>
<td>3 hours</td>
</tr>
<tr>
<td>SPED 4800</td>
<td>Introduction to Learning Disabilities</td>
<td>3 hours</td>
</tr>
<tr>
<td>SPED 4810</td>
<td>Classroom Practicum with Learners with Learning Disabilities</td>
<td>1 hour</td>
</tr>
<tr>
<td>SPED 4850</td>
<td>Education of Learners with Learning Disabilities</td>
<td>3 hours</td>
</tr>
<tr>
<td>SPPA 2000</td>
<td>Communication Disorders and Sciences</td>
<td>3 hours</td>
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<td></td>
<td>Approved for General Education and is counted as fulfilling</td>
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<tr>
<td></td>
<td>General Education requirements.</td>
<td></td>
</tr>
<tr>
<td>SPPA 5950</td>
<td>Oral Language Development and Dysfunction</td>
<td>2 hours</td>
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<tr>
<td>Intern Teaching (28 hours)</td>
<td></td>
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<tr>
<td>ED 4100</td>
<td>Seminar in Education</td>
<td>1 to 2 hours</td>
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<tr>
<td>ED 4710</td>
<td>Intern Teaching: Elementary/Middle School</td>
<td>5, 8, or 10 hours</td>
</tr>
<tr>
<td>SPED 4100</td>
<td>Seminar in Special Education</td>
<td>2 hours</td>
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<tr>
<td>SPED 4750</td>
<td>Intern Teaching in Special Education: Emotional Impairments</td>
<td>8 hours</td>
</tr>
<tr>
<td>SPED 4760</td>
<td>Intern Teaching in Special Education: Learning Disabilities</td>
<td>4 to 8 hours</td>
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</tbody>
</table>

**Special Education Curricula Endorsement - Cognitive Impairments and Learning Disabilities K-12 (130 hours)**

For the preparation of teachers who wish to receive endorsements in cognitive impairments and learning disabilities.

**Curriculum Requirements (25 hours)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>COM 1040</td>
<td>Public Speaking</td>
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<tr>
<td>ED 2500</td>
<td>Human Development</td>
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<tr>
<td>EDT 3470</td>
<td>Technology for Elementary Education</td>
<td>2 hours</td>
</tr>
<tr>
<td>ENGL 3820</td>
<td>Literature for the Young Child</td>
<td>4 hours</td>
</tr>
<tr>
<td>MATH 1500</td>
<td>Number Concepts for Elementary/Middle School Teachers</td>
<td>4 hours</td>
</tr>
<tr>
<td>PSY 1000</td>
<td>General Psychology</td>
<td>3 hours</td>
</tr>
<tr>
<td></td>
<td>Approved for General Education and is counted as fulfilling</td>
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<tr>
<td></td>
<td>General Education requirements.</td>
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</tr>
</tbody>
</table>

Select Either:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ED 3950</td>
<td>School and Society</td>
<td>3 hours</td>
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<tr>
<td>ES 3950</td>
<td>School and Society</td>
<td>3 hours</td>
</tr>
<tr>
<td>HIST 2110</td>
<td>American History since 1877</td>
<td>3 hours</td>
</tr>
<tr>
<td>PSCI 2000</td>
<td>National Government</td>
<td>3 hours</td>
</tr>
</tbody>
</table>

**Course Requirements In Cognitive Impairments Major (45 hours)**

A minimum grade of "C" must be earned in all courses listed as part of this major. Note: Students must see a department advisor regarding the sequence in which the courses must be completed.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ED 3770</td>
<td>Literacy I: Literacy/Language Development in Emergent and</td>
<td>3 hours</td>
</tr>
<tr>
<td></td>
<td>Beginning Literacy</td>
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<tr>
<td>ED 3780</td>
<td>Literacy II: Literacy/Language Arts Development in the</td>
<td>3 hours</td>
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<td>Content Areas</td>
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<tr>
<td>ED 4070</td>
<td>Teaching Elementary Social Studies</td>
<td>3 hours</td>
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<tr>
<td>SPED 3150</td>
<td>Introduction to Early Childhood Special Education</td>
<td>1 hour</td>
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<td>SPED 3250</td>
<td>Introduction to Transition Issues for Learners with Disabilities</td>
<td>2 hours</td>
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<td>SPED 3300</td>
<td>Introduction to Special Education</td>
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<td>SPED 3310</td>
<td>Classroom Practicum in Special Education</td>
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<td>SPED 3380</td>
<td>Introduction to Classroom Management</td>
<td>3 hours</td>
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<td>SPED 3390</td>
<td>Consultation and Communication in Special Education</td>
<td>3 hours</td>
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<td>SPED 3400</td>
<td>Introduction to Cognitive Impairments</td>
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<tr>
<td>SPED 3410</td>
<td>Classroom Practicum with Learners with Cognitive Impairments</td>
<td>1 hour</td>
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<td>SPED 3450</td>
<td>Education of Learners with Cognitive Impairments</td>
<td>3 hours</td>
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<td>SPED 4040</td>
<td>Classroom Practicum: Assessment for Intervention</td>
<td>1 hour</td>
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<td>SPED 4330</td>
<td>Assessment for Intervention in Special Education</td>
<td>3 hours</td>
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<td>SPED 4340</td>
<td>Curriculum and Intervention in Special Education</td>
<td>3 hours</td>
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<tr>
<td>SPED 4800</td>
<td>Introduction to Learning Disabilities</td>
<td>3 hours</td>
</tr>
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**SPED 4810 - Classroom Practicum with Learners with Learning Disabilities** Credits: 1 hour  
**SPED 4850 - Education of Learners with Learning Disabilities** Credits: 3 hours  
**SPPA 2000 - Communication Disorders and Sciences** Credits: 3 hours Approved for General Education and is counted as fulfilling General Education requirements.  
**SPPA 5950 - Oral Language Development and Dysfunction** Credits: 2 hours  

**Intern Teaching (28 hours)**  
ED 4100 - Seminar in Education Credits: 1 to 2 hours Credits: 2 hours  
ED 4710 - Intern Teaching: Elementary/Middle School Credits: 5, 8, or 10 hours Credits: 8 hours  
**SPED 4100 - Seminar in Special Education** Credits: 2 hours  
SPED 4740 - Intern Teaching in Special Education: Cognitive Impairments Credits: 8 hours  
SPED 4760 - Intern Teaching in Special Education: Learning Disabilities Credits: 4 to 8 hours Credits: 8 hours  

**Endorsement-Cognitive Impairments and Learning Disabilities K-12 (25 hours)**  
For the preparation of teachers who wish to receive endorsements in cognitive impairments and learning disabilities.

**Curriculum Requirements (25 hours)**  
COM 1040 - Public Speaking Credits: 3 hours  
ED 2500 - Human Development Credits: 3 hours  
EDT 3470 - Technology for Elementary Education Credits: 2 hours  
ENGL 3820 - Literature for the Young Child Credits: 4 hours  
MATH 1500 - Number Concepts for Elementary/Middle School Teachers Credits: 4 hours  
PSY 1000 - General Psychology Credits: 3 hours Approved for General Education and is counted as fulfilling General Education requirements.

One of the Following:  
ED 3950 - School and Society Credits: 3 hours  
ES 3950 - School and Society Credits: 3 hours

One of the Following:  
HIST 2110 - American History since 1877 Credits: 3 hours or  
PSCI 2000 - National Government Credits: 3 hours

**Course Requirements in Cognitive Impairments Major (45 hours)**  
A minimum grade of "C" must be earned in all courses listed as part of this major. Those marked with a * are approved for General Education and are counted as fulfilling General Education requirements.

Note: Students must see a department advisor regarding the sequence in which the courses must be completed.

ED 3770 - Literacy I: Literacy/Language Development in Emergent and Beginning Literacy Credits: 3 hours  
ED 3780 - Literacy II: Literacy/Language Arts Development in the Content Areas Credits: 3 hours  
ED 4070 - Teaching Elementary Social Studies Credits: 3 hours  
SPED 3150 - Introduction to Early Childhood Special Education Credits: 1 hour  
SPED 3250 - Introduction to Transition Issues for Learners with Disabilities Credits: 2 hours  
SPED 3300 - Introduction to Special Education Credits: 3 hours  
SPED 3310 - Classroom Practicum in Special Education Credits: 1 hour  
SPED 3380 - Introduction to Classroom Management Credits: 3 hours  
SPED 3390 - Consultation and Communication in Special Education Credits: 3 hours  
SPED 3700 - Introduction to Emotional Impairments Credits: 3 hours  
SPED 3710 - Classroom Practicum with Learners with Emotional Impairments Credits: 1 hour  
SPED 3750 - Education Of Learners with Emotional Impairments Credits: 3 hours  
SPED 4040 - Classroom Practicum: Assessment for Intervention Credits: 1 hour  
SPED 4330 - Assessment for Intervention in Special Education Credits: 3 hours  
SPED 4340 - Curriculum and Intervention in Special Education Credits: 3 hours  
SPED 4800 - Introduction to Learning Disabilities Credits: 3 hours
Family and Consumer Sciences

Linda L. Dannison, Chair
Karen R. Blaisure
Marlene R. Breu
Mozhdeh Bruss
Eileen Buckley
E. Bryce Dickey
Barbara J. Frazier
Chantel L. S. Lumpkin
Arezoo Rojhani
Caroline B. Webber
Richard W. Zinser

The mission of the Department of Family and Consumer Sciences is to provide integrative educational programs and conduct research focused on reciprocal relationships among individuals, families, and their near environments toward the goal of improving the quality of life within a dynamic world community.

Curricula offered in the department include:
- Dietetics
- Family and Consumer Sciences Teacher Education
- Family Studies-Family Studies Emphasis
- Family Studies-Child Development Emphasis
- Food Service Administration
- Industrial Technology
- Interior Design
- Occupational Education Studies
- Secondary Education in Business
- Secondary Education in Marketing
- Technology and Design
- Textile and Apparel Studies-Merchandising Emphasis
- Textile and Apparel Studies-Design and Development

Minors offered in the department include:
- Family Life Education
- Industrial Technology
- Occupational Child Care
- Occupational Foods
- Secondary Education in Marketing
- Textile and Apparel Merchandising
- Vocational-Technical

Intern Teaching (28 hours)
ED 4100 - Seminar in Education Credits: 1 to 2 hours Credits: 2 hours
ED 4710 - Intern Teaching: Elementary/Middle School Credits: 5, 8, or 10 hours Credits: 8 hours
SPED 4100 - Seminar in Special Education Credits: 2 hours
SPED 4750 - Intern Teaching in Special Education: Emotional Impairments Credits: 8 hours
SPED 4760 - Intern Teaching in Special Education: Learning Disabilities Credits: 4 to 8 hours Credits: 8 hours
Advisors are available to assist in individual program planning, recommend electives appropriate to a student's educational objectives, and help solve academic problems. Careful and regular planning with an advisor is critical to program completion in a timely manner. Substitutions and transfer credit must be approved by an advisor.

Work Experience Programs
Programs offered in dietetics, family studies, food service administration, interior design, and textile and apparel studies are designed to develop occupational competencies in their respective areas. These programs, which are sponsored jointly with businesses and agencies, provide students with an opportunity to complete a four-year program leading to a Bachelor of Science degree.

Career And Technical Education Curricula
Career and technical education is a curriculum that prepares students to qualify as teachers in Michigan middle and junior high schools, secondary high schools, and area technical centers in non-vocational and vocational education subject areas.

Areas of career and technical education offered by the department that do not require vocational endorsements include majors in industrial technology, technology and design, and secondary education in business, as well as minors in industrial technology and family life education. The program requirements are listed below under Non-Vocational Majors and Minors.

Areas of career and technical education offered by the department that require vocational endorsements include majors in family and consumer sciences education, secondary education in business, and secondary marketing education, as well as minors in occupational child care, occupational foods, secondary education in marketing, and vocational-technical (drafting, graphic arts, metalworking, power/auto mechanics, and woodworking).

Non-Vocational Majors
The requirements for each of the three non-vocational majors are described within the programs. The non-vocational majors are Industrial Technology, Secondary Education in Business, and Technology and Design.

Vocational Minors
The requirements for each of the vocational minors are described within the programs. The vocational minors are Occupational Child Care, Occupational Foods, Secondary Education in Marketing, and Vocational-Technical (Drafting, Graphic Arts, Metalworking, and Woodworking).

Majors in non-vocational teacher preparation programs may also earn one of the vocational minors in consultation with the advisor.

Dietetics
The Dietetics Program meets the American Dietetic Association's Standards of Education and graduates are eligible to apply for an accredited internship or an approved supervised practice program. Students must complete either the internship or the supervised practice in order to qualify for certification as Registered Dietitians. After certification, the Registered Dietitian is eligible for positions in hospitals such as clinical dietitian or food service administrator; for positions in commercial food establishments such as restaurants, hotels, industrial facilities, schools, colleges, universities and the armed forces; and for positions in community health agencies.

The Student Dietetic Association provides an opportunity to meet dietetics professionals, learn about the profession and volunteer for pre-professional activities, as well as meet and interact with fellow dietetics students.
A Minimum of 122 Hours is Required for this Curriculum.

1. General Education Requirements (37 hours)

2. Required Core Courses (35 hours) Minimum "C" grade required.
   - FCS 1000 - Career Seminar Credits: 1 to 2 hours Credits: 1 hour
   - FCS 1650 - Culinary Skills Credits: 3 hours
   - FCS 2600 - Nutrition Credits: 3 hours
   - FCS 3600 - Lifespan Nutrition Credits: 3 hours
   - FCS 3680 - Quantity Foods Credits: 4 hours
   - FCS 4600 - Medical Nutrition Therapy I Credits: 4 hours
   - FCS 4610 - Medical Nutrition Therapy II Credits: 4 hours
   - FCS 4620 - Community Nutrition Credits: 3 hours
   - FCS 4630 - Medical Nutrition Therapy Laboratory I Credits: 1 hour
   - FCS 4640 - Medical Nutrition Therapy Laboratory II Credits: 1 hour
   - FCS 4660 - Institutional Management Credits: 4 hours
   - FCS 4680 - Advanced and Experimental Foods Credits: 4 hours Students in the dietetics major will satisfy the Baccalaureate Writing requirement by successfully completing FCS 4680.

3. Required Related Courses (28 to 19 hours) Minimum "C" grade required
   - COM 1700 - Interpersonal Communication Credits: 3 hours
   - CTE 3460 - Education Skills for Non-school Practitioners Credits: 3 hours
   - ENGL 1050 - Thought and Writing Credits: 4 hours
   - FCS 2250 - Computer Applications Credits: 3 hours
   - MATH 1110 - Algebra II Credits: 3 hours
   - MKTG 2500 - Marketing Principles Credits: 3 hours
   - PHIL 3340 - Biomedical Ethics Credits: 4 hours
   - PSY 1000 - General Psychology Credits: 3 hours
   - SOC 2000 - Principles of Sociology Credits: 3 hours

4. Science Courses (26 hours) Minimum "C" grade required
   - BIOS 1120 - Principles of Biology Credits: 3 hours
   - BIOS 2320 - Microbiology and Infectious Diseases Credits: 4 hours
   - BIOS 2400 - Human Physiology Credits: 4 hours
   - CHEM 1100 - General Chemistry I Credits: 3 hours and
   - CHEM 1110 - General Chemistry Laboratory I Credits: 1 hour
   - CHEM 1120 - General Chemistry II Credits: 3 hours and
   - CHEM 1130 - General Chemistry Laboratory II Credits: 1 hour
   - CHEM 3550 - Introductory Biochemistry Credits: 3 hours
   - CHEM 3700 - Introduction to Organic Chemistry Credits: 3 hours and
   - CHEM 3710 - Introduction to Organic Chemistry Lab Credits: 1 hour

5. Electives - As needed for graduation total of 122 hours.

**Family Studies**

The family studies major has two emphases: Family Studies and Child Development. The Family Studies Emphasis is an interdisciplinary program designed with flexibility for students who desire leadership positions in public and private programs related to children and families. This program is also intended for those desiring to pursue a master's degree program in family and consumer sciences, counseling, and other related fields. A minimum of 122 hours is required for this curriculum.

The Child Development Emphasis will prepare individuals for careers in child development centers, Head Start, Michigan School Readiness, and other preschool programs, as well as meeting the qualifications to be program director in a child care center or as parent educators. A minimum of 122 hours is required for this curriculum, including a six-hour supervised internship.
Family Studies Emphasis (122 hours)

1. General Education Requirements (37 hours)

2. Required Core Courses (37 hours)
   FCS 1000 - Career Seminar Credits: 1 to 2 hours Credits: 2 hours
   FCS 2020 - Field Experience Credits: 1 to 3 hours Credits: 2 hours
   FCS 2090 - Consumer Education Credits: 3 hours
   FCS 2100 - Human Sexuality Credits: 3 hours
   FCS 2140 - Child Development Credits: 3 hours
   FCS 2150 - Adolescent Development Credits: 3 hours
   FCS 2660 - Personal Nutrition Credits: 3 hours
   FCS 3150 - Global Ecology of the Family Credits: 3 hours
   FCS 3180 - Intimate Relationships: Friends, Family, and Marriage Credits: 3 hours
   FCS 4100 - Teaching Family Life Education Credits: 3 hours
   FCS 4130 - Later Life Family Relationships Credits: 3 hours
   FCS 4150 - Effective Parenting Credits: 3 hours (Students in the family studies emphasis will satisfy the Baccalaureate Writing requirement by successfully completing FCS 4150.)

One of the Following:
   CS 1000 - Fluency With Information Technology Credits: 3 hours or
   FCS 2250 - Computer Applications Credits: 3 hours

3. Required Related Electives Choose (23 hours)
   AFS 3000 - Black Experience: From the African Beginnings to 1865 Credits: 3 hours or
   AFS 3010 - Black Experience: From 1866 to the Present Credits: 3 hours
   ANTH 3470 - Ethnicity/Multiculturalism Credits: 3 hours
   COM 1700 - Interpersonal Communication Credits: 3 hours
   COM 3320 - Group Problem Solving Credits: 3 hours
   COM 4750 - Family Communication Credits: 3 hours
   FCS 4290 - Internship Credits: 2 to 6 hours
   FCS 5220 - Topics in Family and Consumer Sciences Credits: 1 to 3 hours
   FCS 5750 - Administration of Child Development Centers Credits: 3 hours
   HPER 1110 - Healthy Living Credits: 2 hours
   PADM 2000 - Introduction to Nonprofit Leadership Credits: 3 hours
   PADM 3000 - Nonprofit Advancement Credits: 3 hours
   PADM 4000 - Seminar in Nonprofit Leadership Credits: 3 hours
   PSY 1000 - General Psychology Credits: 3 hours
   PSY 2500 - Abnormal Psychology Credits: 3 hours
   SOC 2100 - Modern Social Problems Credits: 3 hours
   SOC 2600 - Introduction to Criminal Justice Credits: 3 hours
   SOC 3140 - Ethnic Relations Credits: 3 hours
   SOC 3620 - Criminology Credits: 3 hours
   SOC 4120 - Child Abuse Credits: 3 hours
   SOC 4540 - Juvenile Delinquency Credits: 3 hours
   SWRK 2100 - Social Work Services and Professional Roles Credits: 3 hours

One of the Following:
   COM 4790 - Female/Male Interaction Credits: 3 hours or
   SOC 4790 - Female/Male Interaction Credits: 3 hours

4. Electives (As needed for graduation total of 122 hours).
Child Development Emphasis (122 hours)

1. General Education Requirements (37 hours)

2. Required Core Courses (34 hours)
   FCS 1000 - Career Seminar Credits: 1 to 2 hours Credits: 2 hours
   FCS 2020 - Field Experience Credits: 1 to 3 hours Credits: 2 hours
   FCS 2090 - Consumer Education Credits: 3 hours
   FCS 2100 - Human Sexuality Credits: 3 hours
   FCS 2140 - Child Development Credits: 3 hours
   FCS 2150 - Adolescent Development Credits: 3 hours
   FCS 2660 - Personal Nutrition Credits: 3 hours
   FCS 3150 - Global Ecology of the Family Credits: 3 hours
   FCS 3180 - Intimate Relationships: Friends, Family, and Marriage Credits: 3 hours
   FCS 4100 - Teaching Family Life Education Credits: 3 hours
   FCS 4130 - Later Life Family Relationships Credits: 3 hours
   FCS 4150 - Effective Parenting Credits: 3 hours (Students in the child development emphasis will satisfy the Baccalaureate Writing requirement by successfully completing FCS 4150.)

   One of the Following:
   CS 1000 - Fluency With Information Technology Credits: 3 hours or
   FCS 2250 - Computer Applications Credits: 3 hours

3. Related Professional Courses (25 to 27 hours)
   FCS 4290 - Internship Credits: 2 to 6 hours Credits: 6 hours
   FCS 5220 - Topics in Family and Consumer Sciences Credits: 1 to 3 hours Credits: 3 hours
   FCS 5750 - Administration of Child Development Centers Credits: 3 hours
   SOC 3140 - Ethnic Relations Credits: 3 hours
   SOC 4120 - Child Abuse Credits: 3 hours

   One of the Following:
   HOL 1000 - Choices in Living Credits: 3 hours or
   HPER 1110 - Healthy Living Credits: 2 hours

   One of the Following:
   HPER 2410 - Physical Education and Recreation for Teachers Credits: 2 hours or
   HPER 2430 - Physical Education Methods: Early Elementary Movement/Physical Activities Credits: 3 hours or
   HPER 3400 - Physical Education for the Elementary Classroom Teacher Credits: 2 hours

   One of the Following:
   HPER 3460 - Physical Education Methods: Special Populations Credits: 3 hours or
   SPED 3300 - Introduction to Special Education Credits: 3 hours

4. Electives (As needed for graduation total of 122 hours).

Food Service Administration
The food service administration curriculum is scientifically oriented for in depth study of foods in relation to the business field. Students may pursue supervisory/managerial careers in commercial food institutions in the equipment field, food research, public utility companies, mass media productions, quality testing, technical writing, or governmental food agencies.

A minimum of 122 hours is required for this curriculum.

1. General Education Requirements (37 hours)
2. Required Core Courses (33 hours)
FCS 1650 - Culinary Skills Credits: 3 hours
FCS 2020 - Field Experience Credits: 1 to 3 hours Credits: 3 hours
FCS 2090 - Consumer Education Credits: 3 hours
FCS 2250 - Computer Applications Credits: 3 hours
FCS 2660 - Personal Nutrition Credits: 3 hours
FCS 3050 - Professional Job Search Strategies Credits: 3 hours
FCS 3680 - Quantity Foods Credits: 4 hours
FCS 4660 - Institutional Management Credits: 4 hours
FCS 4680 - Advanced and Experimental Foods Credits: 4 hours (Students in the food service administration major will satisfy the Baccalaureate Writing requirement by successfully completing FCS 4680.)
FCS 5900 - Project/Problems in Family and Consumer Sciences Credits: 1 to 4 hours Credits: 3 hours

3. Required Related Courses (32 hours)
BIOS 1120 - Principles of Biology Credits: 3 hours
BIOS 2320 - Microbiology and Infectious Diseases Credits: 4 hours
CHEM 1100 - General Chemistry I Credits: 3 hours and
CHEM 1110 - General Chemistry Laboratory I Credits: 1 hour
ECON 2010 - Principles of Microeconomics Credits: 3 hours
ECON 2020 - Principles of Macroeconomics Credits: 3 hours
ENGL 1050 - Thought and Writing Credits: 4 hours
MATH 1110 - Algebra II Credits: 3 hours
MATH 1160 - Finite Mathematics with Applications Credits: 3 hours
PSY 1000 - General Psychology Credits: 3 hours

One of the Following:
IME 4020 - Supervision of Industrial Operations Credits: 3 hours or
MGMT 3520 - Human Resource Management Credits: 3 hours

4. Related Electives Choose (21 hours)
ACTY 2100 - Principles of Accounting I Credits: 3 hours
ACTY 2110 - Principles of Accounting II Credits: 3 hours
BUS 1750 - Business Enterprise Credits: 3 hours
FCS 3300 - Entrepreneurship in Family and Consumer Sciences Credits: 3 hours
FCS 4290 - Internship Credits: 2 to 6 hours
FIN 3200 - Business Finance Credits: 3 hours
LAW 3800 - Legal Environment Credits: 3 hours
LAW 3820 - Business Law Credits: 3 hours
MGMT 2500 - Organizational Behavior Credits: 3 hours
MKTG 2500 - Marketing Principles Credits: 3 hours
MKTG 2900 - Introduction to Food and CPG Industries Credits: 3 hours
STAT 2160 - Business Statistics Credits: 3 hours

5. Electives - As needed for graduation total of 122 hours.

Interior Design
Interior Design emphasizes the application of analytical, technical, business, and aesthetic skills in the development of spaces for living, working, and/or relaxation. Graduates are employed with architectural and design firms, in interior/facilities management divisions of large corporations, retailing home furnishings, and marketing positions and showroom management.

An active student chapter of ASID (American Society of Interior Designers) provides additional exposure to professional activities. Students are encouraged to combine a major in interior design with a minor in marketing, management, art, or communications.
The program is accredited by FIDER (Foundation for Interior Design Education Research) and by NASAD (National Association of Schools of Art and Design).

Admission Requirements
Only the Office of Admissions and Orientation grants admission to Western Michigan University for undergraduate students. Application forms may be obtained from that office or the University's website at www.wmich.edu.

The Interior Design program at Western Michigan University is in high demand by incoming freshmen and transfer students. The number of faculty and available space limits courses and sections that can be offered. Therefore, the Department of Family and Consumer Sciences has established two separate acceptance processes for students seeking to pursue the Interior Design program. The first, acceptance into the pre-Interior Design program, will ensure that incoming students with only the strongest motivation and credentials are able to enroll in the required interior design courses. Students accepted into the program must begin the program in a fall semester only. Applications are accepted any time of the year, but are due no later than March 1 for the following fall semester. Applicants will be notified of their status by April 1. Applications are available at the Family and Consumer Sciences office, 3326 Kohrman Hall, or the College of Education Academic Advising office, 2504 Sangren Hall. NOTE: Admission to the pre-Interior Design program does not guarantee the student will be admitted to the upper-division of the curriculum. (See Portfolio Review Requirement)

The interior design application consists of the following:

1. Completed Interior Design Admission Application Form.
2. A one to two page, double-spaced word processed essay discussing why you wish to major in Interior Design. See Essay Requirement.
3. A current resume which includes activities, awards, and work experience.
4. Additional materials, such as examples of creative work, are highly encouraged but not required for acceptance into the program.

Portfolio Review Requirement
During their fourth semester in the program, students in the pre-Interior Design program will then submit to a portfolio review, held annually during the spring semester, which is the basis for selective admission to the upper division of the curriculum. The purpose of the review is to encourage excellence in design and recognize those students best prepared for the challenge of advanced studio courses.

To apply for the portfolio review and acceptance into the upper division of the curriculum:

1. Students must complete the following courses:
2. The courses listed above must be completed with an average grade of 2.75
3. The University overall grade point average must be no less than 2.5

The review will consist of a 10-minute presentation by the student to the Interior Design faculty, an essay detailing the student's reasons for seeking admission to the upper level sequence of courses, and a portfolio of the student's work showing ability in color layout, drafting, free hand drawing, lettering, sample board assembly, etc.

Up to twenty (20) students will be selected from the portfolio review applicants each year to continue in the upper division course work. Students who are denied advancement may retake courses or redo projects before reapplying for portfolio review the following spring semester.

A Minimum of 122 Hours is Required for this Curriculum

1. General Education/Liberal Arts Requirements (37 hours)
2. Required Core Courses (59 hours)
Students in the interior design major will satisfy the Baccalaureate Writing requirement by successfully completing FCS 3500.
FCS 1500 - Introduction to Interior Design Credits: 3 hours
FCS 1560 - Design Fundamentals Credits: 3 hours
FCS 1570 - Sketching for Interior Designers Credits: 3 hours
FCS 2020 - Field Experience Credits: 1 to 3 hours
FCS 2200 - Textiles Credits: 3 hours
FCS 2490 - Residential Architectural Design Credits: 3 hours
FCS 2500 - Interiors CADD Applications Credits: 3 hours
FCS 2510 - Period Interiors I Credits: 3 hours
FCS 2520 - Period Interiors II Credits: 3 hours
FCS 2540 - Interior Design Materials Credits: 3 hours
FCS 2550 - Lighting for Interiors Credits: 3 hours
FCS 2590 - Studio I Credits: 3 hours
FCS 3500 - Textiles for Interiors Credits: 3 hours Students in the interior design major will satisfy the Baccalaureate Writing requirement by successfully completing FCS 3500.
FCS 3510 - Studio II Credits: 3 hours
FCS 3520 - Professional Practices Credits: 3 hours
FCS 3550 - 3D Computer Visualization Credits: 3 hours
FCS 3590 - Studio III Credits: 3 hours
FCS 4510 - Studio IV Credits: 4 hours
FCS 4590 - Studio V Credits: 4 hours

3. Required Related Courses (40 hours)
ACTY 2100 - Principles of Accounting I Credits: 3 hours
ART 1080 - Form and Space Credits: 3 hours
ART 2200 - History of Art Credits: 3 hours
ART 2210 - History of Art Credits: 3 hours (Apply toward General Education)
ART 2450 - Graphic Design-Non BFA in Graphic Design Credits: 3 hours
COM 1040 - Public Speaking Credits: 3 hours (Apply toward Liberal Arts)
ENGL 1050 - Thought and Writing Credits: 4 hours (Apply toward General Education)
FCS 2050 - Topics in Family and Consumer Sciences Credits: 1 to 3 hours
  - Introduction to Construction Environment Credits: 3 hours
  - Introduction to Architectural Drawing Credits: 3 hours
ID 3300 - Wood and Related Materials for the Interior Designer Credits: 3 hours
MGMT 2500 - Organizational Behavior Credits: 3 hours
MKTG 2500 - Marketing Principles Credits: 3 hours

Either
CS 1000 - Fluency With Information Technology Credits: 3 hours (Apply toward General Education)
or
FCS 2250 - Computer Applications Credits: 3 hours

4. Electives - As needed for graduation total of 122 hours

**Textile and Apparel Studies**
The Textile and Apparel Studies major has two emphases: The Merchandising Emphasis and the Design and Development Emphasis. The merchandising emphasis is designed to prepare students for careers in retailing and related fields. The four-year program includes studies in merchandising, marketing, and management. A minor is optional, though many students select a marketing or management minor. Other related fields can also be selected as minor studies, e.g., communication, journalism, or language.

Students who graduate with a merchandising emphasis may begin a career in one of many entry-level management positions in department, specialty, discount or boutique stores. Career opportunities also exist in the apparel and textile wholesaling fields.

The design and development emphasis is created for students interested in careers within the manufacturing production cycle of the apparel industry, such as with apparel manufacturers in design, pattern drafting, quality control and plant supervision; with textile-producing companies as technicians or fashion analysts, or with pattern and notion companies. Students will
select a required career option of Computer-Aided Design (CAD) or Fashion Design. Individuals interested in fashion design should plan on including one year of study at the Fashion Institute of Technology in New York City or the Intercontinental University in London during their junior year.

**Merchandising Emphasis**

Candidates for the Bachelor of Science degree with the Merchandising Emphasis must complete the following program of 122 hours.

1. **General Education Requirements (37 hours)**

2. **Required Core Courses (24 hours)**

Students in the merchandising emphasis will satisfy the Baccalaureate Writing requirement by successfully completing FCS 3300 Entrepreneurship in FCS.

- FCS 1260 - The Fashion Industry Credits: 3 hours
- FCS 1550 - Design Principles Credits: 3 hours
- FCS 2200 - Textiles Credits: 3 hours
- FCS 3050 - Professional Job Search Strategies Credits: 3 hours
- FCS 3260 - History of Fashion Credits: 3 hours
- FCS 3300 - Entrepreneurship in Family and Consumer Sciences Credits: 3 hours
- FCS 4220 - Product Development Credits: 3 hours
- FCS 5240 - Socio-Psychological Aspects of Dress Credits: 3 hours

3. **Required FCS Courses (18 hours)**

- FCS 2020 - Field Experience Credits: 1 to 3 hours Credits: 3 hours
- FCS 2260 - Fashion/Retail Buying Credits: 3 hours
- FCS 3200 - Visual Merchandising Credits: 3 hours
- FCS 3290 - Promotion in the Merchandising Environment Credits: 3 hours
- FCS 4300 - Merchandising Seminar Credits: 3 hours

Select Either:

4. **Required Related Courses (21 hours)**

- CS 1000 - Fluency With Information Technology Credits: 3 hours or
- FCS 2250 - Computer Applications Credits: 3 hours

- ACTY 2100 - Principles of Accounting I Credits: 3 hours
- BUS 1750 - Business Enterprise Credits: 3 hours
- COM 1040 - Public Speaking Credits: 3 hours or
- COM 1700 - Interpersonal Communication Credits: 3 hours
- MGMT 2500 - Organizational Behavior Credits: 3 hours
- MGMT 3520 - Human Resource Management Credits: 3 hours
- MKTG 2500 - Marketing Principles Credits: 3 hours
- MKTG 2900 - Introduction to Food and CPG Industries Credits: 3 hours or
- MKTG 3600 - Professional Selling Credits: 3 hours or
- MKTG 4750 - International Marketing Credits: 3 hours

5. **Related Electives Choose (6 hours)**

- FCS 1240 - Apparel Construction II Credits: 3 hours
- FCS 2090 - Consumer Education Credits: 3 hours
- FCS 2300 - Computer Aided Design for Textile and Apparel Applications Credits: 3 hours
- FCS 3150 - Global Ecology of the Family Credits: 3 hours
- FCS 4050 - Travel/Study Seminar Credits: 1 to 4 hours
- FCS 4290 - Internship Credits: 2 to 6 hours Credits: 1 to 3 hours
- FCS 5220 - Topics in Family and Consumer Sciences Credits: 1 to 3 hours (TEX related) Credits: 3 hours
- FCS 5980 - Independent Study in Family and Consumer Sciences Credits: 1 to 6 hours
6. Electives - As needed for graduation total of 122 hours.

**Design And Development Emphasis**
Candidates for the Bachelor of Science degree with the Design and Development Emphasis must complete the following program of 122 semester hours.

1. General Education Requirements (37 hours)

2. Required Core Courses (21 hours)
   - FCS 1260 - The Fashion Industry Credits: 3 hours
   - FCS 1550 - Design Principles Credits: 3 hours
   - FCS 2200 - Textiles Credits: 3 hours
   - FCS 3050 - Professional Job Search Strategies Credits: 3 hours
   - FCS 3260 - History of Fashion Credits: 3 hours
   - FCS 3300 - Entrepreneurship in Family and Consumer Sciences Credits: 3 hours
   - FCS 5240 - Socio-Psychological Aspects of Dress Credits: 3 hours

3. Required FCS Courses (33 hours)
   - COM 1040 - Public Speaking Credits: 3 hours or
   - COM 1700 - Interpersonal Communication Credits: 3 hours
   - FCS 1240 - Apparel Construction II Credits: 3 hours
   - FCS 2220 - Flat Pattern Design I Credits: 3 hours
   - FCS 2240 - Apparel Construction II Credits: 3 hours
   - FCS 2300 - Computer Aided Design for Textile and Apparel Applications Credits: 3 hours
   - FCS 3220 - Flat Pattern Design II Credits: 3 hours
   - FCS 4220 - Product Development Credits: 3 hours

Select one of the following Economics courses:
   - ECON 1070 - Economic Issues in the U.S. Today Credits: 3 hours or
   - ECON 1080 - Contemporary International Economic Issues Credits: 3 hours or
   - ECON 2010 - Principles of Microeconomics Credits: 3 hours or
   - ECON 2020 - Principles of Macroeconomics Credits: 3 hours
   - CS 1000 - Fluency With Information Technology Credits: 3 hours
   - FCS 2250 - Computer Applications Credits: 3 hours
   - PSY 1000 - General Psychology Credits: 3 hours
   - SOC 2000 - Principles of Sociology Credits: 3 hours

4. Related Electives Choose (6 hours)
   - FCS 2020 - Field Experience Credits: 1 to 3 hours Credits: 3 hours
   - FCS 2090 - Consumer Education Credits: 3 hours
   - FCS 2240 - Apparel Construction II Credits: 3 hours
   - FCS 3200 - Visual Merchandising Credits: 3 hours
   - FCS 3290 - Promotion in the Merchandising Environment Credits: 3 hours
   - FCS 4050 - Travel/Study Seminar Credits: 1 to 4 hours
   - FCS 4290 - Internship Credits: 2 to 6 hours Credits: 3 to 6 hours
   - FCS 5220 - Topics in Family and Consumer Sciences Credits: 1 to 3 hours (TEX related) Credits: 3 hours
   - FCS 5980 - Independent Study in Family and Consumer Sciences Credits: 1 to 6 hours

**Computer Aided Design Career Option (32 hours)**
This option allows the student to blend knowledge of fibers, fabrics, pattern making, and construction techniques with the principles of computer graphics technology and software development in CAD/CAM systems operations. The graduate may find employment in the apparel, furniture, or automotive industries in computerized design, pattern development, layout, cutting, and construction procedures.
ENGL 1050 - Thought and Writing Credits: 4 hours
IME 1420 - Engineering Graphics Credits: 3 hours
IME 1500 - Introduction to Manufacturing Credits: 3 hours
IME 2460 - Introduction to Computer-Aided Design Credits: 3 hours
IME 2500 - Plastics Properties and Processing Credits: 3 hours
IME 3050 - Work Analysis Credits: 3 hours
IME 3150 - Work Analysis and Design Lab Credits: 1 hour
IME 3160 - Report Preparation Credits: 3 hours
IME 4220 - Engineering Teams: Theory and Practice Credits: 3 hours
IME 4460 - CAD Applications Credits: 3 hours
MATH 1180 - Precalculus Mathematics Credits: 4 hours

Fashion Design Career Option (24 hours)
Students interested in fashion design should plan to spend their junior year at the Fashion Institute of Technology in New York City or at the Intercontinental University in London, England. Both are excellent design and merchandising colleges. The department maintains a guest student program for qualified students. The Fashion Design courses completed at either of the schools will comprise the Career Option for these students. Specific approved courses will be planned with an advisor.

5. Baccalaureate Writing Requirement Credits: (3 hours)
Students who choose the Computer Aided Design Career Option will satisfy the Baccalaureate Writing Requirement by successfully completing FCS 3300 Entrepreneurship in FCS.

Students who choose the Fashion Design Career Option will satisfy the Baccalaureate Writing Requirement by successfully completing FCS 3300 Entrepreneurship in FCS.

6. Electives - As needed for graduation total of 122 hours.

Textile and Apparel Merchandising Minor

Program Requirements
Candidates for the minor in Textile and Apparel Merchandising must complete the following program of 18 hours. Of the 18 hour total, students must complete a minimum of 6 hours at the 3000-level or higher.

1. Required Courses (12 hours)
FCS 1260 - The Fashion Industry Credits: 3 hours
FCS 1550 - Design Principles Credits: 3 hours
FCS 2200 - Textiles Credits: 3 hours
FCS 3200 - Visual Merchandising Credits: 3 hours

2. Electives Choose (6 hours)
FCS 1240 - Apparel Construction II Credits: 3 hours
FCS 2260 - Fashion/Retail Buying Credits: 3 hours
FCS 3260 - History of Fashion Credits: 3 hours
FCS 3290 - Promotion in the Merchandising Environment Credits: 3 hours
FCS 4220 - Product Development Credits: 3 hours

Career and Technical Education Curricula

Non-Vocational Majors

Industrial Technology
The Industrial Technology group major is designed to prepare teachers of industrial technology (formerly known as industrial arts) for middle, junior, and senior high schools. The student must complete the group major in Industrial Technology and an approved teachable minor offered for Secondary Education Curriculum.
1. Minimum Hours Required For This Curriculum (135 hours)

2. General Education Requirements (37 hours)

3. Required (6 hours)
   MATH 1100 - Algebra I Credits: 3 hours and
   MATH 1110 - Algebra II Credits: 3 hours (or equivalents)

4. Teaching Major From The Following Courses (36 hours)
   AVS 2800 - Transportation Technology: Policy, Perils, and Promise Credits: 3 hours
   ECE 1000 - Fundamentals of Circuits and Electronics Credits: 3 hours
   ECE 1010 - Fundamentals of Electronics and Machines Credits: 3 hours
   ENGL 1050 - Thought and Writing Credits: 4 hours Credits: 3 hours
   FCS 2050 - Topics in Family and Consumer Sciences Credits: 1 to 3 hours
   Introduction to the Construction Environment Credits / Units: 3 hours
   Introduction to Architectural Drawing Credits: 3 hours
   ID 2220 - Wood Furniture Design Credits: 3 hours
   ID 3220 - Advanced Woodworking Design Credits: 3 hours
   IME 1420 - Engineering Graphics Credits: 3 hours
   IME 1500 - Introduction to Manufacturing Credits: 3 hours
   IME 2460 - Introduction to Computer-Aided Design Credits: 3 hours
   IME 2540 - Machining Processes Credits: 3 hours

5. Approved Minor For Secondary Education Curriculum (20 hours)
   Career and Technical Education minors in Drafting, Graphic Arts, Metalworking, Power/Auto Mechanics, and Woodworking require 4000 hours of recent and relevant work experiences for vocational endorsement.

6. Professional Education Courses (24 hours)
   Students in the Industrial Technology major should see the advisor to select a course that will satisfy the Baccalaureate Writing requirement.
   CTE 3050 - Career and Employability Skills Credits: 3 hours
   CTE 3480 - Student Assessment and Management Credits: 3 hours
   CTE 5100 - Special Populations in Career and Technical Education Credits: 3 hours
   CTE 5120 - Principles of Career and Technical Education Credits: 3 hours
   CTE 5130 - Teaching Methods in Career and Technical Education Credits: 3 hours
   CTE 5420 - Curriculum Development in CTE Credits: 3 hours
   ED 3050 - K-12 Content Area Literacy Credits: 3 hours

   Either
   ED 2500 - Human Development Credits: 3 hours or
   FCS 2140 - Child Development Credits: 3 hours

7. Directed Internship (12 hours)
   CTE 4100 - Seminar in Education Credits: 2 hours
   CTE 4750 - Intern Teaching in CTE Credits: 10 hours

**Secondary Education in Business (non-vocational)**

The Secondary Education in Business group major is designed to prepare teachers for non-vocational business education subjects in the middle, junior, and senior high schools. The student must complete the group major in Secondary Education in Business and an approved teachable minor offered for Secondary Education Curriculum.

1. Minimum hours required for this curriculum (126 hours)

2. General Education Requirements (37 hours)
3. Teaching Major from the following courses (36 hours)
ACTY 2100 - Principles of Accounting I Credits: 3 hours
ACTY 2110 - Principles of Accounting II Credits: 3 hours
BCM 3800 - Business Web Design Credits: 3 hours
BCM 4830 - Business Publications and Presentations Credits: 3 hours
CIS 2600 - Business Programming A Credits: 3 hours
COM 1700 - Interpersonal Communication Credits: 3 hours
FCS 2090 - Consumer Education Credits: 3 hours
FCS 2250 - Computer Applications Credits: 3 hours
LAW 3800 - Legal Environment Credits: 3 hours

Select 6 hours from the following:
BCM 3860 - Advanced Office Systems Credits: 3 hours
BCM 3880 - Records Management Credits: 3 hours
BCM 4560 - Office Management Credits: 3 hours

4. Professional Education Courses (24 hours)
CTE 3050 - Career and Employability Skills Credits: 3 hours
CTE 3480 - Student Assessment and Management Credits: 3 hours
CTE 5100 - Special Populations in Career and Technical Education Credits: 3 hours
CTE 5120 - Principles of Career and Technical Education Credits: 3 hours
CTE 5130 - Teaching Methods in Career and Technical Education Credits: 3 hours
CTE 5420 - Curriculum Development in CTE Credits: 3 hours
ED 3050 - K-12 Content Area Literacy Credits: 3 hours

Select Either:
ED 2500 - Human Development Credits: 3 hours
FCS 2140 - Child Development Credits: 3 hours

5. Directed Internship (12 hours)
CTE 4100 - Seminar in Education Credits: 2 hours
CTE 4750 - Intern Teaching in CTE Credits: 10 hours

Baccalaureate Writing Requirement
Students in the Secondary Education in Business major should see the advisor to select a course that will satisfy the Baccalaureate Writing requirement.

Technology and Design
The Technology and Design group major is designed to prepare technology education teachers for middle, junior, and senior high schools. The student must complete the group major in Technology and Design and an approved teachable minor offered for Secondary Education Curriculum.

1. Minimum hours required for this curriculum (135 hours)

2. General Education Requirements (37 hours)

3. Math Requirements (6 hours) (or equivalents)
MATH 1100 - Algebra I Credits: 3 hours
MATH 1110 - Algebra II Credits: 3 hours

4. Teaching Major from the Following Courses (38 hours)
AVS 2800 - Transportation Technology: Policy, Perils, and Promise Credits: 3 hours
ECE 1000 - Fundamentals of Circuits and Electronics Credits: 3 hours
ENGL 1050 - Thought and Writing Credits: 4 hours Credits: 3 hours
ENVS 1100 - Nature and Society Credits: 4 hours
ENVS 2150 - Environmental Systems and Cycles Credits: 3 hours
FCS 1650 - Culinary Skills Credits: 3 hours
FCS 2660 - Personal Nutrition Credits: 3 hours
HSV 1100 - Introduction to Health and Human Services Credits: 3 hours
ID 1430 - Industrial Design Fundamentals Studio Credits: 3 hours
IME 1220 - Automobile in Society Credits: 3 hours
IME 3050 - Work Analysis Credits: 3 hours Credits: 4 hours
PAPR 1600 - Introduction to Environmental Technology Credits: 3 hours

5. Approved Minor for Secondary Education Curriculum (20 hours)

6. Professional Education Courses (24 hours)
CTE 3050 - Career and Employability Skills Credits: 3 hours
CTE 3480 - Student Assessment and Management Credits: 3 hours
CTE 5100 - Special Populations in Career and Technical Education Credits: 3 hours
CTE 5120 - Principles of Career and Technical Education Credits: 3 hours
CTE 5130 - Teaching Methods in Career and Technical Education Credits: 3 hours
CTE 5420 - Curriculum Development in CTE Credits: 3 hours
ED 3050 - K-12 Content Area Literacy Credits: 3 hours

Select Either:
ED 2500 - Human Development Credits: 3 hours or
FCS 2140 - Child Development Credits: 3 hours

7. Directed Internship (12 hours)
CTE 4100 - Seminar in Education Credits: 2 hours
CTE 4750 - Intern Teaching in CTE Credits: 10 hours

Baccalaureate Writing Requirement
Students in the Industrial Technology major should see the advisor to select a course that will satisfy the Baccalaureate Writing requirement.

Non-Vocational Minors

Family Life Education Minor

Required Courses (24 hours)
FCS 2090 - Consumer Education Credits: 3 hours
FCS 2100 - Human Sexuality Credits: 3 hours
FCS 2150 - Adolescent Development Credits: 3 hours
FCS 2660 - Personal Nutrition Credits: 3 hours
FCS 3180 - Intimate Relationships: Friends, Family, and Marriage Credits: 3 hours
FCS 4100 - Teaching Family Life Education Credits: 3 hours
FCS 4150 - Effective Parenting Credits: 3 hours

One of the Following:
FCS 1240 - Apparel Construction II Credits: 3 hours or
FCS 5240 - Socio-Psychological Aspects of Dress Credits: 3 hours

Industrial Technology Minor (24 hours)

Required Courses (24 hours)
ECE 1000 - Fundamentals of Circuits and Electronics Credits: 3 hours
Vocational Majors

Family and Consumer Sciences Teacher Education
The Family and Consumer Sciences Teacher Education major is designed to prepare teachers for family and consumer science-related subjects in middle, junior, and senior high schools. The student must complete the major in Family and Consumer Sciences Teacher Education and an approved teachable minor offered for Secondary Education Curriculum.

1. Minimum Hours Required For This Curriculum (126 hours)

2. General Education Requirements (37 hours)

3. Group Major Requirements From The Following Courses (36 hours)
CTE 3050 - Career and Employability Skills Credits: 3 hours
FCS 1650 - Culinary Skills Credits: 3 hours
FCS 2090 - Consumer Education Credits: 3 hours
FCS 2100 - Human Sexuality Credits: 3 hours
FCS 2150 - Adolescent Development Credits: 3 hours
FCS 2660 - Personal Nutrition Credits: 3 hours
FCS 3180 - Intimate Relationships: Friends, Family, and Marriage Credits: 3 hours
FCS 4130 - Later Life Family Relationships Credits: 3 hours
FCS 4150 - Effective Parenting Credits: 3 hours
FCS 5680 - Gender, Culture, and Families Credits: 3 hours
HOL 1000 - Choices in Living Credits: 3 hours

Select one of the following:
FCS 1240 - Apparel Construction II Credits: 3 hours
FCS 1550 - Design Principles Credits: 3 hours
FCS 5240 - Socio-Psychological Aspects of Dress Credits: 3 hours

4. Approved Minor for Secondary Education Curriculum (20 hours)

5. Career and Technical Education (15 hours)
CTE 3480 - Student Assessment and Management Credits: 3 hours
CTE 5100 - Special Populations in Career and Technical Education Credits: 3 hours
CTE 5120 - Principles of Career and Technical Education Credits: 3 hours
CTE 5130 - Teaching Methods in Career and Technical Education Credits: 3 hours
CTE 5420 - Curriculum Development in CTE Credits: 3 hours

6. Required Education Courses (18 hours)
Students in the Family and Consumer Sciences Teacher Education major should see the advisor to select a course that will satisfy the Baccalaureate Writing requirement.
CTE 4100 - Seminar in Education Credits: 2 hours
CTE 4750 - Intern Teaching in CTE Credits: 10 hours
ED 3050 - K-12 Content Area Literacy Credits: 3 hours
One of the Following:
ED 2500 - Human Development Credits: 3 hours or
FCS 2140 - Child Development Credits: 3 hours

7. Related Work Experience
A total of 200 work hours required for this major. The work hours may be voluntary or paid work experience and must be completed in three of the following areas: family services, children/youth services, consumer services, or educational services.

Secondary Education in Business (vocational)
The Secondary Education in Business group major is designed to prepare teachers for vocational business education subjects in area technical centers and comprehensive high schools. The student must complete the major in Secondary Education in Business and an approved teachable minor offered for Secondary Education Curriculum.

1. Minimum Hours Required for this Curriculum (126 hours)

2. General Education Requirements (37 hours)

3. Teaching Major from the Following Courses (36 hours)
ACTY 2100 - Principles of Accounting I Credits: 3 hours
ACTY 2110 - Principles of Accounting II Credits: 3 hours
BCM 3800 - Business Web Design Credits: 3 hours
BCM 4830 - Business Publications and Presentations Credits: 3 hours
CIS 2600 - Business Programming A Credits: 3 hours
COM 1700 - Interpersonal Communication Credits: 3 hours
FCS 2090 - Consumer Education Credits: 3 hours
FCS 2250 - Computer Applications Credits: 3 hours
LAW 3800 - Legal Environment Credits: 3 hours

Select 6 hours from the following:
Prerequisite for program: Keyboarding (or BIS 1820 Keyboarding Content)
BCM 3860 - Advanced Office Systems Credits: 3 hours
BCM 3880 - Records Management Credits: 3 hours
BCM 4560 - Office Management Credits: 3 hours

4. Approved Minor for Secondary Education Curriculum (20 hours)

5. Professional Education courses (24 hours)
CTE 3050 - Career and Employability Skills Credits: 3 hours
CTE 3480 - Student Assessment and Management Credits: 3 hours
CTE 5100 - Special Populations in Career and Technical Education Credits: 3 hours
CTE 5120 - Principles of Career and Technical Education Credits: 3 hours
CTE 5130 - Teaching Methods in Career and Technical Education Credits: 3 hours
CTE 5420 - Curriculum Development in CTE Credits: 3 hours
ED 3050 - K-12 Content Area Literacy Credits: 3 hours

Select Either:
ED 2500 - Human Development Credits: 3 hours
FCS 2140 - Child Development Credits: 3 hours

6. Directed Internship (12 hours)
CTE 4100 - Seminar in Education Credits: 2 hours
CTE 4750 - Intern Teaching in CTE Credits: 10 hours
7. Related Work Experience
A total of 4000 hours of recent and relevant work experiences is required for Vocational Certification. Up to 2000 hours of the required 4000 can be obtained through university-supervised internship or work experience.

Baccalaureate Writing Requirement
Students in the Secondary Education in Business major should see the advisor to select a course that will satisfy the Baccalaureate Writing requirement.

Secondary Education in Marketing (vocational)
The Secondary Education in Marketing group major is designed to prepare teachers for vocational marketing subjects in area technical centers and comprehensive high schools. The student must complete the major in Secondary Education in Marketing and an approved teachable minor offered for Secondary Education Curriculum.

1. Minimum Hours Required for this Curriculum (126 hours)

2. General Education Requirements (37 hours)

3. Group Major Requirements from the Following Courses (36 hours)
ACTY 2100 - Principles of Accounting I Credits: 3 hours
CTE 3050 - Career and Employability Skills Credits: 3 hours
ECON 2010 - Principles of Microeconomics Credits: 3 hours
FCS 3200 - Visual Merchandising Credits: 3 hours
MKTG 2500 - Marketing Principles Credits: 3 hours
MKTG 3600 - Professional Selling Credits: 3 hours
MKTG 3710 - Marketing Research Credits: 3 hours
MKTG 3740 - Advertising and Promotion Credits: 3 hours
MKTG 3760 - Sales Administration Credits: 3 hours or
MKTG 4840 - Marketing Logistics Credits: 3 hours

Select Either:
CS 1000 - Fluency With Information Technology Credits: 3 hours or
FCS 2250 - Computer Applications Credits: 3 hours

Select Either:
MKTG 3720 - Purchasing Management Credits: 3 hours or
MKTG 3760 - Sales Administration Credits: 3 hours

Select Either:
MKTG 3760 - Sales Administration Credits: 3 hours or
MKTG 4760 - Retail Management Credits: 3 hours

4. Approved Minor for Secondary Education Curriculum (20 hours)

5. Professional Education courses (21 hours)
CTE 3480 - Student Assessment and Management Credits: 3 hours
CTE 5100 - Special Populations in Career and Technical Education Credits: 3 hours
CTE 5120 - Principles of Career and Technical Education Credits: 3 hours
CTE 5130 - Teaching Methods in Career and Technical Education Credits: 3 hours
CTE 5420 - Curriculum Development in CTE Credits: 3 hours
ED 3050 - K-12 Content Area Literacy Credits: 3 hours
FCS 2140 - Child Development Credits: 3 hours or an approved alternative course

Baccalaureate Writing Requirement
Students in the Secondary Education in Marketing major should see the advisor to select a course that will satisfy the Baccalaureate Writing requirement.
6. Directed Internship (12 hours)
CTE 4100 - Seminar in Education Credits: 2 hours
CTE 4750 - Intern Teaching in CTE Credits: 10 hours

7. Related Work Experience
A total of 4000 hours of recent and relevant work experiences is required for Vocational Certification. Up to 2000 hours of the required 4000 can be obtained through university-supervised internship or work experience.

Vocational Minors

Occupational Child Care Minor

1. Required Courses (23 to 24 hours)
ED 3500 - Young Children, Their Families, and Their Society Credits: 3 hours
FCS 2020 - Field Experience Credits: 1 to 3 hours
FCS 2100 - Human Sexuality Credits: 3 hours
FCS 2660 - Personal Nutrition Credits: 3 hours
FCS 4150 - Effective Parenting Credits: 3 hours
FCS 5750 - Administration of Child Development Centers Credits: 3 hours
HPER 1700 - Introduction to Leisure and Recreational Services Credits: 3 hours or
HPER 2760 - Outdoor Education Credits: 2 hours

Select Either
ED 2500 - Human Development Credits: 3 hours or
FCS 2140 - Child Development Credits: 3 hours

2. Related Work Experience
A total of 4000 hours of recent and relevant work experience in the child care related industries (within the past 5 years) is required for vocational certification. A total of 2000 of these hours may be completed in an equivalent directed supervised enrollment in FCS 2020.

Occupational Foods Minor

1. Required Courses (25 hours)
CTE 5100 - Special Populations in Career and Technical Education Credits: 3 hours
CTE 5420 - Curriculum Development in CTE Credits: 3 hours
FCS 1650 - Culinary Skills Credits: 3 hours
FCS 2020 - Field Experience Credits: 1 to 3 hours
FCS 2600 - Nutrition Credits: 3 hours
FCS 3680 - Quantity Foods Credits: 4 hours
FCS 4660 - Institutional Management Credits: 4 hours
FCS 5980 - Independent Study in Family and Consumer Sciences Credits: 1 to 6 hours (Foods)

2. Related Work Experience
A total of 4000 hours of recent and relevant work experience in the food service industry (within the past 5 years) is required for vocational certification. A total of 2000 of these hours may be completed in an equivalent directed supervised enrollment in FCS 2020.

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### Secondary Education in Marketing Minor

1. Required Courses (24 hours)
   - ACTY 2100 - Principles of Accounting I Credits: 3 hours
   - ECON 2010 - Principles of Microeconomics Credits: 3 hours
   - FCS 3200 - Visual Merchandising Credits: 3 hours
   - MKTG 2500 - Marketing Principles Credits: 3 hours
   - MKTG 3600 - Professional Selling Credits: 3 hours
   - MKTG 3740 - Advertising and Promotion Credits: 3 hours
   - MKTG 3760 - Sales Administration Credits: 3 hours or
     - MKTG 4760 - Retail Management Credits: 3 hours
   
   Select Either:
   - MKTG 3720 - Purchasing Management Credits: 3 hours or
   - MKTG 3760 - Sales Administration Credits: 3 hours

2. Related Work Experience
   A total of 4000 hours of recent and relevant work experience is required for vocational certification. A total of 2000 of these hours may be completed through university-supervised internship or work experience.

### Vocational-Technical Minor

#### Drafting

1. Required Courses (20 hours)
   - CS 1040 - Introductory C/C++ Credits: 2 hours
   - FCS 2050 - Topics in Family and Consumer Sciences Credits: 1 to 3 hours
   - IME 1420 - Engineering Graphics Credits: 3 hours
   - IME 1500 - Introduction to Manufacturing Credits: 3 hours
   - IME 2460 - Introduction to Computer-Aided Design Credits: 3 hours
   - IME 2540 - Machining Processes Credits: 3 hours
   - IME 3580 - Computer-Aided Manufacturing Credits: 3 hours

2. Related Work Experience
   This minor requires an Industrial Technology major plus 4000 clock hours of recent and relevant work experience or 2000 clock hours plus 400 planned hours in FCS 2020 or 6220.

#### Graphic Arts

1. Required Courses (21 hours)
   - IMAG 1500 - Introduction to Imaging Credits: 4 hours
   - IMAG 1570 - Imaging Systems Credits: 3 hours
   - IMAG 2150 - Introduction to Ink Credits: 4 hours
   - IMAG 2510 - Multimedia Publication and Design Credits: 3 hours
   - IMAG 2570 - Computer Graphics Credits: 3 hours
   - IMAG 3500 - Offset Lithography Credits: 4 hours
   - IMAG 3580 - Flexography Credits: 4 hours

2. Related Work Experience
   This minor requires an Industrial Technology major plus 4000 clock hours of recent and relevant work experience or 2000 clock hours plus 400 planned hours in FCS 2020 or 6220.
Metalworking

1. Required Courses (22 hours)
IME 1420 - Engineering Graphics Credits: 3 hours
IME 1500 - Introduction to Manufacturing Credits: 3 hours
IME 2540 - Machining Processes Credits: 3 hours
IME 2810 - Statics and Strength of Materials Credits: 4 hours
IME 3520 - Metal Casting Credits: 3 hours
MSE 2540 - Properties of Materials Credits: 3 hours
MSE 2550 - Materials Science Laboratory Credits: 1 hour
Additional course to be approved by advisor Credits: 3 hours

2. Related Work Experience
This minor requires an Industrial Technology major plus 4000 clock hours of recent and relevant work experience or 2000 clock hours plus 400 planned hours in FCS 2020 or 6220.

Woodworking

1. Required Courses (21 hours)
FCS 2050 - Topics in Family and Consumer Sciences Credits: 1 to 3 hours
ID 2220 - Wood Furniture Design Credits: 3 hours
ID 3220 - Advanced Woodworking Design Credits: 3 hours
ID 3320 - Wood Finishing Credits: 3 hours
ID 4320 - Production Woodworking Credits: 3 hours
ID 4340 - Physics and Mechanics of Wood Credits: 3 hours
IME 1420 - Engineering Graphics Credits: 3 hours

2. Related Work Experience
This minor requires an Industrial Technology major plus 4000 clock hours of recent and relevant work experience or 2000 clock hours plus 400 planned hours in FCS 2020 or 6220.

Health, Physical Education, and Recreation
Debra Berkey, Chair
Amos Aduroja
Robert Bensley
Jody Brylinsky
Christopher Cheatham
Kathy Conway
Ray Cool
Lee deLisle
Marianne Frauenknecht
Amy Gyorkos
Linda Law
James Lewis
Yuanlong Liu
Allison McFarland
Timothy Michael
Michael Miller
Jennifer O'Donoghue
Patrick Ryan
Carol Weideman
Ronald Winter
Jiabei Zhang
The professional programs are based on the following concepts: (1) balanced undergraduate preparation enables the student to later specialize at the graduate level, (2) exposure to practical experiences throughout the professional sequence is critical, (3) elective choices enhance professional options, and (4) continual review of curriculum facilitates program effectiveness.

Students who desire specialized professional preparation may select from the following:

**Majors**
1. Athletic Training Professional Program
2. Community Health Education
3. Exercise Science
4. Physical Education (Teacher - K-12 Certification)
5. Recreation
6. School Health Education (Teacher - K-12)

**Minors**
1. Teaching Certification/Endorsements
   A. Health Education (7-12)
   B. Physical Education (7-12)
2. Non-Teaching
   A. Coaching
   B. Recreation
   C. Community Health Education

The professional student is expected to work closely with the College of Education Advising Office. A copy of the "Departmental Handbook" is distributed during enrollment in HPER 1500, 1520, 1530, 1550, and 1700. Transfer students should secure a copy from the department office promptly after choosing a major or minor.

**Transfer Students**
Transfer courses from four-year schools and appropriate lower division courses from community colleges may be included in majors and minors. However, a minimum of one-half of the required semester hours for a major or a minor must be taken at Western Michigan University. The following HPER teaching methods course(s) must be included in the hours at WMU: HPER 4470, 4480, 3120, and 4120. Transfer students must participate in HPER entry skill and fitness assessments administered during HPER 1500 (Phys. Ed.) and HPER 1520 (Ex. Sci.). Transfer students should contact course instructor at the beginning of the first semester of work at WMU.

**University General Education Requirement**
Each student must complete 37 hours of work in approved General Education courses and/or non-professional courses in the College of Arts and Sciences. The student seeking Michigan teacher certification must complete an additional 3 hours in the College of Arts and Sciences.

**Undergraduate Program Admission Policy**
All students who intend to complete a major or minor offered by the Department of Health, Physical Education, and Recreation must apply to the department for admission to the program. An application for admission may be obtained in the HPER Department Office Complex located on the fourth floor of the Student Recreation Center. Students must complete the following requirements prior to application:

1. Completion of 35 credit hours (transfer hours included).
2. Completion of HPER 1500 or HPER 1520 or HPER 1530 or HPER 1550 (with a grade of "C" or better) and BIOS 1120 for Health, Physical Education Teacher/Coach and Exercise Science majors and associated minors; completion of HPER 1700 (with a grade of "C" or better) for Recreation majors/minors.
3. Completion of all cognate courses required. Physical Education Teacher-Coach majors/minors and Exercise Science majors must complete BIOS 1120, BIOS 2110, BIOS 2400, and HPER 1110. Health Education (Community or School Emphasis) majors/minors must complete BIOS 1120, BIOS 2110, BIOS 2400, PSY 1000 or PSY 1500, and SOC 2000.
4. Acceptance into the program will proceed throughout the year. Students meeting the qualifications stated above will be admitted immediately into HPER Department Programs. Students must be admitted into the department to enroll in courses on the "restricted list." Such courses require the prerequisite work included in the HPER Department Admission

**Restricted Course List**

- HPER 2200 - Basic Health Concepts Credits: 3 hours
- HPER 2210 - Basic Health Concepts II Credits: 3 hours
- HPER 2220 - Basic Health Concepts III Credits: 3 hours
- HPER 2330 - Technical Concepts and Practices of Recreation Activity Leadership Credits: 3 hours
- HPER 2400 - Human Motor Development and Learning Credits: 3 hours
- HPER 2430 - Physical Education Methods: Early Elementary Movement/Physical Activities Credits: 3 hours
- HPER 2710 - Recreational Programming and Leadership Theory Credits: 3 hours
- HPER 2900 - Inclusive and Special Recreation Credits: 3 hours
- HPER 2950 - Biomechanics Credits: 3 hours
- HPER 2960 - Stress Management and Flexibility Credits: 2 hours
- HPER 2980 - Exercise Physiology Credits: 3 hours
- HPER 3120 - Planning School Health Programs Credits: 3 hours
- HPER 3150 - Measurement and Evaluation for Exercise Science, Health, and Physical Education Credits: 3 hours
- HPER 3160 - Issues in Health Education Credits: 2 hours
- HPER 3300 - Grant Writing in Health Education Credits: 3 hours
- HPER 3310 - Community Health Education Planning Credits: 3 hours
- HPER 3320 - Research and Writing in Recreation Credits: 3 hours
- HPER 3460 - Physical Education Methods: Special Populations Credits: 3 hours
- HPER 3500 - Modification of Health Behavior Credits: 2 hours
- HPER 3710 - Practical Recreational Programming and Leadership Credits: 3 hours
- HPER 3760 - Management of Recreational Services Credits: 3 hours
- HPER 3800 - Foundations of Sports Injuries Credits: 2 hours
- HPER 3830 - Athletic Injury Evaluation of the Upper Extremity Credits: 3 hours
- HPER 3840 - Therapeutic Modalities Credits: 3 hours
- HPER 3850 - Athletic Injury Evaluation of the Lower Extremity Credits: 3 hours
- HPER 3950 - Cardiovascular Endurance: Aerobic Conditioning Credits: 2 hours
- HPER 3960 - Muscular Strength and Endurance Credits: 2 hours
- HPER 3970 - Body Composition and Weight Control Credits: 2 hours
- HPER 3990 - Recreation Practicum Credits: 3 hours
- HPER 4000 - Field Experience/Internship in HPER Credits: 1 to 8 hours
- HPER 4120 - Teaching Skills and Strategies Credits: 3 hours
- HPER 4300 - Community Health Education Interventions: Community Strategies Credits: 3 hours
- HPER 4310 - Community Health Education Interventions: Individual Strategies Credits: 3 hours
- HPER 4440 - Professional Development in Exercise Science Credits: 3 hours
- HPER 4450 - Exercise Testing and Prescription Credits: 3 hours
- HPER 4470 - Physical Education Methods: Instructional Design Credits: 3 hours
- HPER 4480 - Physical Education Methods: Teaching Skills Credits: 3 hours
- HPER 4500 - Cultural Dynamics in Health, Physical Education, and Recreation Credits: 3 hours
- HPER 4690 - Fitness Management Credits: 2 hours
- HPER 4720 - Recreation for the Aging Credits: 3 hours
- HPER 4760 - Advanced Applications of Recreational Management Credits: 3 hours
- HPER 4800 - Basic Electrocardiography Credits: 2 hours
- HPER 4860 - Therapeutic Exercise for Athletic Injuries Credits: 3 hours
- HPER 4870 - Sports Medicine Seminar Credits: 3 hours
- HPER 4910 - Exercise for Special Populations Credits: 3 hours
- HPER 4970 - Senior Seminar in Recreational Services Credits: 2 hours
- HPER 4980 - Exercise Science Internship Credits: 6 hours
- HPER 4990 - Recreation Internship Credits: 6 hours

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Athletic Training Professional Program
The Western Michigan University Department of Health, Physical Education, and Recreation offers an entry-level professional program leading to a Bachelor of Science in Athletic Training. This program seeks to prepare students for certification by the National Athletic Trainers' Association Board of Certification. Eligibility requirements for admission to the Athletic Training Professional Program require prospective students to first obtain admission to the Department of Health, Physical Education, and Recreation and complete the pre-program requirements. Admission into the Athletic Training Professional Program is selective with the annual enrollment limited to 15 students each year. Due to the competitive nature of this program, the criteria for admittance should be regarded as minimum standards for admittance.

The criteria for acceptance will include a minimum 2.5 overall grade point average, a minimum of “C” grade in selected cognate and core requirements, an interview, letters of recommendation, clinical instructor evaluations, and a completed application.

Accreditation
Western Michigan University developed the athletic training professional program based on accreditation standards by the Commission on Accreditation of Allied Health Education Programs (CAAHEP). Western Michigan University is in the process of completing the requirements necessary for CAAHEP accreditation. Graduates of CAAHEP accredited programs are eligible to sit for the National Athletic Trainers' Board of Certification Examination.

Pre-Program Phase
This component of the athletic training program is designed to provide the student with the opportunity to learn more about the athletic training profession by taking the course HPER 153 Introduction to Athletic Training and other cognates that are prerequisites for admittance to the Athletic Training Professional Program. During this time, the athletic training student will be required to obtain a minimum of 75 hours of clinical and sports exposure. This experience will be completed in the University's Intercollegiate Athletic Department and approved affiliated sites. Upon completion of the pre-program requirements, the athletic training student must apply and be accepted to the professional program.

Admission Standards

Pre-program Requirements and Criteria for Admission
1. Accepted to Western Michigan University and to HPER Department.
2. The completion of an observation period in an environment that provides athletic training services. A certified athletic trainer must endorse verification of a total of 75 hours.
3. Submission of application for admission to the Athletic Training Professional Program.
4. Ability to fulfill all of the technical standards that are required of the athletic training student. The technical standards can be found on the ATPP web site.

The criteria listed below should be completed or in process of completion at the time of application to be considered for admission to the Athletic Training Professional Program. The selection committee evaluates the candidates and will determine who will be accepted to the Athletic Training Program. The criteria include overall grade point average, minimum of "C" grade in selected core requirements, interview, letters of recommendation, clinical educator evaluation. After the interview, each candidate will receive notification from the program director regarding admission status. Students that are accepted to the professional program will be required to schedule an appointment with their academic advisor and register for the required courses. Matriculation will begin the fall semester of the following academic year and will continue for a minimum of four semesters. Candidates not accepted to the ATPP can appeal the decision by submitting a formal response to the program director within thirty days of the notification.

1. Demonstrated knowledge and interest in the athletic training profession.
2. Experience in the health care field.
3. A minimum overall grade point average of 2.5.
4. Space available in the athletic training professional program.
5. Special considerations.
6. Completion of Athletic Training Pre-program requirements with a 2.5 overall grade point average and a minimum "C" grade in each of the required courses:

BIOS 1120 - Principles of Biology Credits: 3 hours
BIOS 2110 - Human Anatomy Credits: 4 hours
BIOS 2400 - Human Physiology Credits: 4 hours  
HPER 1100 - Athletic Taping and Bracing Technique Credits: 1 hour  
HPER 1490 - Computer Applications in HPER Credits: 3 hours  
HPER 1530 - Introduction to Athletic Training Credits: 3 hours  
HPER 1810 - First Aid Credits: 2 hours  
HPER 2530 - Injury/Illness Survey and Management Credits: 3 hours  
PHYS 1130 - General Physics I Credits: 4 hours  
PHYS 1140 - General Physics I Laboratory Credits: 1 hour  
PSY 1000 - General Psychology Credits: 3 hours

Select Either  
HOL 1000 - Choices in Living Credits: 3 hours or  
HPER 1110 - Healthy Living Credits: 2 hours

Program Requirements  
The Athletic Training Professional Program consists of core courses taken in a prescribed sequence over a continuous four-semester process that takes a minimum of two years to complete. Upon admission to the ATPP, the student is required to adhere to the technical standards. The Technical standards form will be included in the application packet. During each semester the student is required to register for HPER 4000 Athletic Training Fieldwork. To complete the required clinical competencies for HPER 4000, each student will be required to obtain a minimum of 160 clinical hours for each semester. Graduation requirements are consistent with the University standards for graduation with the following exceptions: 1) a 2.5 overall grade point average; 2) a minimum of "C" grade in each core course; and 3) completion of the following course work:

HPER 2400 - Human Motor Development and Learning Credits: 3 hours  
HPER 2530 - Injury/Illness Survey and Management Credits: 3 hours  
HPER 2540 - Medical Conditions in Athletic Training Credits: 3 hours  
HPER 2950 - Biomechanics Credits: 3 hours  
HPER 2960 - Stress Management and Flexibility Credits: 2 hours  
HPER 2980 - Exercise Physiology Credits: 3 hours  
HPER 3150 - Measurement and Evaluation for Exercise Science, Health, and Physical Education Credits: 3 hours  
HPER 3830 - Athletic Injury Evaluation of the Upper Extremity Credits: 3 hours  
HPER 3840 - Therapeutic Modalities Credits: 3 hours  
HPER 3850 - Athletic Injury Evaluation of the Lower Extremity Credits: 3 hours  
HPER 3950 - Cardiovascular Endurance: Aerobic Conditioning Credits: 2 hours  
HPER 3960 - Muscular Strength and Endurance Credits: 2 hours  
HPER 3970 - Body Composition and Weight Control Credits: 2 hours  
HPER 4000 - Field Experience/Internship in HPER Credits: 1 to 8 hours  
HPER 4500 - Cultural Dynamics in Health, Physical Education, and Recreation Credits: 3 hours  
HPER 4860 - Therapeutic Exercise for Athletic Injuries Credits: 3 hours  
HPER 4870 - Sports Medicine Seminar Credits: 3 hours

Additional Requirements  
Students can repeat a course only once in order to obtain the minimum of a "C" grade. Should a student fail to pass satisfactorily an athletic training course at the end of a second enrollment s/he will be dropped from the program. Students who wish to continue in the program must notify the Program Director in writing. Students whose cumulative grade point average falls below 2.5 will also be placed on probation and removed from the program. These students will not be allowed to progress in the athletic training course work until the grade point average is raised to 2.5. The return to the program is contingent upon availability of space in the athletic training professional program. Students who return to the program must comply with all requirements in effect at that time. Students can appeal decisions by submission of a formal response to the program director within thirty (30) days of the notification of the formal action.

Exercise Science Major (126 hours)  
The Exercise Science major prepares students to assume careers in non-school settings such as corporate, wellness, commercial and in some cases clinical adult fitness programs. Students complete two extensive practica in supervised
settings on campus prior to an internship. Students completing the Exercise Science major are not eligible for teaching certification.

Baccalaureate Writing Requirement
Students who have chosen the Exercise Science major will satisfy the Baccalaureate Writing Requirement by successfully completing HPER 4440 Professional Development in Exercise Science.

General Education
A list of approved General Education courses can be found in "Graduation and Academic Advising" earlier in this catalog.

Required Cognates (14 hours)
BIOS 1100 - Biology Laboratory Credits: 1 hour
BIOS 1120 - Principles of Biology Credits: 3 hours
BIOS 2110 - Human Anatomy Credits: 4 hours
BIOS 2400 - Human Physiology Credits: 4 hours
HPER 1110 - Healthy Living Credits: 2 hours

Required Courses (45 hours)
HPER 1520 - Foundations of Exercise Science Credits: 3 hours
HPER 2950 - Biomechanics Credits: 3 hours
HPER 2960 - Stress Management and Flexibility Credits: 2 hours
HPER 2980 - Exercise Physiology Credits: 3 hours
HPER 3150 - Measurement and Evaluation for Exercise Science, Health, and Physical Education Credits: 3 hours
HPER 3170 - Cardiovascular Endurance: Aerobic Conditioning Credits: 2 hours
HPER 3950 - Cardiovascular Health Credits: 2 hours
HPER 3960 - Muscular Strength and Endurance Credits: 2 hours
HPER 3970 - Body Composition and Weight Control Credits: 2 hours
HPER 4440 - Professional Development in Exercise Science Credits: 3 hours
HPER 4450 - Exercise Testing and Prescription Credits: 3 hours
HPER 4690 - Fitness Management Credits: 2 hours
HPER 4800 - Basic Electrocardiography Credits: 2 hours
HPER 4910 - Exercise for Special Populations Credits: 3 hours
HPER 4980 - Exercise Science Internship Credits: 6 hours

Health Education
The major in health education allows students to choose one of two professional preparation options:
1. School emphasis (HET), 39 hours
2. Community emphasis (CHE), 45 hours

Successful completion of the school emphasis makes the candidate eligible for K-12 teacher licensure in Michigan. Successful completion of the community emphasis prepares candidates to assume careers in non-school settings such as community health agencies and private health-related organization. Students completing the community emphasis are not eligible for a teaching license.

Students must complete the education sequence required by the Department of Teaching, Learning, and Leadership, including the intern teaching experience. Subject area tests of competence administered by the Michigan Department of Education must be passed prior to certification by that agency. In addition, School Health and Community Health majors must serve as a teaching assistant for one semester in a content specific course (i.e., HPER 1110, 1810, 2200, 2210, 2220, 3160, 3170, 3810). Students must complete HPER 1550, 2200, 2210, and 2220 prior to application for teaching assistantship. Candidates should obtain teaching assistant applications from the HPER Department office to register for this experience. Finally, School Health and Community Health majors are expected to have valid first aid and CPR certificates prior to intern teaching.
Baccalaureate Writing Requirement
Students who choose either the School Health or Community Health emphasis will satisfy the Baccalaureate Writing Requirement by successfully completing
HPER 4500 - Cultural Dynamics in Health, Physical Education, and Recreation Credits: 3 hours

General Education
School emphasis 39 hours
Community emphasis 37 hours

Health Education - School Emphasis (39 hours)

Required Cognates (17 hours)
PSY 1500 - Introduction to Human Behavior Credits: 3 hours
or PSY 1000 - General Psychology Credits: 3 hours
BIOS 1120 - Principles of Biology Credits: 3 hours
BIOS 2110 - Human Anatomy Credits: 4 hours
BIOS 2400 - Human Physiology Credits: 4 hours
PSY 1000 - General Psychology Credits: 3 hours or PSY 1500 - Introduction to Human Behavior Credits: 3 hours
SOC 2000 - Principles of Sociology Credits: 3 hours

Professional Education Sequence (24 hours)
ED 2500 - Human Development Credits: 3 hours
ED 3050 - K-12 Content Area Literacy Credits: 3 hours
ED 4100 - Seminar in Education Credits: 1 to 2 hours Credits: 2 hours
ED 4750 - Intern Teaching: Middle School/Secondary Credits: 5 or 10 hours Credits: 10 hours
ES 3950 - School and Society Credits: 3 hours
SPED 4290 - Learners with Disabilities in Secondary Education Programs Credits: 3 hours

Professional Preparation (39 hours)
HPER 1550 - Foundations of Health Education Credits: 3 hours
HPER 2200 - Basic Health Concepts Credits: 3 hours
HPER 2210 - Basic Health Concepts II Credits: 3 hours
HPER 2220 - Basic Health Concepts III Credits: 3 hours
HPER 3120 - Planning School Health Programs Credits: 3 hours
HPER 3160 - Issues in Health Education Credits: 2 hours
HPER 3500 - Modification of Health Behavior Credits: 2 hours
HPER 3520 - Teaching Skills and Strategies Credits: 3 hours
HPER 3540 - Human Sexuality Education Credits: 3 hours
HPER 3810 - Instructor First Aid Credits: 2 hours
HPER 4120 - Teaching Skills and Strategies Credits: 3 hours
HPER 4140 - Measurement and Evaluation in Health Education Credits: 3 hours
HPER 4500 - Cultural Dynamics in Health, Physical Education, and Recreation Credits: 3 hours

Electives (4 hours)
Elective courses recommended for Health Education-School Emphasis students may be selected from the following:

Required Teaching Assistant
FCS 2600 - Nutrition Credits: 3 hours
FCS 2660 - Personal Nutrition Credits: 3 hours
HPER 3000 - Seminar Series Credits: 1 to 4 hours
HPER 3160 - Issues in Health Education Credits: 2 hours
HPER 5160 - Issues in Health Education Credits: 1 to 3 hours
SOC 4120 - Child Abuse Credits: 3 hours
Health Education - Community Emphasis (37 hours)

Required Cognates (10 hours)
PSY 1500 - Introduction to Human Behavior Credits: 3 hours
or PSY 1000 - General Psychology Credits: 3 hours
BIOS 1120 - Principles of Biology Credits: 3 hours
BIOS 2110 - Human Anatomy Credits: 4 hours
BIOS 2400 - Human Physiology Credits: 4 hours
PSY 1000 - General Psychology Credits: 3 hours
SOC 2000 - Principles of Sociology Credits: 3 hours

Required Courses (45 hours)
HPER 1550 - Foundations of Health Education Credits: 3 hours
HPER 2200 - Basic Health Concepts Credits: 3 hours
HPER 2210 - Basic Health Concepts II Credits: 3 hours
HPER 2220 - Basic Health Concepts III Credits: 3 hours
HPER 3160 - Issues in Health Education Credits: 2 hours
HPER 3300 - Grant Writing in Health Education Credits: 3 hours
HPER 3310 - Community Health Education Planning Credits: 3 hours Credits: 2 hours
HPER 3500 - Modification of Health Behavior Credits: 2 hours
HPER 3810 - Instructor First Aid Credits: 2 hours
HPER 4140 - Measurement and Evaluation in Health Education Credits: 3 hours
HPER 4500 - Cultural Dynamics in Health, Physical Education, and Recreation Credits: 3 hours
HPER 4960 - Community Health Education Internship Credits: 4 to 6 hours Credits: 4 hours

Electives (4 hours)
Elective courses required for community health education majors will be fulfilled by selecting appropriate courses from the list below with the consent of a department advisor. The department from which the electives are selected should differ from the student's minor course of study.
Required Teaching Assistant
FCS 2100 - Human Sexuality Credits: 3 hours
FCS 2600 - Nutrition Credits: 3 hours
FCS 2660 - Personal Nutrition Credits: 3 hours
HPER 3000 - Seminar Series Credits: 1 to 4 hours Health Competencies
HPER 3160 - Issues in Health Education Credits: 2 hours (Any 3160 offered)
HPER 5160 - Issues in Health Education Credits: 1 to 3 hours Credits: 1 to 4 hours

Physical Education Major (130 hours)
Successful completion of the Physical Education-Teacher-Coach major makes a student eligible for K-12 certification for the teaching of physical education in Michigan. Students must complete the education sequence required by the Department of Education and Professional Development including the intern teaching experience. Physical Education major and minor students must serve as a teaching assistant for one semester in a general physical education course during their first 60 hours at Western Michigan University. Students should obtain teaching assistant applications from the HPER Department office to register for this experience. In addition, students must complete a minimum of 60 clock hours of observation and participation in both elementary and secondary public schools as well as an extensive lab experience with exceptional children.

Baccalaureate Writing Requirement
Students who have chosen the Physical Education-Teacher/Coach major will satisfy the Baccalaureate Writing Requirement by successfully completing:
HPER 4500 - Cultural Dynamics in Health, Physical Education, and Recreation Credits: 3 hours

General Education
A list of approved General Education courses can be found in “Graduation Requirements and Academic Advising” earlier in this catalog.
Physical Education - Teacher/Coach Major (42 hours)
K-12 State Provisional Certificate

Required Cognates (14 hours)
BIOS 2110 - Human Anatomy Credits: 4 hours
BIOS 2400 - Human Physiology Credits: 4 hours
HPER 1110 - Healthy Living Credits: 2 hours

Required Professional Theory Courses (17 hours)
HPER 1500 - Foundations of Physical Education Credits: 3 hours
HPER 2950 - Biomechanics Credits: 3 hours
HPER 2980 - Exercise Physiology Credits: 3 hours
HPER 3150 - Measurement and Evaluation for Exercise Science, Health, and Physical Education Credits: 3 hours
HPER 3810 - Instructor First Aid Credits: 2 hours
HPER 4500 - Cultural Dynamics in Health, Physical Education, and Recreation Credits: 3 hours

Required Coaching Theory/Techniques Courses (9 hours)
HPER 2350 - Theory of Coaching Credits: 2 hours
HPER 2360 - Officiating Series Credits: 2 hours
HPER 3370 - Coaching and Advanced Techniques Credits: 2 hours
HPER 3800 - Foundations of Sports Injuries Credits: 2 hours
HPER 4000 - Field Experience/Internship in HPER Credits: 1 to 8 hours

Required Professional Content Courses (13 hours)
HPER 1040 - Skills and Instruction of Non-Traditional Physical Activities Credits: 1 hour
HPER 1060 - Recreational Dance Credits: 1 hour
HPER 1070 - Skills and Instruction of Weight Training Credits: 1 hour
HPER 1080 - Skills and Instruction of Tumbling Credits: 1 hour
Select one of the following two courses:
HPER 1120 - Skills and Instruction of Tennis Credits: 1 hour
HPER 1130 - Skills and Instruction of Indoor Racquet Sports Credits: 1 hour

Select one of the following two courses:
HPER 1200 - Skills and Instruction of Golf Credits: 1 hour
HPER 1210 - Skills and Instruction of Bowling Credits: 1 hour
Select one of the following two courses:
HPER 2150 - Aerobic Conditioning Credits: 1 hour
HPER 2420 - Aerobic Exercise Instruction Credits: 1 hour

Select four of the following seven courses:
HPER 1300 - Skills and Instruction of Softball Credits: 1 hour
HPER 1310 - Skills and Instruction of Volleyball Credits: 1 hour
HPER 1320 - Skills and Instruction of Soccer Credits: 1 hour
HPER 1330 - Skills and Instruction of Basketball Credits: 1 hour
HPER 1340 - Skills and Instruction of Wrestling Credits: 1 hour
HPER 1350 - Skills and Instruction of Football Credits: 1 hour
HPER 1360 - Skills and Instruction of Track and Field Credits: 1 hour

Select two hours of PEGN Aquatics Credits: 2 hours

Professional Pedagogical Sequence (21 hours)
ED 3050 - K-12 Content Area Literacy Credits: 3 hours
ED 3950 - School and Society Credits: 3 hours
HPER 2400 - Human Motor Development and Learning Credits: 3 hours
HPER 2430 - Physical Education Methods: Early Elementary Movement/Physical Activities Credits: 3 hours
Recreation Major (122 hours)
The Recreation major is designed to prepare students to assume leadership and/or administrative roles in public, non-profit, private, or commercial recreation agencies and organizations. The hours of electives within this course of study allow the student flexibility in preparing for a specific emphasis in recreation. Students will also complete a supervised internship.

Baccalaureate Writing Requirement
Students who have chosen the Recreation major will satisfy the Baccalaureate Writing Requirement by successfully completing HPER 332 Research and Writing in Recreation.

General Education (37 hours)
HPER 1490 - Computer Applications in HPER Credits: 3 hours Will satisfy the General Education computer literacy requirement.

Required Core Courses (38 hours)
(Please note in the course descriptions when courses are offered and the prerequisite requirements for each course.)

HPER 1700 - Introduction to Leisure and Recreational Services Credits: 3 hours
HPER 2330 - Technical Concepts and Practices of Recreation Activity Leadership Credits: 3 hours
HPER 2710 - Recreational Programming and Leadership Theory Credits: 3 hours
HPER 2900 - Inclusive and Special Recreation Credits: 3 hours
HPER 3320 - Research and Writing in Recreation Credits: 3 hours
HPER 3710 - Practical Recreational Programming and Leadership Credits: 3 hours
HPER 3760 - Management of Recreational Services Credits: 3 hours
HPER 3990 - Recreation Practicum Credits: 3 hours
HPER 4720 - Recreation for the Aging Credits: 3 hours
HPER 4760 - Advanced Applications of Recreational Management Credits: 3 hours
HPER 4970 - Senior Seminar in Recreational Services Credits: 2 hours
HPER 4990 - Recreation Internship Credits: 6 hours

Elective Courses (7 hours)
COM 1040 - Public Speaking Credits: 3 hours
GEOG 2040 - National Park Landscapes Credits: 3 hours
GEOG 5540 - Outdoor Recreation: Resources and Planning Credits: 3 hours
GEOS 3120 - Geology of the National Parks and Monuments Credits: 3 hours
HPER 1490 - Computer Applications in HPER Credits: 3 hours
HPER 1720 - Outdoor Leadership Credits: 2 hours
HPER 2350 - Theory of Coaching Credits: 2 hours
HPER 2360 - Officiating Series Credits: 2 hours
HPER 2760 - Outdoor Education Credits: 2 hours
HPER 3370 - Coaching and Advanced Techniques Credits: 2 hours
HPER 3810 - Instructor First Aid Credits: 2 hours
HPER 4000 - Field Experience/Internship in HPER Credits: 1 to 8 hours
HPER 4160 - Topics in Recreation Credits: 2 hours
PADM 2000 - Introduction to Nonprofit Leadership Credits: 3 hours Required American Humanics course
PADM 3000 - Nonprofit Advancement Credits: 3 hours Required American Humanics course
PADM 4000 - Seminar in Nonprofit Leadership Credits: 3 hours Required American Humanics course
PEGN 3490 - Lifeguard Training Credits: 2 hours
Additional Information
Recreation majors and minors may choose to participate in the American Humanics certificate program. This program is designed to prepare students for leadership in nonprofit organizations. Students qualify for the certificate by taking courses in their major and minor that meet the American Humanics competency requirements, by taking the required American Humanics courses, and by meeting the American Humanics extracurricular requirements. For details, please see the American Humanics description the College of Arts and Sciences Interdisciplinary Programs section of this catalog. Details are also available from the Recreation program coordinator and from the American Humanics director.

Health Education Minor
Two minors in health education are offered; candidates may choose one of two professional preparation options: 1) School Emphasis or 2) Community Education Emphasis. The school emphasis is especially appropriate for those specializing in middle/junior high school education, in special education, and in secondary education with majors in such areas as biology, physical education, psychology, and sociology. Candidates also must pass subject area tests of competence administered by the Michigan Department of Education prior to certification by that office. School health minors are expected to have valid first aid and CPR certificates prior to teaching. Students completing requirements are eligible for certification to teach health education in grades 7-12 in Michigan. The Community Education emphasis prepares students to assume careers in non-school settings such as community health agencies and private health-oriented organizations.

Cognates (17 hours)
PSY 1500 - Introduction to Human Behavior Credits: 3 hours
or PSY 1000 - General Psychology Credits: 3 hours
BIOS 1120 - Principles of Biology Credits: 3 hours
BIOS 2110 - Human Anatomy Credits: 4 hours
BIOS 2400 - Human Physiology Credits: 4 hours
PSY 1000 - General Psychology Credits: 3 hours or PSY 1500 - Introduction to Human Behavior Credits: 3 hours
SOC 2000 - Principles of Sociology Credits: 3 hours

Health Education - School Emphasis (26 hours)
HPER 1550 - Foundations of Health Education Credits: 3 hours
HPER 2200 - Basic Health Concepts Credits: 3 hours
HPER 2210 - Basic Health Concepts II Credits: 3 hours
HPER 2220 - Basic Health Concepts III Credits: 3 hours
HPER 3120 - Planning School Health Programs Credits: 3 hours
HPER 3540 - Human Sexuality Education Credits: 3 hours
HPER 3810 - Instructor First Aid Credits: 2 hours
HPER 4120 - Teaching Skills and Strategies Credits: 3 hours
HPER 4140 - Measurement and Evaluation in Health Education Credits: 3 hours

Health Education - Community Education Emphasis (25 hours)
HPER 1550 - Foundations of Health Education Credits: 3 hours
HPER 2200 - Basic Health Concepts Credits: 3 hours
HPER 2210 - Basic Health Concepts II Credits: 3 hours
HPER 2220 - Basic Health Concepts III Credits: 3 hours
HPER 3160 - Issues in Health Education Credits: 2 hours
HPER 3310 - Community Health Education Planning Credits: 3 hours
HPER 3500 - Modification of Health Behavior Credits: 2 hours
HPER 4140 - Measurement and Evaluation in Health Education Credits: 3 hours
HPER 4310 - Community Health Education Interventions: Individual Strategies Credits: 3 hours
Secondary Physical Education Minor
Hours Required for this minor (24 hours)

Cognates (11 hours)
BIOS 1120 - Principles of Biology Credits: 3 hours
BIOS 2110 - Human Anatomy Credits: 4 hours
BIOS 2400 - Human Physiology Credits: 4 hours

Required Professional Courses (17 hours)
HPER 1500 - Foundations of Physical Education Credits: 3 hours
HPER 1810 - First Aid Credits: 2 hours
HPER 2400 - Human Motor Development and Learning Credits: 3 hours
HPER 3460 - Physical Education Methods: Special Populations Credits: 3 hours
HPER 4470 - Physical Education Methods: Instructional Design Credits: 3 hours
HPER 4480 - Physical Education Methods: Teaching Skills Credits: 3 hours

Required Activity Courses (3 hours)
HPER 1120 - Skills and Instruction of Tennis Credits: 1 hour or
HPER 1130 - Skills and Instruction of Indoor Racquet Sports Credits: 1 hour
HPER 1200 - Skills and Instruction of Golf Credits: 1 hour or
HPER 1210 - Skills and Instruction of Bowling Credits: 1 hour
HPER 2150 - Aerobic Conditioning Credits: 1 hour or
HPER 2420 - Aerobic Exercise Instruction Credits: 1 hour

Activity Course Electives (5 hours)
HPER 1060 - Recreational Dance Credits: 1 hour
HPER 1300 - Skills and Instruction of Softball Credits: 1 hour
HPER 1310 - Skills and Instruction of Volleyball Credits: 1 hour
HPER 1320 - Skills and Instruction of Soccer Credits: 1 hour
HPER 1330 - Skills and Instruction of Basketball Credits: 1 hour
HPER 1340 - Skills and Instruction of Wrestling Credits: 1 hour
HPER 1350 - Skills and Instruction of Football Credits: 1 hour
HPER 1360 - Skills and Instruction of Track and Field Credits: 1 hour

Required Teaching Assistant

Coaching Minor (Non-Teaching) (24 hours)
This minor DOES NOT certify a student to teach physical education. The coaching minor will provide instruction in the
sports which are currently emphasized by the Michigan Interscholastic Sports Programs: basketball, football, track and field,
tennis, volleyball, softball, golf, and gymnastics. The coaching minor is not a teachable minor.

Required Cognates (11 hours)
BIOS 1120 - Principles of Biology Credits: 3 hours
BIOS 2110 - Human Anatomy Credits: 4 hours
BIOS 2400 - Human Physiology Credits: 4 hours

Required Courses (18 hours)
HPER 2350 - Theory of Coaching Credits: 2 hours
HPER 2950 - Biomechanics Credits: 3 hours
HPER 2980 - Exercise Physiology Credits: 3 hours
HPER 3350 - Advanced Theory of Coaching Credits: 2 hours
HPER 3800 - Foundations of Sports Injuries Credits: 2 hours (Prereq.-First Aid 181)
HPER 4000 - Field Experience/Internship in HPER Credits: 1 to 8 hours (Prereq.-Coaching and Adv. Tech Course)
Credits: 2 hours
Professional Electives (11 hours)
HPER 3370 - Coaching and Advanced Techniques Credits: 2 hours Prerequisites: Must have had first level course(s) or permission of instructor.

Elect 6 Hours From Following Courses (must be at least one team sport and one individual sport)

Team
Basketball Credits: 2 hours
Baseball or Softball Credits: 2 hours
Volleyball Credits: 2 hours
Football Credits: 2 hours
Soccer Credits: 2 hours

Individual
Gymnastics Credits: 2 hours
Tennis Credits: 2 hours
Track and Field Credits: 2 hours

Officiating
HPER 2360 Officiating - Select two of the following officiating courses to complete the 11 hours of Professional Electives
Basketball Credits: 1 hour
Baseball credits: 1 hour
Volleyball Credits: 1 hour
Softball Credits: 1 hour
Football Credits: 1 hour
HPER 1040-2420 Professional Activity Courses Credits: 3 hours

Recreation Minor (Non-Teaching)
The recreation minor is designed to prepare students to assume leadership roles in public, non-profit, private, or commercial recreation agencies and organizations.

Please note in course descriptions when courses are offered and the suggested sequence of course work.

Hours Required for this minor 24

Required Courses (24 hours)
HPER 1700 - Introduction to Leisure and Recreational Services Credits: 3 hours
HPER 2330 - Technical Concepts and Practices of Recreation Activity Leadership Credits: 3 hours
HPER 2710 - Recreational Programming and Leadership Theory Credits: 3 hours
HPER 2900 - Inclusive and Special Recreation Credits: 3 hours
HPER 3710 - Practical Recreational Programming and Leadership Credits: 3 hours
HPER 3760 - Management of Recreational Services Credits: 3 hours
HPER 4720 - Recreation for the Aging Credits: 3 hours
HPER 4760 - Advanced Applications of Recreational Management Credits: 3 hours

Courses By Topic - Health, Physical Education, and Recreation

Professional Activity Courses (HPER)
HPER 1040 - Skills and Instruction of Non-Traditional Physical Activities Credits: 1 hour
HPER 1070 - Skills and Instruction of Weight Training Credits: 1 hour
HPER 1080 - Skills and Instruction of Tumbling Credits: 1 hour
HPER 1120 - Skills and Instruction of Tennis Credits: 1 hour
HPER 1130 - Skills and Instruction of Indoor Racquet Sports Credits: 1 hour
HPER 1200 - Skills and Instruction of Golf Credits: 1 hour
HPER 1210 - Skills and Instruction of Bowling Credits: 1 hour
HPER 1300 - Skills and Instruction of Softball Credits: 1 hour
HPER 1310 - Skills and Instruction of Volleyball Credits: 1 hour
HPER 1320 - Skills and Instruction of Soccer Credits: 1 hour
HPER 1330 - Skills and Instruction of Basketball Credits: 1 hour
HPER 1340 - Skills and Instruction of Wrestling Credits: 1 hour
HPER 1350 - Skills and Instruction of Football Credits: 1 hour
HPER 1360 - Skills and Instruction of Track and Field Credits: 1 hour
HPER 2150 - Aerobic Conditioning Credits: 1 hour

Health Education Academic Courses (HPER)

HPER 1550 - Foundations of Health Education Credits: 3 hours
HPER 1810 - First Aid Credits: 2 hours
HPER 2200 - Basic Health Concepts Credits: 3 hours
HPER 2210 - Basic Health Concepts II Credits: 3 hours
HPER 3120 - Planning School Health Programs Credits: 3 hours
HPER 3160 - Issues in Health Education Credits: 2 hours
HPER 4120 - Teaching Skills and Strategies Credits: 3 hours
HPER 4300 - Community Health Education Interventions: Community Strategies Credits: 3 hours
HPER 4310 - Community Health Education Interventions: Individual Strategies Credits: 3 hours
HPER 4960 - Community Health Education Internship Credits: 4 to 6 hours
HPER 5100 - Modern Health for Teachers and Health Professionals Credits: 3 hours
HPER 5120 - Principles, Practices, and Methods in Health Education Credits: 3 hours
HPER 5140 - Methods and Materials in Health Education Credits: 2 hours
HPER 5160 - Issues in Health Education Credits: 1 to 3 hours

Physical Education Academic Courses (HPER)

HPER 1500 - Foundations of Physical Education Credits: 3 hours
HPER 1520 - Foundations of Exercise Science Credits: 3 hours
HPER 1810 - First Aid Credits: 2 hours
HPER 2350 - Theory of Coaching Credits: 2 hours
HPER 2360 - Officiating Series Credits: 2 hours
HPER 2400 - Human Motor Development and Learning Credits: 3 hours
HPER 2420 - Aerobic Exercise Instruction Credits: 1 hour
HPER 2430 - Physical Education Methods: Early Elementary Movement/Physical Activities Credits: 3 hours
HPER 2950 - Biomechanics Credits: 3 hours
HPER 2960 - Stress Management and Flexibility Credits: 2 hours
HPER 2980 - Exercise Physiology Credits: 3 hours
HPER 3000 - Seminar Series Credits: 1 to 4 hours
HPER 3150 - Measurement and Evaluation for Exercise Science, Health, and Physical Education Credits: 3 hours
HPER 3170 - Cardiovascular Health Credits: 2 hours
HPER 3350 - Advanced Theory of Coaching Credits: 2 hours
HPER 3370 - Coaching and Advanced Techniques Credits: 2 hours
HPER 3460 - Physical Education Methods: Special Populations Credits: 3 hours
HPER 3500 - Modification of Health Behavior Credits: 2 hours
HPER 3800 - Foundations of Sports Injuries Credits: 2 hours
HPER 3950 - Cardiovascular Endurance: Aerobic Conditioning Credits: 2 hours
HPER 3960 - Muscular Strength and Endurance Credits: 2 hours
HPER 3970 - Body Composition and Weight Control Credits: 2 hours
HPER 4000 - Field Experience/Internship in HPER Credits: 1 to 8 hours
HPER 4310 - Community Health Education Interventions: Individual Strategies Credits: 3 hours
HPER 4440 - Professional Development in Exercise Science Credits: 3 hours
HPER 4450 - Exercise Testing and Prescription Credits: 3 hours
HPER 4470 - Physical Education Methods: Instructional Design Credits: 3 hours
HPER 4480 - Physical Education Methods: Teaching Skills Credits: 3 hours
HPER 4500 - Cultural Dynamics in Health, Physical Education, and Recreation Credits: 3 hours
HPER 4800 - Basic Electrocardiography Credits: 2 hours
HPER 4980 - Exercise Science Internship Credits: 6 hours

**Professional Recreation Courses (HPER)**

HPER 1700 - Introduction to Leisure and Recreational Services Credits: 3 hours
HPER 2330 - Technical Concepts and Practices of Recreation Activity Leadership Credits: 3 hours
HPER 2710 - Recreational Programming and Leadership Theory Credits: 3 hours
HPER 2760 - Outdoor Education Credits: 2 hours
HPER 2900 - Inclusive and Special Recreation Credits: 3 hours
HPER 3320 - Research and Writing in Recreation Credits: 3 hours
HPER 3710 - Practical Recreational Programming and Leadership Credits: 3 hours
HPER 3760 - Management of Recreational Services Credits: 3 hours
HPER 3990 - Recreation Practicum Credits: 3 hours
HPER 4000 - Field Experience/Internship in HPER Credits: 1 to 8 hours
HPER 4720 - Recreation for the Aging Credits: 3 hours
HPER 4760 - Advanced Applications of Recreational Management Credits: 3 hours
HPER 4970 - Senior Seminar in Recreational Services Credits: 2 hours
HPER 4990 - Recreation Internship Credits: 6 hours

**Open To Upperclass And Graduate Students (HPER)**

HPER 5000 - Studies in Health, Physical Education and Recreation Credits: 1 to 2 hours
HPER 5100 - Modern Health for Teachers and Health Professionals Credits: 3 hours
HPER 5120 - Principles, Practices, and Methods in Health Education Credits: 3 hours
HPER 5140 - Methods and Materials in Health Education Credits: 2 hours
HPER 5160 - Issues in Health Education Credits: 1 to 3 hours
HPER 5300 - Practicum in Teaching and Coaching Credits: 1 to 2 hours
HPER 5400 - Movement Education Credits: 2 hours
HPER 5800 - Studies in Athletic Training Credits: 1 to 2 hours
HPER 5910 - Evaluation in Health, Physical Education, and Recreation Credits: 2 hours
HPER 5980 - Readings in Health, Physical Education and Recreation Credits: 1 to 2 hours

**General Physical Education**

A maximum of eight (8) hours of general activity physical education may be applied toward electives for graduation credit.

All courses are co-ed. Course descriptions may be obtained from the general physical education office.

- PEGN 1000-level courses - are open to all students and emphasize the beginning skills in the activity given.
- PEGN 1700-1830 - Health and Wellness courses are approved for fulfillment of General Education Area VIII. The content included addresses the topics of health, including nutrition, substance abuse, STDs, and the concepts of physical fitness. Dual enrollment in 1700-1830 courses offered in one semester is prohibited. Courses are not repeatable for credit.
- PEGN 2000-level courses - are open to all students who have completed a 100-level course in the activity or the equivalent. (**Prerequisite 2490 or Red Cross Intermediate Card**)
- PEGN 3000-level courses - are open to all students desiring additional experience in an activity and who have completed the 2000-level course or permission of instructor to enroll.
- PEGN 4000 - A varsity athlete may receive PEGN credit by enrollment and completion of these courses. (1 credit hour each.) Enrollment by permission of instructor.
Courses are designed to meet the professional needs of future educators. All students pursuing a curriculum for a secondary provisional certificate and a degree are required to take the professional education sequence of courses, plus a methods course offered in the major and/or minor field and an internship; students in elementary education are required to complete the prescribed elementary education program.

Students must contact the College of Education Office of Admissions and Advising, 2504 Sangren Hall, to be admitted to the teacher education curriculum. Once admitted, the student will be assigned an advisor who will assist the student in program planning and scheduling the sequence of courses, including an internship.
College of Engineering and Applied Sciences

Timothy J. Greene
Dean

Osama Abudayyeh
Associate Dean for Research and Graduate Programs

Edmund Tsang
Associate Dean for Undergraduate Programs and Assessment

Sandra F. Blanchard
Director of Undergraduate Advising and Admissions

Lawrence A. Williams
Director of Cooperative Education

College Vision
A scholarly community dedicated to excellence through student-centered education and research emphasizing professional practice in engineering and applied science.

- A scholarly community means we are an academic community of students, faculty, staff, and other constituents who demonstrate scholarship in one or more of its forms known as discovery, integration, application, and teaching.
- Dedicated to excellence points out our desire and commitment to top performance in all we do.
- Through student-centered education and research emphasizes that our University and our College place the student at the center in two primary areas of education and research, and we intend to achieve excellence through this focus.
- Emphasizing professional engineering practice acknowledges and embraces our traditional strength of providing our students with knowledge and experience that enables them to easily transition to the workplace and rapidly become contributing members of their profession.

Mission
- To educate our learning community for life-long excellence in responsible professional leadership. Our primary mission is education for the entire learning community which includes students, faculty, staff, and the other constituencies we embrace.
- To increase knowledge through collaborative discovery, integration, application, and teaching. Our second mission of knowledge generation can be expressed through the fourfold scholarship model of discovery, integration, application, and teaching.
- To serve as a resource and partner to our constituents. Our service mission calls us to be source and sustenance as we support our constituents both on and off campus in win-win partnerships.
- To prepare job-ready graduates for the global market. We have consistently scored high in the ability of our graduates to adjust to the workplace and quickly contribute at a high level to their profession. We want to ensure they are prepared to meet the challenges of a global economy.

Academic Units:
Computer Science
Civil and Construction Engineering
Electrical and Computer Engineering
Industrial and Manufacturing Engineering
Industrial Design
Manufacturing Engineering
Mechanical and Aeronautical Engineering
Paper Engineering, Chemical Engineering, and Imaging
Programs
The College of Engineering and Applied Sciences offers undergraduate programs in several curricula and majors that prepare graduates for productive careers in a wide variety of fields. Students should refer to the programs listed throughout the College section of this Catalog for specific information relative to the academic program of interest.

The College also offers graduate programs leading to master's degrees in Civil Engineering, Computer Engineering, Computer Science, Electrical Engineering, Engineering Management, Industrial Engineering, Manufacturing Engineering, Mechanical Engineering, Operations Research, and Paper and Imaging Science and Engineering, and Ph.D. degrees in Computer Science, Electrical and Computer Engineering, Industrial Engineering, Mechanical Engineering, and Paper and Imaging Science and Engineering. Students interested in a graduate program should see the WMU Graduate Catalog for more information.

Computer Aided Engineering Center
Dr. Mohsen Guizani, Interim Director

Serving both WMU faculty and students as well as regional business and industry is the Computer Aided Engineering Center. The Center employs state-of-the-art CAD/CAM (Computer Aided Design/Computer Aided Manufacturing) equipment that enhances technical educational programs and provides training for regional industrial personnel.

Academic Advising
Sandra F. Blanchard, Director

A central advising office is maintained for the convenience of College of Engineering and Applied Sciences students. Because prerequisites are strictly enforced and it is essential to follow the program plans that appear in the curricula descriptions, students must contact their academic advisor in the first semester of enrollment at Western Michigan University. Failure to meet with the advisor on a regular basis may result in difficulty receiving requested class schedules and/or in delayed graduation.

Advisors are available to assist in program planning, to recommend electives appropriate to the student's educational objectives, to discuss employment opportunities, and to help with general academic problems. Transfer credit and all course substitutions must be recommended by the advisor and approved by the appropriate department curriculum committee.

Prerequisites
Prerequisites are designed both to increase the probabilities of successful completion of the course and to insure the proper conduct of the course. Therefore, prerequisites will be strictly enforced in all departmental courses. Exceptions must be approved by the department no later than the end of the "add" period of the semester or session.

Credit Hour Definition for the College of Engineering and Applied Sciences
An undergraduate credit hour is a unit of academic measurement nominally equivalent to 3 hours of work per week on the part of the student. Thus, for a course in which 3 credits are earned, a student can expect to work 9 hours per week (4 credits, 12 hours per week, etc.) in various combinations of lecture hours (50 minutes), laboratory hours, and home study.

Standard of Academic Honesty
All courses offered by the College will be conducted in concert with the high standards of the University as stated in the Student Guide to Academic Honesty. Each student is expected to support these standards by neither giving nor accepting assistance on tests, and by submitting only his or her own work for credit. Violations of the standard of academic honesty will result in appropriate disciplinary action. Such disciplinary action may include a failing grade in the course, reassignment of work, dismissal from the curriculum, probation, or dismissal from the University.

Computer Use in College Programs
Most degree programs offered in the College of Engineering and Applied Sciences require extensive use of computers. This is particularly true in engineering and engineering related disciplines. Although Western Michigan University and the College provide adequate computer facilities for student use, many students find it advantageous to have their own computer (students are not required to purchase one). The University maintains special marketing arrangements with several major computer manufacturers and is therefore able to offer substantial discounts to students and faculty for the purchase of micro-
computers and software. Interested students may obtain current information about the purchase of computing equipment from the College of Engineering and Applied Sciences Advising Office (Room E102, CEAS) or from their academic advisor.

Professional and Honorary Societies
The College and each department have student branches of professional and honorary societies whose purpose is to provide opportunities for students to become more directly involved with specific activities in their areas of interest. Students interested in enlarging their understanding of the professional field in which they intend to work are encouraged to participate in one of these societies. Students may obtain further information by contacting their academic advisor or department chair.

Scholarships
Many scholarships are available to both freshmen and upperclass students in the College of Engineering and Applied Sciences. The majority of these scholarships available specifically for students in the College are administered by the individual departments of the College. For the most current and accurate information on each of these many scholarship opportunities, call the individual department office or visit the website of the Office of Student Financial Aid and Scholarships at www.wmich.edu/finaid

Engineering Students
Three common characteristics are prevalent among students who are attracted to engineering. All show an interest in problem-solving - not only to know how, but why, something works. Second, engineering students possess a degree of technical aptitude - the ability to think in mathematical and scientific terms - which, third, is coupled with a strong interest in mathematics and the sciences.

A majority of engineering students are involved in one or more of the several professional organizations that have student chapters on campus. Such involvement enhances the "textbook learning" by providing students with opportunities to interact with other students having similar interests, to gain a closer look at the profession they have chosen to enter, and to plan and direct programs and projects.

Engineering Graduates
Undergraduate engineering programs offered by the College of Engineering and Applied Sciences prepare graduates for immediately productive careers and for continued professional practice in industry. A survey of graduates indicated WMU engineering alumni held positions of president, vice president, owner, plant manager, chief engineer, senior design engineer, sales manager, and lawyer.


Graduation Requirements - Bachelor of Science in Engineering
The baccalaureate programs in engineering are designed to be completed in four consecutive years. A student must meet all the requirements listed in any one of the catalogs in effect during the four-year period immediately prior to the date of graduation.

Graduation Requirements - Bachelor of Science in Computer Science
Students interested in an undergraduate degree in computer science may complete one of two programs and receive either a B.S. in Computer Science or a B.S. in Computer Science, Theory and Analysis. Both programs require a minor in mathematics and can be completed in four consecutive years.

Graduate students interested in computer science may pursue a Master of Science in Computer Science or a Ph.D. in Computer Science.

Students interested in degrees in computer science should read about the specifics of undergraduate computer science programs elsewhere in this undergraduate catalog or refer to computer science in the graduate catalog.
Professional Registration
Graduates of engineering programs are encouraged to seek professional registration. Eligibility requirements in Michigan are established by the State Board of Professional Engineers. In general, only graduates of EAC/ABET accredited engineering programs are eligible to be licensed in Michigan. Students interested in professional registration should consult with their department advisor.

Repeated Courses in the College of Engineering and Applied Sciences
Students in the College of Engineering and Applied Sciences may enroll in a course that is required in their curriculum only three times. Any additional enrollments require prior written approval of their department chair. This is consistent with the University Repeated Course Policy as stated elsewhere in this catalog.

Appeal Procedure for Dismissal from a CEAS Program
This procedure applies when a student wants to appeal the decision to dismiss the student from a CEAS program. For a detailed explanation of the process of appeal, see Course Grade and Program Dismissal Appeals in the section entitled Students Rights and Responsibilities in Academic Policies.

Admission To Engineering Programs

Admission to Pre-engineering
All students admitted to the University and planning to pursue one of the following curricula will be enrolled in the Pre-engineering curriculum:
- Aeronautical Engineering
- Chemical Engineering
- Civil Engineering
- Computer Engineering
- Construction Engineering
- Electrical Engineering
- Industrial Engineering
- Manufacturing Engineering
- Mechanical Engineering
- Paper Engineering

University admission standards are used for enrollment in the Pre-engineering curriculum. Students admitted to the Pre-engineering curriculum should have appropriate academic preparation.

Academic Advising
All students enrolled in the Pre-engineering curriculum will receive academic advising by the College of Engineering and Applied Sciences.

Enrollment Restrictions
Pre-engineering students will not be permitted to enroll in any course offered by the College of Engineering and Applied Sciences at the 3000-level or above that is required in any of the engineering curricula.

Pre-engineering Curriculum Requirements
Displayed below are the courses required in the Pre-engineering curriculum for all students planning to pursue one of the engineering curricula listed above. See the respective department catalog entry for full degree requirements.

Common Requirements For All Curricula
- MATH 1220 or 1700, 1230 or 1710, and 2720 12 hours
- CHEM 1100 and 1110 4 hours
- General Education AREA I, II, III, IV, or V 6-8 hours
- Place resumé with Career and Student Employment Services
Additional Courses Required By Curricula

**Aeronautical Engineering** CS 1060; ECE 2100; IME 1020; ME 2560; PHYS 2050 and 2060; PHYS 2070 and 2080; and PHYS 3090 or CHEM 1120. See the Department of Mechanical and Aeronautical Engineering for complete Aeronautical Engineering curriculum requirements.

**Chemical Engineering** CHEM 1120 and CHEM 1130; CHEG 1010, CHEG 2810; CS 1060; and PHYS 2050 and PHYS 2060. See the Department of Paper Engineering, Chemical Engineering, and Imaging for complete Chemical Engineering curriculum requirements.

**Civil Engineering** CCE 1490; CCE 2360; CS 1040; IME 1020; ME 2560 and ME 2570; PHYS 2050 and PHYS 2060; and PHYS 2070 and PHYS 2080. See the Department of Civil and Construction Engineering for complete Civil Engineering curriculum requirements.

**Computer Engineering** CS 1110; ECE 2100; ECE 2500; IME 1020; PHYS 2050 and PHYS 2060; and PHYS 2070 and PHYS 2080. See the Department of Electrical and Computer Engineering for complete Computer Engineering curriculum requirements.

**Construction Engineering** CS 1040; IME 1020; IME 2610; ME 2560; ME 2570; PHYS 2050 and 2060; PHYS 2070 and 2080. See the Department of Civil and Construction Engineering for complete Construction Engineering curriculum requirements.

**Electrical Engineering** CS 3060; ECE 2100; IME 1020; ME 2560; PHYS 2050 and PHYS 2060; PHYS 2070 and PHYS 2080; and PHYS 3090 and 3100. See the Department of Electrical and Computer Engineering for complete Electrical Engineering curriculum requirements.

**Industrial Engineering** ECE 2100; IME 1020; IME 2610; IME 2060; IME 2530; and PHYS 2050 and PHYS 2060; PHYS 2070 and PHYS 2080. See the Department of Industrial and Manufacturing Engineering for complete Industrial Engineering curriculum requirements.

**Manufacturing Engineering** CS 2000; IME 1020; MATH 3740; MFE 1200; PHYS 2050 and PHYS 2060; and PHYS 2070 and PHYS 2080. See the Department of Manufacturing Engineering for complete Manufacturing Engineering curriculum requirements.

**Mechanical Engineering** CS 1060; IME 1020; ECE 2100; ME 2320; ME 2560; PHYS 2050 and PHYS 2060; PHYS 2070 and PHYS 2080; and PHYS 3090 and PHYS 3100 OR CHEM 1120 and CHEM 1130. See the Department of Mechanical and Aeronautical Engineering for complete Mechanical Engineering curriculum requirements.

**Paper Engineering** CHEG 2610; CHEM 1120 and CHEM 1130; CS 1060; IME 1020; PHYS 2050; and PAPR 2040. See the Department of Paper Engineering, Chemical Engineering, and Imaging for complete Paper Engineering curriculum requirements.

**Admission to an Engineering Curriculum**
The student seeking a baccalaureate degree in Aeronautical, Chemical Engineering, Civil Engineering, Computer Engineering, Construction Engineering, Electrical Engineering, Industrial Engineering, Manufacturing Engineering, Mechanical Engineering, or Paper Engineering may apply for formal admission to one of these engineering curricula after successfully completing the pre-engineering curricular requirements. Only students who have demonstrated the potential for success will be admitted to an engineering curriculum.

1. All students seeking admission to a degree-granting engineering curriculum must submit an application, following procedures established by the College of Engineering and Applied Sciences. Upper level transfer students may complete an application prior to their first semester of enrollment. The College of Engineering and Applied Sciences processes admission applications to engineering curricula and makes admission decisions to these programs.
2. Admission to an engineering curriculum is dependent on successful completion of all required courses or approved alternatives in the Pre-engineering curriculum with no grade less than "C." Only students in good academic standing as defined by the University are eligible for consideration for admission to an engineering curriculum.
3. Students in an engineering curriculum will be advised by a faculty advisor from that curricular area.
4. There are currently no established enrollment limits for admission to engineering curricula.

Off-Campus Degree Programs
The College of Engineering and Applied Sciences offers complete undergraduate (Manufacturing Engineering) and graduate (described in The Graduate Catalog) degree programs off campus.

General Programs
General programs in the College of Engineering and Applied Sciences are designed to meet specific student needs not satisfied by any other curricula in the college.

General College Curriculum
Non-engineering students who have not decided on a particular program in the College of Engineering and Applied Sciences may initially enroll in the General College Curriculum.

Written permission of the academic advisor is required to enroll in this curriculum beyond the second year.

Related Academic Programs

Cooperative Education Program
Lawrence A. Williams, Director

Students enrolled in engineering and related degree curricula may gain experience and knowledge about a professional field of interest by enrolling in the cooperative education program. Additional information may be obtained from the Director in Room E-102 CEAS.

Students on the alternating plan will alternate by semester between campus and industry. While on the job, the student can enroll in the course IME 3000, Co-operative Education. During their employment periods, Co-op students are paid an appropriate salary by their employer. Single semester internships and parallel co-op work experiences are also available.

Cooperative education students work in such areas as manufacturing, assembly, research, design, quality control, and safety. They may perform tests, prepare engineering drawings, collect and record data, design tools and fixtures, and assist in supervision. The student's cooperative program is supervised by a college coordinator.

Foundry Program
Any student enrolled in an engineering or related curriculum and interested in a career in the metal casting industry may be admitted into the Foundry Program. While engaged in this special program, the student must also meet the requirements for a B.S. degree offered by the College of Engineering and Applied Sciences. The Foundry Program is designed to allow the student an opportunity to elect various specific interest courses while earning a degree in any standard curriculum.

Foundry Program students must join the student chapter of the American Foundrymen's Society and register with the Foundry Educational Foundation. Upon reaching the sophomore year, it is recommended that all students apply for the Cooperative Education Program by contacting the Director of Cooperative Education in agreement with many sponsoring industries.

Students following the Foundry Program are eligible to be considered for scholarship awards made available each semester by the Foundry Educational Foundation.

Civil and Construction Engineering
Osama Abudayyeh, Interim Chair
Ahmad Jrad
Jun-Seok Oh
Sherif Yehia
The Department of Civil and Construction Engineering offers the following curricula:

- Construction Engineering - B.S.E.
- Civil Engineering - B.S.E.
- Civil Engineering - M.S.E.

These programs are designed to provide graduates with the background necessary to successfully assume a variety of positions in a wide variety of industries. The combination of specialized and general education is intended to allow employment flexibility, although most graduates are placed in industries closely related to their field of study.

**Academic Advising**

Students should contact their advisor as early as possible. The advisor is available to assist in individual program planning, recommend electives appropriate to a student's educational objectives, discuss employment opportunities, and help solve academic problems. Substitutions and transfer credit must be approved by the advisor, the curriculum committee, and the department chair. The academic advisor is located in Room E-102 CEAS, phone (269) 276-3260. Because of prerequisites and limited offering times, students must consult with an academic advisor for proper course sequence.

**Additional Costs**

Class-related charges are assigned for laboratory and some lecture courses to help cover cost of materials and services.

**Cooperative Education**

Students may elect the cooperative plan of education. In this plan, the student alternates a semester of study on campus with a semester of compensated industrial experience. Students may work in their area of study, gaining valuable professional experience.

**Approved Electives**

Electives must be approved by the department academic advisor. While choice of electives is intended to provide flexibility for students, they must be selected to provide a thrust and add strength to the individual's program. Non-related courses will not normally be approved.

Lists of appropriate electives are available from the academic advising office.

**Civil Engineering**

The Civil Engineering curriculum prepares students for entry level positions in the civil engineering profession. It was developed to provide students with knowledge in the areas of structural engineering, construction engineering, geotechnical engineering, transportation engineering, and water resources engineering. Technical, communication, and human relation skills are developed throughout the curriculum. Design is emphasized from the beginning of the curriculum.

The educational objectives of the Civil Engineering program are:

1. Graduates have an understanding of and ability to apply knowledge of traditional mathematics, science, and engineering skills and can use modern engineering tools.
2. Graduates are able to design and conduct experiments, as well as analyze and interpret data in more than one Civil Engineering discipline.
3. Graduates can design systems, components, and processes, and can recognize the strengths and weaknesses of the design.
4. Graduates can work independently and as part of a design team.
5. Graduates are able to identify, formulate, and solve engineering problems, and are able to formulate and use engineering models.
6. Graduates understand professional and ethical responsibility.
7. Graduates are able to communicate effectively.
8. Graduates understand and embrace the need for life-long learning, the need for continued professional development, and the need to understand the impact of engineering solutions on society.

(For up-to-date educational objectives and learning outcomes, see department web page at www.wmich.edu/cce)
Baccalaureate Writing Requirement
Students who have chosen the Civil or Construction Engineering curriculum will satisfy the Baccalaureate Writing Requirement by successfully completing CCE 4830 Project Design and Control and CCE 4850 Senior Project.

Requirements
Candidates for the Bachelor of Science in Engineering (Civil) must complete the following program of 125 semester credit hours as well as University requirements stated elsewhere in this catalog.
1. A "C" average or better must be earned in required courses with a CCE, IME or ME prefix.
2. A student is required to earn a grade of "C" or better in the prerequisite courses for all CCE courses before enrollment is permitted in the next sequence course.
3. No more than two grades of "D" or "DC" in courses presented for graduation may be counted for graduation.
4. Complete the following program of 127 semester hours. The schedule below is an example of one leading to graduation in eight semesters. Pre-engineering requirements are indicated.

First Semester (15 hours)
The following courses are Pre-engineering requirements.
AREA I Fine Arts* Credits: 3 hours
CHEM 1100 - General Chemistry I Credits: 3 hours (Area VI)
CHEM 1110 - General Chemistry Laboratory I Credits: 1 hour (Area VI)
ENGR 1001 - Introduction to Engineering Design Credits: 1 hour
IME 1020 - Technical Communication Credits: 3 hours (Prof. 1)
MATH 1220 - Calculus I Credits: 4 hours or
MATH 1700 - Calculus I, Science and Engineering Credits: 4 hours

Second Semester (18 hours)
The following courses are Pre-engineering requirements.
AREA III The United States: Culture and Issues* Credits: 3 hours
CS 1022 - Introduction to Engineering Computing 2: Mathematical Software Credits: 1 hour
CS 1023 - Introduction to Engineering Computing 3: Computer Programming Credits: 1 hour
ENGR 1002 - Introduction to Engineering Analyses Credits: 1 hour
IME 1420 - Engineering Graphics Credits: 3 hours
MATH 1230 - Calculus II Credits: 4 hours or
MATH 1710 - Calculus II, Science and Engineering Credits: 4 hours
PHYS 2050 - Mechanics and Heat Credits: 4 hours (Area VI)
PHYS 2060 - Mechanics and Heat Laboratory Credits: 1 hour (Area VI)

Third Semester (16 hours)
CCE 2310 - Introduction to Civil and Construction Engineering Credits: 1 hour
CCE 2360 - Geomatics Credits: 3 hours Pre-engineering requirement
MATH 2720 - Multivariate Calculus and Matrix Algebra Credits: 4 hours Pre-engineering requirement
ME 2560 - Statics Credits: 3 hours Pre-engineering requirement
PHYS 2070 - Electricity and Light Credits: 4 hours Pre-engineering requirement
PHYS 2080 - Electricity and Light Laboratory Credits: 1 hour

Fourth Semester (15 hours)
CCE 2530 - Civil Engineering Measurements Credits: 2 hours
ECON 2010 - Principles of Microeconomics Credits: 3 hours (Area V)
MATH 3740 - Differential Equations and Linear Algebra Credits: 4 hours
ME 2570 - Mechanics of Materials Credits: 3 hours Pre-engineering requirement
ME 2580 - Dynamics Credits: 3 hours

Fifth Semester (15 hours)
CCE 3360 - Soil Mechanics Credits: 3 hours
IME 2610 - Engineering Statistics Credits: 3 hours
IME 3100 - Engineering Economy Credits: 3 hours
ME 3560 - Fluid Mechanics Credits: 3 hours
PHIL 3160 - Ethics in Engineering and Technology Credits: 3 hours (Area II)

Sixth Semester (15 hours)
CCE 3300 - Transportation Engineering Credits: 3 hours
CCE 3330 - Construction Codes, Specifications, and Contracts Credits: 3 hours
CCE 3380 - Construction Materials and Methods Credits: 3 hours
CCE 3860 - Structural Analysis Credits: 3 hours
CHEG 2610 - Environmental Engineering Credits: 3 hours

Seventh Semester (17 hours)
CCE Construction Engineering Elective Credits: 3 hours
Environmental Engineering Elective Credits: 3 hours
Area IV Other Cultures and Civilizations* Credits: 4 hours
CCE 4300 - Traffic Design Credits: 3 hours
CCE 4400 - Introduction to Structural Design Credits: 3 hours
CCE 4830 - Project Design and Control Credits: 1 hour

Eighth Semester (14 hours)
CCE Engineering Science or Design Elective Credits: 3 hours
CCE Structural Engineering Design Elective Credits: 3 hours
CCE Engineering Science or Design Elective Credits: 3 hours
AREA VII Health & Well Being* Credits: 2 hours
CCE 4850 - Senior Project Credits: 3 hours (Prof. 2)

Footnote
*At least two of the General Education Area courses must be at the 3000-4000 level.

Construction Engineering
The Construction Engineering curriculum prepares students for entry-level positions in construction planning, management, or development. Technical, business, and human relations knowledge and skills are developed in classroom settings and on residential and commercial construction job sites.

Accredited by the Engineering Accreditation Commission of ABET, Inc., 111 Market Place, Suite 1050, Baltimore, MD 21202-4012.

The educational objectives of the Construction Engineering program are:
1. Graduates have an understanding of and ability to apply knowledge of traditional mathematics, science, and engineering skills and can use modern engineering tools.
2. Graduates are able to design and conduct experiments, as well as analyze and interpret data in more than one Civil Engineering discipline.
3. Graduates can work independently and as part of a design team.
4. Graduates are able to identify, formulate, and solve engineering problems, and are able to formulate and use engineering models.
5. Graduates understand professional and ethical responsibility
6. Graduates are able to communicate effectively.
7. Graduates understand and embrace the need for life-long learning, the need for continued professional development, and the need to understand the impact of engineering solutions on society.

(For up-to-date educational objectives and learning outcomes, see department web page at www.wmich.edu/cce)

Baccalaureate Writing Requirement
Students who have chosen the Civil or Construction Engineering curriculum will satisfy the Baccalaureate Writing Requirement by successfully completing CCE 4830 Project Design and Control and CCE 4850 Senior Project.
Requirements
Candidates for the Bachelor of Science in Engineering (Construction) must complete the following program of 125 semester credit hours as well as University requirements stated elsewhere in this catalog.

1. A "C" average or better must be earned in required courses with a CCE, IME or ME prefix.
2. A student is required to earn a grade of "C" or better in the prerequisite courses for all CCE courses before enrollment is permitted in the next sequence course.
3. No more than two grades of "D" or "DC" in courses presented for graduation may be counted for graduation.
4. Complete the following program of 127 semester hours. The schedule below is an example of one leading to graduation in eight semesters. Pre-engineering requirements are indicated.

First Semester (15 hours)
The following courses are Pre-engineering requirements.
AREA I Fine Arts* Credits: 3 hours
CHEM 1100 - General Chemistry I Credits: 3 hours
CHEM 1110 - General Chemistry Laboratory I Credits: 1 hour
ENGR 1001 - Introduction to Engineering Design Credits: 1 hour
IME 1020 - Technical Communication Credits: 3 hours (Prof. 1)
MATH 1220 - Calculus I Credits: 4 hours or
MATH 1700 - Calculus I, Science and Engineering Credits: 4 hours

Second Semester (18 hours)
The following courses are Pre-engineering requirements.
Area III The United States: Cultures and Issues* Credits: 3 hours
CS 1022 - Introduction to Engineering Computing 2: Mathematical Software Credits: 1 hour
CS 1023 - Introduction to Engineering Computing 3: Computer Programming Credits: 1 hour
ENGR 1002 - Introduction to Engineering Analyses Credits: 1 hour
IME 1420 - Engineering Graphics Credits: 3 hours
MATH 1230 - Calculus II Credits: 4 hours or
MATH 1710 - Calculus II, Science and Engineering Credits: 4 hours
PHYS 2050 - Mechanics and Heat Credits: 4 hours (AREA VI)
PHYS 2060 - Mechanics and Heat Laboratory Credits: 1 hour (AREA VI)

Third Semester (16 hours)
CCE 2310 - Introduction to Civil and Construction Engineering Credits: 1 hour
CCE 2360 - Geomatics Credits: 3 hours
MATH 2720 - Multivariate Calculus and Matrix Algebra Credits: 4 hours Pre-engineering requirement
ME 2560 - Statics Credits: 3 hours Pre-engineering requirement
PHYS 2070 - Electricity and Light Credits: 4 hours Pre-engineering requirement
PHYS 2080 - Electricity and Light Laboratory Credits: 1 hour Pre-engineering requirement

Fourth Semester (15 hours)
CCE 2530 - Civil Engineering Measurements Credits: 2 hours
ECON 2010 - Principles of Microeconomics Credits: 3 hours
MATH 3740 - Differential Equations and Linear Algebra Credits: 4 hours
ME 2570 - Mechanics of Materials Credits: 3 hours Pre-engineering requirement
ME 2580 - Dynamics Credits: 3 hours

Fifth Semester (15 hours)
CCE 3360 - Soil Mechanics Credits: 3 hours
IME 2610 - Engineering Statistics Credits: 3 hours Pre-engineering requirement
IME 3100 - Engineering Economy Credits: 3 hours
ME 3560 - Fluid Mechanics Credits: 3 hours
PHIL 3160 - Ethics in Engineering and Technology Credits: 3 hours (AREA II)
Sixth Semester (15 hours)
Engineering Science or Design Elective Credits: 3 hours
CCE 3330 - Construction Codes, Specifications, and Contracts Credits: 3 hours
CCE 3380 - Construction Materials and Methods Credits: 3 hours
CCE 3860 - Structural Analysis Credits: 3 hours
MGMT 2500 - Organizational Behavior Credits: 3 hours

Seventh Semester (16 hours)
Engineering Science or Design Elective Credits: 3 hours
ACTY 2100 - Principles of Accounting I Credits: 3 hours
CCE 4310 - Construction Planning and Scheduling Credits: 3 hours
CCE 4360 - Construction Estimating, Bidding, and Cost Control Credits: 3 hours
CCE 4400 - Introduction to Structural Design Credits: 3 hours
CCE 4830 - Project Design and Control Credits: 1 hour

Eighth Semester (15 hours)
Area IV Other Cultures and Civilizations*Credits: 4 hours
Pre-engineering Requirement
Area VIII Health & Well Being* Credits: 2 hours
CCE 4380 - Construction Project Management Credits: 3 hours
CCE 4850 - Senior Project Credits: 3 hours
FIN 3200 - Business Finance Credits: 3 hours

Footnote : *At least two of the General Education Area courses must be at the 3000-4000 level.

Computer Science
Mohsen Guizani, Chair
Ala Al-Fuqaha
Elise de Doncker
Ajay Gupta
Donna Kaminski
John Kapenga
Karlis Kaugars
Mark Kerstetter, Director of Undergraduate Programs
Dionysios Kountanis, Director of Graduate Programs
Leszek Lilien
Ronald Miller
Donald Nelson
Thomas Piatkowski
Wuwei Shen
Robert Trenary
Li Yang
Zijiang Yang

The Department of Computer Science offers two Bachelor of Science programs and two minors for undergraduates. The department also offers a master's program and a doctoral program for graduate students. All programs, both undergraduate and graduate, are in computer science.

Computer Science is the study of digital computers and their uses for the effective processing of information. Degree programs offered emphasize the software aspects both in theory and application rather than the physical construction of computers (hardware aspects). The department offers a number of introductory programming courses as well as complete programs which provide much more focus in computer science.
The undergraduate programs described here provide education in the field of computer science to prepare graduates for careers in many kinds of work, including all aspects of software development and maintenance, database and network design and management, consulting, education, and training. Graduate work provides education in both applications and systems areas.

Computer Science areas of specialization can include: artificial intelligence, databases, distributed computing, graphics, human-computer interfaces, networking, operating systems, pattern recognition, programming languages, software engineering, theory of computing, and web analysis and design.

In computer science programs, you will study mathematics, general education subjects, and some electrical and computer engineering. Mathematics is necessary for the analysis and comparison of computer languages, machines, algorithms, and data structures. The theory and analysis major also requires courses in the basic sciences, engineering ethics, and communications.

Communicating ideas orally and in writing is important for computer scientists.

**Academic Advising**
Students should contact a computer science academic advisor as early as possible, certainly within the second semester of enrollment in computer science classes. Eligibility requirements for admittance into a major or minor program are available from the computer science advisor. An advisor is available to assist in individual program planning, to recommend electives appropriate to a student's educational objectives, to discuss employment opportunities, and to help solve academic problems. Substitutions and transfer credit must be approved by a departmental advisor, curriculum committee, and department chair. Academic advising is available through Room E-102 CEAS, (269) 276-3260.

**Additional Information**
General information regarding counseling and types of degrees may be found under the beginning of the College of Engineering and Applied Sciences section of this catalog.

Students must satisfy prerequisites before enrolling in a course. Those who fail to earn a "C" or better grade in a prerequisite course will be denied permission to enroll in the next course.

Enrollment will not be honored if it is found that the proper prerequisites have not been met. Students whose enrollments are denied for this reason are responsible for processing drop slips with the Registration Office.

**Computer Science Courses (CS)**
Enrollment in CS 1110, 1120, 2230, 2240, and 3310 is restricted to undergraduates and those graduate students admitted under the PCS (Permission to take Computer Science) classification. Enrollments in all 5000-level computer science classes will be restricted to undergraduates and graduate students in the Computer Science master's program (CMP). Students in other graduate programs who need one of these courses either for subject matter or a research tool can gain admission by permission from the department.

A list of approved General Education courses can be found in the "Graduation and Academic Advising" section in this catalog.

**Computer Science - Theory and Analysis**
The Theory and Analysis program has been accredited by the Computing Accreditation Commission of ABET, Inc., 111 Market Place, Suite 1050, Baltimore, MD 21202-4012; telephone (410) 347-7700. It provides a greater depth and breadth in computer science than the general option (see below). The Theory and Analysis option includes additional emphasis in science and engineering, as well as the minor in mathematics. Students planning computer science as a profession or contemplating graduate study in computer science are urged to enroll in this major.

The educational objectives for the Computer Science-Theory and Analysis program are:
1. Graduates will have breadth and depth in computer science sufficient for continued intellectual growth in computing disciplines.
2. Graduates will possess knowledge and skills sufficient to be employable and successful in a variety of computing positions in business, industry, or government.
3. Graduates will have demonstrated experience in team and collaborative work.
4. Graduates will have an understanding of ethical and social issues associated with the field of computer science.
5. Graduates will have sufficient background in computer science to qualify for entry into a variety of graduate programs.

(For up-to-date educational objectives and learning outcomes, see department web page at www.cs.wmich.edu)

Baccalaureate Writing Requirement
Students who have chosen the Theory and Analysis program will satisfy the Baccalaureate Writing Requirement by successfully completing CS 4900 Software Systems Development I.

Requirements
Candidates for the Bachelor of Science in Computer Science ---Theory and Analysis must satisfy the following requirements in addition to those required by Western Michigan University:

1. Laboratory Sciences
To satisfy CAC/ABET accreditation requirements, all students must complete laboratory science requirements consisting of a two-course, calculus-based physics sequence: (PHYS 2060 and 2080 are laboratories accompanying the regular classes)

Additional Laboratory Sciences
There are two additional laboratory science courses for science majors. Currently these courses include: (The Geosciences courses contain their own laboratory elements.)
BIOS 1100 - Biology Laboratory Credits: 1 hour
BIOS 1120 - Principles of Biology Credits: 3 hours
CHEM 1100 - General Chemistry I Credits: 3 hours
CHEM 1110 - General Chemistry Laboratory I Credits: 1 hour
CHEM 1120 - General Chemistry II Credits: 3 hours
CHEM 1130 - General Chemistry Laboratory II Credits: 1 hour
GEOS 1300 - Physical Geology Credits: 4 hours
GEOS 1310 - Historical Geology Credits: 4 hours

2. General Education
CAC/ABET accreditation also requires 30 hours of general education. These program requirements can usually be met with 23 hours of non-science and non-mathematics courses. Two courses, listed below, are required. The remaining hours can be selected from the arts, humanities, and the social sciences.

3. Grade Point Average
A grade point average of 2.0 or better must be earned in courses presented for graduation with CS, ECE, MATH, and STAT prefixes.

4. Complete 122 Semester Credit Hours
Complete the following program of 122 semester credit hours. The schedule below is an example of one leading to graduation in eight semesters, beginning with the fall semester.

First Semester (15 hours)
Science Elective with Laboratory Credits: 4 hours
Some science course electives (e.g., BIOS 1100 & 1120, CHEM 1100 & 1110, and GEOS 1300) can also be counted towards General Education requirements. Students are recommended to use two of these courses.
AREA V Social and Behavioral Sciences Credits: 4 hours
CS 1110 - Computer Science I Credits: 4 hours
IME 1020 - Technical Communication Credits: 3 hours

Second Semester (15 hours)
Science Elective with Laboratory Credits: 4 hours
Some science course electives (e.g., BIOS 1100 & 1120, CHEM 1100 & 1110, and GEOS 1300) can also be counted towards General Education requirements. Students are recommended to use two of these courses.

CS 1120 - Computer Science II Credits: 4 hours
ECE 2500 - Digital Logic Credits: 3 hours
MATH 1220 - Calculus I Credits: 4 hours or
MATH 1700 - Calculus I, Science and Engineering Credits: 4 hours

Third Semester (15 hours)
AREA II Humanities Credits: 3 hours
CS 2230 - Computer Organization and Assembly Language Credits: 3 hours
MATH 1230 - Calculus II Credits: 4 hours or
MATH 1710 - Calculus II, Science and Engineering Credits: 4 hours
PHYS 2050 - Mechanics and Heat Credits: 4 hours
PHYS 2060 - Mechanics and Heat Laboratory Credits: 1 hour

Fourth Semester (15 hours)
AREA IV Other Cultures and Civilizations Credits: 4 hours
Any General Education course (except from AREAS VI or VIII) may be swapped with the AREA IV course in the 4th semester as long as the course is a four credit hour course.
CS 3310 - Data and File Structures Credits: 3 hours
MATH 1450 - Discrete Mathematical Structures Credits: 3 hours
PHYS 2070 - Electricity and Light Credits: 4 hours
PHYS 2080 - Electricity and Light Laboratory Credits: 1 hour

Fifth Semester (15 hours)
AREA VIII Health and Well-being Credits: 2 hours
COM 1040 - Public Speaking Credits: 3 hours
CS 2240 - System Programming Concepts Credits: 3 hours
CS 4850 - Programming Languages Credits: 3 hours
MATH 2300 - Elementary Linear Algebra Credits: 4 hours

Sixth Semester (16 hours)
AREA III The U.S. Cultures and Issues Credits: 3 hours
CS 4310 - Design and Analysis of Algorithms Credits: 3 hours
CS 4800 - Theory of Computation I: Automata Credits: 3 hours
ECE 3570 - Computer Architecture Credits: 3 hours
STAT 3640 - Statistical Methods Credits: 4 hours

Seventh Semester (16 hours)
Elective Approved CS Elective Credits: 3 hours
Elective Free Elective Credits: 4 hours
CS 4540 - Operating Systems Credits: 3 hours
CS 4900 - Software Systems Development I: Requirements and Design Credits: 3 hours
PHIL 4100 - Professional Ethics Credits: 3 hours

Eighth Semester (15 hours)
Elective Approved CS Elective Credits: 3 hours
Elective Approved CS Elective Credits: 3 hours
AREA I Fine Arts Credits: 3 hours
AREA VII Natural Science and Technology: Applications and Implications Credits: 3 hours
CS 4910 - Software Systems Development II: Implementation and Testing Credits: 2 hours
CS 4980 - The Computer Science Profession Credits: 1 hour
CS Elective
CS Elective means the student must take an approved computer science elective course. Such electives may be described in the undergraduate catalog or in departmental material published traditionally or on its web site. Students should consult with a departmental advisor before enrolling in one of these courses.

Free Elective
Free Elective means the student may choose any course offered at the University without restriction. That is, the course need not be a General Education course nor a course in computer science.

Computer Science - General
The educational objectives for the Computer Science-General program are:
1. The program provides opportunity for students to specialize in other disciplines in which computer science can be applied.
2. Graduates will have breadth and depth in computer science sufficient for continued intellectual growth in computing disciplines.
3. Graduates will possess knowledge and skills sufficient to be employable and successful in a variety of computing positions in business, industry, or government.
4. Graduates will have demonstrated experience in teamwork and collaborative work.
5. Graduates will have fluency in at least three programming languages.
(For up-to-date educational objectives and learning outcomes, see department web page at www.cs.wmich.edu)

Baccalaureate Writing Requirement
Students who have chosen the Computer Science program will satisfy the Baccalaureate Writing Requirement by successfully completing CS 4900 Software Systems Development I.

Requirements
Candidates for the Bachelor of Science in Computer Science-General must satisfy the following requirements in addition to those required by Western Michigan University:
1. Students must satisfy the University General Education requirements.
2. A grade point average of 2.0 or better must be earned in courses presented for graduation with CS, ECE, MATH, and STAT prefixes.
3. Complete the following program of 122 semester credit hours. The schedule below is an example of one leading to graduation in eight semesters, beginning with the fall semester.

First Semester (15 hours)
AREA VIII Health and Well-being Credits: 2 hours
Elective Free Elective Credits: 3 hours
CS 1110 - Computer Science I Credits: 4 hours
ECE 2500 - Digital Logic Credits: 3 hours
IME 1020 - Technical Communication Credits: 3 hours

Second Semester (15 hours)
AREA IV Other Cultures and Civilizations Credits: 4 hours
CS 1120 - Computer Science II Credits: 4 hours
CS 2230 - Computer Organization and Assembly Language Credits: 3 hours
MATH 1220 - Calculus I Credits: 4 hours or
MATH 1700 - Calculus I, Science and Engineering Credits: 4 hours

Third Semester (16 hours)
AREA VI Natural Science with Laboratory Credits: 4 hours
Elective Free Elective Credits: 3 hours
CS 2000 - Programming Language Experience Credits: 2 hours
CS 2100 - Introductory Topics in Computing Technology Credits: 1 to 3 hours
CS 3310 - Data and File Structures Credits: 3 hours
MATH 1230 - Calculus II Credits: 4 hours or
MATH 1710 - Calculus II, Science and Engineering Credits: 4 hours

Fourth Semester (15 hours)
AREA V Social and Behavioral Sciences Credits: 3 hours
Elective Free Elective Credits: 3 hours
CS 2240 - System Programming Concepts Credits: 3 hours
CS 4850 - Programming Languages Credits: 3 hours
MATH 1450 - Discrete Mathematical Structures Credits: 3 hours

Fifth Semester (16 hours)
CS Elective Approved CS Elective Credits: 3 hours
AREA I Fine Arts Credits: 3 hours
Elective Free Elective Credits: 3 hours
CS 4540 - Operating Systems Credits: 3 hours
MATH 2300 - Elementary Linear Algebra Credits: 4 hours

Sixth Semester (15 hours)
CS Elective Approved CS Elective Credits: 3 hours
AREA II Humanities Credits: 3 hours
Elective Free Elective Credits: 3 hours
CS 2000 - Programming Language Experience Credits: 2 hours
STAT 3640 - Statistical Methods Credits: 4 hours

Seventh Semester (15 hours)
AREA VII Natural Science and Technology: Applications and Implications Credits: 3 hours
Free General Education Elective Credits: 3 hours
Elective Free Elective Credits: 3 hours
Elective Free Elective Credits: 3 hours
CS 4900 - Software Systems Development I: Requirements and Design Credits: 3 hours

Eighth Semester (15 hours)
Free General Education Elective Credits: 3 hours
AREA III U.S. Cultures and Issues Credits: 3 hours
Elective Free Elective Credits: 3 hours
Elective Free Elective Credits: 4 hours
CS 4910 - Software Systems Development II: Implementation and Testing Credits: 2 hours

CS Elective
CS Elective means the student must take an approved computer science elective course. Such electives may be described in the undergraduate catalog or in departmental material published traditionally or on its web site. Students should consult with a departmental advisor before enrolling in one of these courses.

Free Elective
Free Elective means the student may choose any course offered at the University without restriction. That is, the course need not be a General Education course nor a course in computer science.

Notes:
Any General Education course (except from AREAS VI or VIII) may be swapped with the AREA IV course in the 2nd semester as long as the course is a four credit hour course.

Computer Science - General Option - Minor
The department offers a general minor in computer science. This minor allows a student to complete a secondary concentration in computer science. The concentration can be used to support a wide variety of disciplines.
Computer Science Courses (21 hours)
CS 1110 - Computer Science I Credits: 4 hours
CS 1120 - Computer Science II Credits: 4 hours
CS 2230 - Computer Organization and Assembly Language Credits: 3 hours
CS 3310 - Data and File Structures Credits: 3 hours
Programming Language/ Technology Elective Credits: 2 hours
Complete at least one course approved by the Computer Science Advisor. At least two credit hours must be completed.
Computer Science Electives Credits: 5 hours

See the Computer Science Advisor. Such electives may be described in the Undergraduate Catalog or in departmental material published traditionally or on its web site. Not all computer science courses may be used to satisfy this requirement.

Required Mathematics Course (4 hours)
MATH 1220 - Calculus I Credits: 4 hours or
MATH 2000 - Calculus with Applications Credits: 4 hours

Computer Science - Sciences Option – Minor
The department offers a minor in computer science that is suitable to support scientists and engineers. The minor allows a student to complete a secondary concentration in computer science.

Computer Science Courses (21 hours)
CS 2000 represents a computer science course teaching a programming language as a second language. Only languages appropriate to scientific use will be approved as a replacement for FORTRAN.

Two Computer Science Electives Credits: 5 hours
See the Computer Science Advisor. Such electives may be described in the Undergraduate Catalog or in departmental material published traditionally or on its web site. Not all computer science courses may be used to satisfy this requirement. Only one of these electives may be a programming language course.

CS 1110 - Computer Science I Credits: 4 hours
CS 1120 - Computer Science II Credits: 4 hours
CS 2000 - Programming Language Experience Credits: 2 hours or
CS 2010 - Programming in FORTRAN Credits: 2 hours
CS 2230 - Computer Organization and Assembly Language Credits: 3 hours
CS 3310 - Data and File Structures Credits: 3 hours

Required Mathematics Courses (12 hours)
MATH 1220 - Calculus I Credits: 4 hours or
MATH 1700 - Calculus I, Science and Engineering Credits: 4 hours
MATH 2300 - Elementary Linear Algebra Credits: 4 hours or
MATH 3740 - Differential Equations and Linear Algebra Credits: 4 hours

Select Either
MATH 1230 - Calculus II Credits: 4 hours or
MATH 1710 - Calculus II, Science and Engineering Credits: 4 hours

Electrical and Computer Engineering
John Gesink, Chair
Ikhlas Abdel-Qader
Massood Atashbar
Johnson Asumadu
Bradley Bazuin
The Department of Electrical and Computer Engineering (ECE) offers two B.S.E. programs and two M.S.E. programs in electrical or computer engineering. A Ph.D. in Electrical and Computer Engineering is also offered.

The undergraduate programs described here provide engineering education in the field of electrical/computer engineering to prepare graduates for careers in many kinds of work, including construction, consulting, design, development, manufacturing, planning, research, sales, service, and teaching.

Electrical engineering areas of specialization can include: electronics (design of integrated circuits or their applications in medicine, science, or industry), control systems (such as those used in aircraft, missiles, spacecraft, or robots), instrumentation (remote measurement from satellites or spacecraft), power systems (generation and distribution of electrical energy), and communication systems (telephone, radio, and television).

Computer engineers may specialize in: automation (computer control of machining, assembly, or other manufacturing processes), computer-aided design systems (where part of the design process is carried out by computer), digital design, speech/pattern recognition and digital signal processing, data communication (e.g., between computers), computer peripherals (sensors, terminals, displays, printers, readers, and other input/output devices), and microcomputers with their applications.

In ECE programs, you will study math, general education subjects, the basic sciences, engineering sciences, and design, and you will practice communicating your ideas orally and in writing. In the electrical engineering program, you will also learn about circuits, digital logic, digital signal processing, electric power, electromagnetics, electronics, energy conversion, computers and microcomputers, communications, instrumentation, and automatic control systems.

In the computer engineering program, you will also become familiar with analysis, design, and application of electronic digital computers and systems, including the architecture and physical construction (hardware) of digital computers, and programming (software) aspects of computers and digital systems. The computer engineering curriculum also includes courses in circuits, microcontrollers, electronics, linear systems, and digital signal processing.

Cooperative Education
Students may elect the cooperative plan of education. In this plan, the student alternates a semester of study on campus with a semester of compensated industrial experience. Students may work in any area in which computer engineers or electrical engineers may be found.

Academic Advising
Students should contact the electrical/ computer engineering academic advisor as early as possible. The advisor is available to assist in individual program planning, to recommend electives appropriate to a student's educational objectives, to discuss employment opportunities, and to help solve academic problems. Substitutions and transfer credit must be approved by a departmental advisor, curriculum committee, and department chair. The academic advisor is located in Room E-102, CEAS, (269) 276-3260. The department chair's office is located in Room B-236 CEAS, Parkview Campus, (269) 276-3150.
The educational objectives of the Computer Engineering Program are:
1. Graduates will be able to actively participate in the development of the computer engineering profession through contributions to society, life-long learning, and support of the appropriate professional societies; they must have an ability to function on multi-disciplinary teams. Students will have an understanding of the role of computer engineering in the global societal environment, including social needs, cultural awareness, and professional ethics.
2. Graduates will have knowledge of discrete mathematics, probability and statistics with computer engineering applications, mathematics through differential/integral calculus, basic sciences, computer science and engineering sciences to enable them to analyze/design complex electrical/electronic devices, software, and systems containing hardware/software components, as appropriate to the computer engineering program.
3. The Computer Engineering curriculum will provide breadth and depth for a balanced coverage of computer hardware design and software engineering issues including digital design, digital electronics, microprocessors, real-time systems engineering and discrete-time systems.
4. The Computer Engineering program will provide opportunities for student-centered research experience.

(For up-to-date educational objective and learning outcomes, see the Department web page at www.wmich.edu/ece)

Baccalaureate Writing Requirement
Students who have chosen the Computer Engineering program will satisfy the Baccalaureate Writing Requirement by successfully completing both ECE 4810 Electrical/Computer Engineering Design I and ECE 4820 Electrical/Computer Engineering Design II.

Requirements
Candidates for the Bachelor of Science in Engineering (Computer) must satisfy the following requirements in addition to those required by Western Michigan University:

A grade point average of 2.0 or better must be earned in courses presented for graduation with ECE, IME, and ME prefixes. No more than two grades of "D" or "DC" in courses presented for graduation may be counted for graduation. Complete the following program of 129 semester credit hours. The schedule below is an example of one leading to graduation in eight semesters, beginning with fall. Pre-engineering requirements are indicated.

First Semester (16 hours)
AREA VIII Health and Well-Being* Credits: 2 hours
The following courses are Pre-engineering requirements.
CHEM 1100 - General Chemistry I Credits: 3 hours
CHEM 1110 - General Chemistry Laboratory I Credits: 1 hour
ECE 2500 - Digital Logic Credits: 3 hours
IME 1020 - Technical Communication Credits: 3 hours
MATH 1220 - Calculus I Credits: 4 hours or
MATH 1700 - Calculus I, Science and Engineering Credits: 4 hours

Second Semester (16 hours)
The following courses are Pre-engineering requirements.
AREA I Fine Arts* Credits: 3 hours
CS 1110 - Computer Science I Credits: 4 hours
MATH 1230 - Calculus II Credits: 4 hours or
MATH 1710 - Calculus II, Science and Engineering Credits: 4 hours
PHYS 2050 - Mechanics and Heat Credits: 4 hours
PHYS 2060 - Mechanics and Heat Laboratory Credits: 1 hour

Third Semester (16 hours)
AREA II Humanities* Credits: 3 hours
CS 1120 - Computer Science II Credits: 4 hours  
MATH 2720 - Multivariate Calculus and Matrix Algebra Credits: 4 hours Pre-engineering requirement  
PHYS 2070 - Electricity and Light Credits: 4 hours Pre-engineering requirement  
PHYS 2080 - Electricity and Light Laboratory Credits: 1 hour Pre-engineering requirement

Fourth Semester (18 hours)  
ECE 2100 - Circuit Analysis Credits: 4 hours Pre-engineering requirement  
ECE 2510 - Introduction to Microprocessors I Credits: 4 hours  
IME 3100 - Engineering Economy Credits: 3 hours  
MATH 1450 - Discrete Mathematical Structures Credits: 3 hours  
MATH 3740 - Differential Equations and Linear Algebra Credits: 4 hours

Fifth Semester (16 hours)  
ECE 2210 - Electronics I Credits: 4 hours  
ECE 3100 - Network Analysis Credits: 3 hours  
ECE 3510 - Engineering of Real Time Systems Credits: 3 hours  
ECE 3550 - Digital Design Credits: 3 hours  
IME 3160 - Report Preparation Credits: 3 hours

Sixth Semester (16 hours)  
CS 3310 - Data and File Structures Credits: 3 hours  
ECE 3500 - Digital Electronics Credits: 4 hours  
ECE 3570 - Computer Architecture Credits: 3 hours  
ECE 3800 - Probabilistic Methods of Signal and System Analysis Credits: 3 hours  
ECE 4510 - Microcontroller Applications Credits: 3 hours

Seventh Semester (17 hours)  
ME Engineering Science Elective Credits: 3 hours  
See the Electrical and Computer Engineering Advisor for a list of approved electives.  
AREA III The United States: Cultures and Issues* Credits: 3 hours  
AREA IV Other Cultures and Civilizations* Credits: 3 hours  
CS 4850 - Programming Languages Credits: 3 hours  
ECE 3710 - Linear Systems Credits: 3 hours  
ECE 4810 - Electrical/Computer Engineering Design I Credits: 2 hours

Eighth Semester (14 hours)  
AREA V Social and Behavioral Sciences *Credits: 3 hours  
Departmental Approved Technical Electives Credits: 2 hours  
See the Electrical and Computer Engineering Advisor for a list of approved electives.  
CS 4540 - Operating Systems Credits: 3 hours  
ECE 4550 - Digital Signal Processing Credits: 3 hours  
ECE 4820 - Electrical/Computer Engineering Design II Credits: 3 hours

Footnote:  *At least two of the General Education Area courses must be at the 3000-4000 level.

Electrical Engineering  
Accredited by the Engineering Accreditation Commission of ABET, Inc., 111 Market Place, Suite 1050, Baltimore, MD 21202-4012.

The educational objectives of the Electrical Engineering Program are:
1. Graduates will be able to actively participate in the development of the electrical engineering profession through contributions to society, life-long learning, and support of the appropriate professional societies; they must have an ability to function on multi-disciplinary teams. Students will have an understanding of the role of electrical engineering in the global societal environment, including social needs, cultural awareness, and professional ethics.
2. Graduates will have knowledge of discrete mathematics, probability and statistics with electrical engineering applications, mathematics through differential/integral calculus, basic sciences, computer science and engineering sciences to enable them to analyze/design complex electrical/electronic devices, software, and systems containing hardware/software components, as appropriate to the electrical engineering program.

3. The Electrical Engineering curriculum will provide breadth and depth offering areas of specialization including power systems and electronics, communications, signal processing and control systems. Graduates have knowledge of linear algebra and complex variables.

4. The Electrical Engineering program will provide opportunities for student-centered research experience.

(For up-to-date educational objective and learning outcomes, see the Department web page at www.wmich.edu/ece)

**Baccalaureate Writing Requirement**

Students who have chosen the Electrical Engineering program will satisfy the Baccalaureate Writing Requirement by successfully completing both ECE 4810 Electrical/Computer Engineering Design I and ECE 4820 Electrical/Computer Engineering Design II.

**Requirements**

Candidates for the Bachelor of Science in Engineering (Electrical) must satisfy the following requirements in addition to those required by Western Michigan University:

1. A grade point average of 2.0 or better must be earned in courses presented for graduation with ECE, IME, and ME prefixes.
2. No more than two grades of "D" or "DC" in courses presented for graduation may be counted for graduation.
3. The following program of 129 semester credit hours must be completed. The schedule below is an example of one leading to graduation in eight semesters, beginning in fall. Pre-engineering requirements are indicated.

**First Semester (16 hours)**

AREA VIII Health and Well-Being* Credits: 2 hours
CHEM 1100 - General Chemistry I Credits: 3 hours Pre-engineering requirement
CHEM 1110 - General Chemistry Laboratory I Credits: 1 hour Pre-engineering requirement
IME 1020 - Technical Communication Credits: 3 hours Pre-engineering requirement
IME 1420 - Engineering Graphics Credits: 3 hours
MATH 1220 - Calculus I Credits: 4 hours or
MATH 1700 - Calculus I, Science and Engineering Credits: 4 hours Pre-engineering requirement

**Second Semester (16 hours)**

The following courses are Pre-engineering requirements.
CS 1110 - Computer Science I Credits: 4 hours
ECE 2500 - Digital Logic Credits: 3 hours
MATH 1230 - Calculus II Credits: 4 hours Or
MATH 1710 - Calculus II, Science and Engineering Credits: 4 hours Pre-engineering requirement
PHYS 2050 - Mechanics and Heat Credits: 4 hours Pre-engineering requirement
PHYS 2060 - Mechanics and Heat Laboratory Credits: 1 hour Pre-engineering requirement

**Third Semester (16 hours)**

AREA I Fine Arts* Credits: 3 hours
Pre-engineering requirement
ECE 2510 - Introduction to Microprocessors I Credits: 4 hours
MATH 2720 - Multivariate Calculus and Matrix Algebra Credits: 4 hours Pre-engineering requirement
PHYS 2070 - Electricity and Light Credits: 4 hours Pre-engineering requirement
PHYS 2080 - Electricity and Light Laboratory Credits: 1 hour Pre-engineering requirement

**Fourth Semester (15 hours)**

AREA II Humanities* Credits: 3 hours
Pre-engineering requirement
ECE 2100 - Circuit Analysis Credits: 4 hours Pre-engineering requirement

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MATH 3740 - Differential Equations and Linear Algebra Credits: 4 hours
Mathematics or Science Elective Credits: 4 hours
CHEM 1120 - General Chemistry II Credits: 3 hours and
CHEM 1130 - General Chemistry Laboratory II Credits: 1 hour or
PHYS 3090 - Introductory Modern Physics Credits: 3 hours and
Pre-engineering requirement
PHYS 3100 - Introductory Modern Physics Lab Credits: 1 hour Pre-engineering requirement

Fifth Semester (17 hours)
AREA III The United States: Cultures and Issues* Credits: 3 hours
ECE 2210 - Electronics I Credits: 4 hours
ECE 3100 - Network Analysis Credits: 3 hours
ECE 3610 - Electromagnetic Fields Credits: 4 hours
ME 2560 - Statics Credits: 3 hours Pre-engineering requirement

Sixth Semester (17 hours)
ECE 3200 - Electronics II Credits: 4 hours
ECE 3300 - Electrical Machinery Credits: 4 hours
ECE 3710 - Linear Systems Credits: 3 hours
ECE 3800 - Probabilistic Methods of Signal and System Analysis Credits: 3 hours
IME 3160 - Report Preparation Credits: 3 hours

Seventh Semester (17 hours)
AREA IV Other Cultures and Civilizations* Credits: 3 hours
ECE 4810 - Electrical/Computer Engineering Design I Credits: 2 hours
IME 3100 - Engineering Economy Credits: 3 hours
ME 2580 - Dynamics Credits: 3 hours
Electrical and Computer Engineering Elective Group: 6 hours

Other 4000 or 5000 level Electrical Engineering courses may be used in place of these courses if PRIOR approval is obtained from the Electrical and Computer Engineering Advisor, and Department Chair.
ECE 4200 - Power Electronics Credits: 3 hours
ECE 4300 - Electrical Power Systems Credits: 3 hours
ECE 4510 - Microcontroller Applications Credits: 3 hours
ECE 4550 - Digital Signal Processing Credits: 3 hours
ECE 4600 - Communication Systems Credits: 3 hours
ECE 4700 - Feedback Systems Credits: 3 hours
ECE 4710 - Motion and Control Credits: 3 hours

Eighth Semester (15 hours)
AREA V Social and Behavioral Sciences* Credits: 3 hours
ME Engineering Science Elective Credits: 3 hours
See Electrical and Computer Engineering Advisor for a list of approved electives
ECE 4820 - Electrical/Computer Engineering Design II Credits: 3 hours

Departmental Approved Technical Electives Credits: 3 hours
Other 4000 or 5000 level Electrical Engineering courses may be used in place of these courses if PRIOR approval is obtained from the Electrical and Computer Engineering Advisor, and Department Chair.
ECE 4200 - Power Electronics Credits: 3 hours
ECE 4300 - Electrical Power Systems Credits: 3 hours
ECE 4510 - Microcontroller Applications Credits: 3 hours
ECE 4550 - Digital Signal Processing Credits: 3 hours
ECE 4600 - Communication Systems Credits: 3 hours
ECE 4700 - Feedback Systems Credits: 3 hours
ECE 4710 - Motion and Control Credits: 3 hours
Electrical and Computer Engineering Elective Group: 3 hours
Other 4000 or 5000 level Electrical Engineering courses may be used in place of these courses if PRIOR approval is obtained from the Electrical and Computer Engineering Advisor, and Department Chair.

ECE 4200 - Power Electronics Credits: 3 hours
ECE 4300 - Electrical Power Systems Credits: 3 hours
ECE 4510 - Microcontroller Applications Credits: 3 hours
ECE 4550 - Digital Signal Processing Credits: 3 hours
ECE 4600 - Communication Systems Credits: 3 hours
ECE 4700 - Feedback Systems Credits: 3 hours
ECE 4710 - Motion and Control Credits: 3 hours

Footnote: *At least two of the General Education Area courses must be at the 3000-4000 level.

**Industrial Design**
Roman Rabiej

The Department of Industrial Design offers the following curriculum:
Industrial Design - B.S. degree

Admission to the Industrial Design curriculum is suspended pending review of the curriculum, effective Fall 2005

**Academic Advising**
Students should contact their advisor as early as possible. The advisor is available to assist in individual program planning, recommend electives appropriate to a student's educational objectives, discuss employment opportunities, and help solve academic problems. Substitutions and transfer credit must be approved by the advisor, the curriculum committee, and the department chair. The academic advisor is located in Room E-102 CEAS, phone (269) 276-3260. Because of prerequisites and limited offering times, students must consult with an academic advisor for proper course sequence.

**Additional Costs**
Class-related charges are assigned for laboratory, studio, and some lecture courses to help cover cost of materials and services.

**Cooperative Education**
Students may elect the cooperative plan of education. In this plan, the student alternates a semester of study on campus with a semester of compensated industrial experience. Students may work in their area of study, gaining valuable professional experience.

**Approved Electives**
Electives must be approved by the department academic advisor. While choice of electives is intended to provide flexibility for students, they must be selected to provide a thrust and add strength to the individual's program. Non-related courses will not normally be approved.

Lists of appropriate electives are available from the academic advising office.

**Industrial Design**
Admission to the Industrial Design curriculum is suspended pending review of the curriculum, effective Fall 2005

This program prepares designers with the aesthetic and technical potential to set new directions in product development and design, based on knowledge of human needs, materials, processes quality, and production standards. The curriculum in
Industrial Design is a blend of art, technology, business, and general studies with courses in design methodology, philosophy and history, engineering, fine arts, graphics, drafting, and professional practices.

Portfolio Review Procedure
Any interested student may register for the freshman (1000-level) Industrial Design studio classes. There will be two portfolio reviews to advance to higher level studio classes. The first review is to advance from the freshman (1000-level) studio classes to the sophomore (2000-level) studios. The second review is to advance from the sophomore to junior (3000-level) studios. Reviews are normally held in the spring semester for admission into the following fall semester. Decisions about the portfolio review are made by finals week of the semester in which the review occurs. Registration into a 2000-, 3000-, or 4000-level Industrial Design course does not mean the student will be allowed to attend the course unless the student has also passed the portfolio review. Any student not accepted to a higher level of class, or who does not have a positive portfolio review, must cancel any registration for that Industrial Design class. Students who do not pass the portfolio review may apply again the following year for another review after improving their skills through additional classes or repetition of classes.

Students' portfolios are reviewed for an understanding of elements and principles of design and 2-D and 3-D drawing skill. Additional abilities demonstrated by work in Graphic Design, Interior Design, computer aided design (CAD), fine art, life drawing, painting, sculpture, ceramics, jewelry, and other creative pursuits will also be evaluated.

Baccalaureate Writing Requirement
Students who have chosen the Industrial Design curriculum will satisfy the Baccalaureate Writing Requirement by successfully completing ID 4430 ID Thesis and Project I and ID 4470 ID Thesis and Project II.

Requirements
Candidates for this Bachelor of Science program in industrial design must satisfy the following requirements in addition to University requirements stated elsewhere in this catalog:
1. A minimum grade of "C" (2.00) is required in all industrial design courses, 1000-, 2000-, 3000-, and 4000-level.
2. No more than two grades of "D" or "DC" in courses presented for graduation may be counted for graduation.
3. Complete the following program of 130 semester credit hours. The schedule below is an example of one leading to graduation in eight semesters, beginning in fall.
4. The following courses must be completed with a grade of "C" or better prior to enrollment in 3000/4000-level ID courses: CHEM 1100 and 1110, ID 1430, IME 1020, IME 1420, MATH 2000.

First Semester (16 hours)  A minimum grade of "C" is required for all ID courses.
ART 1040 - Object Drawing Credits: 3 hours
ID 1430 - Industrial Design Fundamentals Studio Credits: 3 hours Pre-engineering Requirement
IME 1020 - Technical Communication Credits: 3 hours (Prof. 1) Pre-engineering Requirement
IME 1420 - Engineering Graphics Credits: 3 hours Pre-engineering Requirement
MATH 1180 - Precalculus Mathematics Credits: 4 hours (Prof. 3)

Second Semester (16 hours)  A minimum grade of "C" is required for all ID courses.
ART 1050 - Drawing Studio Credits: 3 hours
ID 1470 - Principles of Industrial Form Studio Credits: 3 hours
ID 2050 - Model Construction Studio I Credits: 3 hours
IME 2460 - Introduction to Computer-Aided Design Credits: 3 hours Pre-engineering Requirement
MATH 2000 - Calculus with Applications Credits: 4 hours (Prof. 4)

Third Semester (16 hours)  A minimum grade of "C" is required for all ID courses. The following courses are Pre-engineering Requirements.
ART 1070 - Form and Surface Credits: 3 hours
CHEM 1100 - General Chemistry I Credits: 3 hours (Area VI) and
Pre-engineering requirement
CHEM 1110 - General Chemistry Laboratory I Credits: 1 hour (Area VI)
Pre-engineering requirement
ID 2430 - Product Design Methodology Studio I Credits: 3 hours
ID 2510 - Computer-Aided Design Studio I Credits: 3 hours
ID 3050 - Model Construction Studio II Credits: 3 hours

Fourth Semester (15 hours)  A minimum grade of "C" is required for all ID courses.
The following courses are Pre-engineering Requirements.
ART 1080 - Form and Space Credits: 3 hours
ID 2220 - Wood Furniture Design Credits: 3 hours
ID 2470 - Product Design Methodology Studio II Credits: 3 hours
ID 2520 - Computer-Aided Design Studio II Credits: 3 hours
IME 4420 - Ergonomics and Design Credits: 3 hours

Fifth Semester (17 hours)  A minimum grade of "C" is required for all ID courses.
The following courses are Pre-engineering Requirements.
AREA VIII Health and Well-Being* Credits: 2 hours
ART 2480 - Photography I Credits: 3 hours
ID 2010 - History of Design Credits: 3 hours
ID 3220 - Advanced Woodworking Design Credits: 3 hours
ID 3430 - Advanced Product Design Studio Credits: 3 hours
IME 1500 - Introduction to Manufacturing Credits: 3 hours (Area VII)

Sixth Semester (18 hours)  A minimum grade of "C" is required for all ID courses.
The following courses are Pre-engineering Requirements.
ART 2200 - History of Art Credits: 3 hours (Area I)
ART 2310 - Sculpture Credits: 3 hours
ART 2450 - Graphic Design-Non BFA in Graphic Design Credits: 3 hours
ID 2030 - Color in Industrial Design Credits: 3 hours
ID 3470 - Product Design Practicum Studio Credits: 3 hours
IME 2500 - Plastics Properties and Processing Credits: 3 hours

Seventh Semester (18 hours)  A minimum grade of "C" is required for all ID courses.
The following courses are Pre-engineering Requirements.
AREA III The United States: Cultures and Issues* Credits: 3 hours
Approved elective: ID/ART/IME/FCS Credits: 3 hours
ART 2210 - History of Art Credits: 3 hours
ECON 2010 - Principles of Microeconomics Credits: 3 hours (Area V)
ID 4430 - Industrial Design Thesis and Project Studio I Credits: 3 hours (Prof. 2)
MKTG 2500 - Marketing Principles Credits: 3 hours

Eighth Semester (14 hours)  A minimum grade of "C" is required for all ID courses.
The following courses are Pre-engineering Requirements.
MGMT Management Elective Credits: 3 hours
AREA II Humanities* Credits: 4 hours
AREA IV Other Cultures and Civilizations* Credits: 4 hours
ID 4470 - Industrial Design Thesis and Project Studio II Credits: 3 hours (Prof. 2)

Footnote:  *At least two of the General Education Area courses must be at the 3000-4000 level.

Industrial and Manufacturing Engineering
Paul V. Engelmann, Chair
Betsy M. Aller
Kailash M. Bafna
The Department of Industrial and Manufacturing Engineering offers the following curricula:
Bachelor of Science in Engineering (Industrial)
Bachelor of Science - Engineering Graphics and Design Technology
Bachelor of Science - Engineering Management Technology
Bachelor of Science - Manufacturing Engineering Technology

Graduates from these programs are employed in a wide variety of positions in both manufacturing and service industries. A minor in manufacturing is available to those students majoring in the Haworth College of Business.

Cooperative Education
Students may elect the cooperative plan of education. In this plan, the student alternates a semester of study on campus with a semester of compensated industrial experience. Students may work in their area of study, gaining valuable professional experience.

Academic Advising
Students should contact the Industrial and Manufacturing Engineering departmental advisor as early as possible. The advisor is available to assist in individual program planning, recommend electives appropriate to a student's educational objectives, discuss employment opportunities, and help resolve academic problems. Substitutions and transfer credit must be approved by the advisor, curriculum committee, and department chair. The advisor is located in Room E-102 CEAS (269) 276-3260. Because of prerequisites and limited offering times, students must consult with an academic advisor for proper course sequence.

Technology Curricula
“Engineering Technology” is the profession in which knowledge of the applied mathematical and natural sciences gained by higher education, experience centered on practice, and competence developed in a specific field is devoted to application of engineering principles and the implementation of technological advances for the benefit of humanity through its focus on product improvement, manufacturing, and automation of technological processes and operation functions.

Industrial Engineering
Accredited by the Engineering Accreditation Commission of ABET, Inc., 111 Market Place, Suite 1050, Baltimore, MD 21202-4012; telephone (410) 347-7700.

The Industrial Engineering curriculum provides the essential foundation, experience, and understanding in science, mathematics, humanities, and engineering so that graduates may find employment in production and service industries. This program is also a basis for graduate study. Industrial engineering involves the design, installation, and improvement of
systems integrating people, materials, equipment, and energy. An industrial engineer might work in facilities planning and design, plant automation, quality assurance, plant safety, or employee/employer relations. Jobs are available in manufacturing and in service-related industries such as hotels, banks, food, transportation, and hospitals.

The educational objectives of the Industrial Engineering program are:
1. Produce job-ready graduates for careers benefiting from industrial engineering knowledge, skills, and abilities.
2. Enable student competency in deploying state-of-the-art systems for identifying, defining, modelling, and solving industrial engineering problems.
3. Instill an active awareness of engineering ethics and social responsibility.
4. Build and maintain collaborative relationships with manufacturing and service organizations to support industrial engineering research and teaching.

(For up-to-date educational objectives and learning outcomes, see department web page at www.wmich.edu/ime)

**Admission**
To be admitted to this Engineering curriculum, a student must complete all Pre-engineering requirements with grades of "C" or better. These requirements may be found in the beginning of the Engineering and Applied Sciences' section. The Pre-engineering course requirements for this curriculum are in darker print in the schedule below.

Students seeking admission to this curriculum must submit an application following procedures established by the College of Engineering and Applied Sciences. Upper level transfer students may complete an application prior to their first semester of enrollment. Only students in good academic standing as defined by the University will be admitted to this curriculum.

**Baccalaureate Writing Requirement**
Students who have chosen the Industrial Engineering curriculum will satisfy the Baccalaureate Writing Requirement by successfully completing IME 4910 Multidisciplinary Senior Proposal (2 hrs.) and IME 4920 Multidisciplinary Senior Project (2 hrs.).

**Requirements**
Candidates for the Bachelor of Science in Engineering (Industrial) must satisfy the following requirements in addition to those required by Western Michigan University:
1. A grade point average of 2.0 or better must be earned in courses presented for graduation with ECE, IME, and ME prefixes.
2. No more than two grades of "D" or "DC" in courses presented for graduation may be counted for graduation.
3. Complete the following program of 127 semester credit hours. The schedule below is an example of one leading to graduation in eight semesters, beginning in fall. Pre-engineering requirements are indicated.

**First Semester (16 hours)**
AREA VIII Health and Well-Being* Credits: 2 hours
CHEM 1100 - General Chemistry I Credits: 3 hours (Area VI) Pre-engineering requirement
CHEM 1110 - General Chemistry Laboratory I Credits: 1 hour (Area VI) Pre-engineering requirement
IME 1020 - Technical Communication Credits: 3 hours
IME 1420 - Engineering Graphics Credits: 3 hours
MATH 1220 - Calculus I Credits: 4 hours or
MATH 1700 - Calculus I, Science and Engineering Credits: 4 hours

**Second Semester (15 hours)**
The following courses are Pre-engineering requirements.
IME 2060 - Engineering Computations Credits: 3 hours
IME 2100 - Engineering Cost Estimating Credits: 3 hours
MATH 1230 - Calculus II Credits: 4 hours or
MATH 1700 - Calculus I, Science and Engineering Credits: 4 hours
MATH 1710 - Calculus II, Science and Engineering Credits: 4 hours
PHYS 2050 - Mechanics and Heat Credits: 4 hours (Area VI)
PHYS 2060 - Mechanics and Heat Laboratory Credits: 1 hour (Area VI)
Third Semester (16 hours)
The following courses are Pre-engineering requirements.
IME 2610 - Engineering Statistics Credits: 3 hours
MATH 2720 - Multivariate Calculus and Matrix Algebra Credits: 4 hours
ME 2530 - Statics and Mechanics of Materials Credits: 4 hours
PHYS 2070 - Electricity and Light Credits: 4 hours
PHYS 2080 - Electricity and Light Laboratory Credits: 1 hour

Fourth Semester (17 hours)
AREA II Humanities* Credits: 3 hours
Pre-engineering requirement
ECE 2100 - Circuit Analysis Credits: 4 hours Pre-engineering requirement
ECON 2010 - Principles of Microeconomics Credits: 3 hours (Area V)
Pre-engineering Requirement
IME 2050 - Work Design Credits: 4 hours
IME 2620 - Probability for Engineers Credits: 3 hours

Fifth Semester (17 hours)
ECE 2110 - Machines and Electronic Circuits Credits: 3 hours
IME 3070 - Computer Controlled Manufacturing Systems Credits: 4 hours
IME 3100 - Engineering Economy Credits: 3 hours
IME 3160 - Report Preparation Credits: 3 hours
MATH 3740 - Differential Equations and Linear Algebra Credits: 4 hours

Sixth Semester (14 hours)
IME 3080 - Computer Controlled Manufacturing Design Lab Credits: 2 hours
IME 3110 - Introduction to Operations Research Credits: 3 hours
IME 3180 - Statistical Quality Control Credits: 3 hours
IME 3300 - Simulation Modeling and Analysis Credits: 3 hours
ME 2500 - Materials Science Credits: 3 hours or
ME 2580 - Dynamics Credits: 3 hours

Seventh Semester (15 hours)
AREA III United States: Cultures and Issues* Credits: 3 hours
Pre-engineering Requirement
IME Approved Elective Credits: 3 hours. See Academic Advisor for a list of approved electives
IME 4140 - Material Handling and Facilities Design Credits: 4 hours
IME 4160 - Operations Control in Industry Credits: 4 hours
IME 4180 - IE Senior Seminar Credits: 1 hour Pre-engineering Requirement

Eighth Semester (17 hours)
AREA I Fine Arts* Credits: 3 hours
AREA IV Other Cultures and Civilizations* Credits: 4 Hours
IME 4020 - Supervision of Industrial Operations Credits: 3 hours Pre-engineering Requirement
IME 4190 - IE Senior Design Credits: 4 hours Pre-engineering Requirement
ME 2320 - Thermodynamics I Credits: 3 hours Pre-engineering Requirement

Footnote: *At least two of the General Education Area courses must be at the 3000-4000 level.

Engineering Graphics and Design Technology
Accredited by the Technology Accreditation Commission of ABET, Inc., 111 Market Place, Suite 1050, Baltimore, MD 21202-4012; telephone (410) 347-7700.

The Engineering Graphics and Design Technology curriculum deals with design communication related to product and tooling activities of industry including documentation methods, graphic science, computer-aided design, industrial processes,
and materials. Selection of approved electives allows tailoring the thrust of the program toward cast metals, plastics processing, ergonomics, or automotive systems.

The program prepares students to assume such leadership roles as product designers, documentation and standards supervisors, technical publication specialists, or administrators. They are prepared to enter a variety of jobs such as supervision, quality control, and marketing in manufacturing-related industries.

The educational objectives of the Engineering Graphics and Design Technology program are:
1. Produce job-ready graduates for careers benefiting from engineering design technology knowledge, skills, and abilities.
2. Enable student competency in deploying state-of-the-art systems for design, analysis, and documentation of robust solutions to industrial problems.
3. Gain an awareness of the challenges and rewards of engineering design technology as well as the need for professional ethics and social responsibility.
4. Involve manufacturing and industrial organizations in collaborative relationships to support engineering research and teaching.

(For up-to-date educational objectives and learning outcomes, see department web page at www.wmich.edu/ime)

**Baccalaureate Writing Requirement**

Students who have chosen the Engineering Graphics and Design Technology curriculum will satisfy the Baccalaureate Writing Requirement by successfully completing IME 4910 Multidisciplinary Senior Proposal and IME 4920 Multidisciplinary Senior Project.

**Requirements**

Candidates for the Bachelor of Science degree must satisfy the following requirements in addition to University requirements stated elsewhere in this bulletin:

1. A grade point average of 2.0 or better must be earned in courses presented for graduation with ECE, MSE, and IME prefixes.
2. No more than two grades of "D" or "DC" in courses presented for graduation may be counted for graduation.
3. Complete the following program of 127 semester credit hours. The schedule below is an example of one leading to graduation in eight semesters, beginning in fall.

Prior to enrollment in 3000/4000-level courses, students must 1) place resume with Career and Student Employment Services; 2) complete the following courses with a grade of "C" or better: CHEM 1100 and 1110, ECE 1000, IME 1020, PHYS 1150, and MATH 1230 or 1710. These courses are indicated below.

**First Semester (17 hours)**

- CHEM 1100 - General Chemistry I Credits: 3 hours
- CHEM 1110 - General Chemistry Laboratory I Credits: 1 hour
- IME 1020 - Technical Communication Credits: 3 hours
- IME 1420 - Engineering Graphics Credits: 3 hours
- IME 1500 - Introduction to Manufacturing Credits: 3 hours
- MATH 1220 - Calculus I Credits: 4 hours or
- MATH 1700 - Calculus II Credits: 4 hours or
- PHYS 1130 - General Physics I Credits: 4 hours
- PHYS 1140 - General Physics I Laboratory Credits: 1 hour

**Second Semester (17 hours)**

- AREA VIII Health and Well-Being* Credits: 2 hours
- COM 1040 - Public Speaking Credits: 3 hours
- IME 2540 - Machining Processes Credits: 3 hours
- MATH 1230 - Calculus II Credits: 4 hours or
- MATH 1710 - Calculus II, Science and Engineering Credits: 4 hours
- PHYS 1130 - General Physics I Credits: 4 hours
- PHYS 1140 - General Physics I Laboratory Credits: 1 hour
Third Semester (17 hours)
ECE 1000 - Fundamentals of Circuits and Electronics Credits: 3 hours See number 4 in Requirements above.
IME 1440 - Descriptive Geometry Credits: 3 hours
IME 2810 - Statics and Strength of Materials Credits: 4 hours
IME 2830 - Thermodynamics Credits: 2 hours
PHYS 1150 - General Physics II Credits: 4 hours See number 4 in Requirements above.
PHYS 1160 - General Physics II Laboratory Credits: 1 hour

Fourth Semester (16 hours)
ECE 1010 - Fundamentals of Electronics and Machines Credits: 3 hours
IME 2460 - Introduction to Computer-Aided Design Credits: 3 hours
IME 2840 - Fluid Mechanics and Hydraulics Credits: 2 hours
MSE 2540 - Properties of Materials Credits: 3 hours
MSE 2550 - Materials Science Laboratory Credits: 1 hour
STAT 2600 - Elementary Statistics Credits: 4 hours

Fifth Semester (16 hours)
CS 1110 - Computer Science I Credits: 4 hours
IME 2500 - Plastics Properties and Processing Credits: 3 hours
IME 3200 - Engineering Cost Analysis Credits: 3 hours
IME 3480 - Designing for Production Credits: 3 hours
IME 4220 - Engineering Teams: Theory and Practice Credits: 3 hours

Sixth Semester (15 hours)
Approved Elective Credits: 3 hours
AREA II Humanities* Credits: 3 hours
IME 3460 - Programming for Computer-Aided Design Credits: 3 hours
IME 3580 - Computer-Aided Manufacturing Credits: 3 hours
IME 4810 - Metrology Credits: 3 hours

Seventh Semester (14 hours)
Approved Elective Credits: 3 hours
AREA I Fine Arts* Credits: 3 hours
IME 4460 - CAD Applications Credits: 3 hours
IME 4480 - Computer-Aided Analysis Credits: 3 hours
IME 4910 - Multidisciplinary Senior Proposal Credits: 2 hours

Eighth Semester (15 hours)
Approved Elective Credits: 3 hours
AREA III United States: Cultures and Issues* Credits: 3 hours
AREA IV Other Cultures and Civilizations* Credits: 3 hours
IME 4440 - Advanced Product and Machine Design Credits: 3 hours
IME 4920 - Multidisciplinary Senior Project Credits: 2 hours
IME 4930 - Multidisciplinary Senior Project Consultation Credits: 1 hour

Footnote: *At least two of the General Education Area courses must be at the 3000-4000 level.

Concentration Areas
Nine (9) credits of electives must be selected from the following areas of concentration. To earn an option, four (4) courses in a single area of concentration must be completed. This raises the total hours in the curriculum to 130.

Automotive
IME 1220 - Automobile in Society Credits: 3 hours
IME 3240 - Automotive Power Systems Credits: 3 hours
IME 3250 - Automotive Electrical Systems Credits: 3 hours
IME 4250 - Automotive Drive Systems Credits: 3 hours
IME 4260 - Automotive Structure, Ride, and Safety Credits: 3 hours

Cast Metals
IME 2990 - Cooperative Education Credits: 1 to 3 hours Credits: 3 hours
IME 3520 - Metal Casting Credits: 3 hours
IME 4520 - Die Casting Credits: 3 hours
IME 4560 - Process Testing and Measurement Credits: 3 hours or
IME 5520 - Casting Simulation and Solidification Credits: 3 hours

Plastics
IME 3500 - Production Thermoplastic Processing Credits: 3 hours
IME 4560 - Process Testing and Measurement Credits: 3 hours
IME 4590 - Mold Design and Construction Credits: 3 hours
One of the Following:
IME 2990 - Cooperative Education Credits: 1 to 3 hours Credits: 3 hours
or
IME 5500 - Advanced Plastics Processing Credits: 3 hours

Ergonomics
IME 2050 - Work Design Credits: 4 hours
IME 2990 - Cooperative Education Credits: 1 to 3 hours
IME 4420 - Ergonomics and Design Credits: 3 hours
IME 5420 - Human Factors Engineering Credits: 3 hours

Engineering Management Technology
Accredited by the Technology Accreditation Commission of ABET, Inc., 111 Market Place, Suite 1050, Baltimore, MD 21202-4012; telephone (410) 347-7700.

The Engineering Management Technology curriculum provides academic background in humanities, social sciences, communication, and technical subjects relating to manufacturing systems. Human relation skills used in industry when dealing with people are developed. The engineering manager may direct production employees working on line operations or may direct staff personnel specifically assigned to assist the line in meeting its objectives. Employment may be in the general areas of manufacturing and service industries.

The educational objectives of the Engineering Management Technology program are:
1. Produce job-ready graduates for careers benefiting from engineering management knowledge, skills, and abilities.
2. Enable student competency in deploying state-of-the-art systems for designing, installing, and managing operational systems in manufacturing and service settings.
3. Gain an awareness of systems concepts and the interrelatedness of human behavior, operations, performance, professional ethics, and social responsibility.
4. Involve manufacturing and service organizations in collaborative relationships to support engineering management research and teaching.

(For up-to-date educational objectives and learning outcomes, see department web page at www.wmich.edu/ime)

Requirements
Candidates for the Bachelor of Science must satisfy the following requirements in addition to those required by Western Michigan University:
1. A grade point average of 2.0 or better must be earned in courses presented for graduation with IME, ECE, and MSE prefixes.
2. No more than two grades of "D" or "DC" in courses presented for graduation may be counted for graduation.
3. Complete the following program of 129 semester credit hours. The schedule below is an example of one leading to graduation in eight semesters, beginning in fall, plus one spring session.
4. Prior to enrollment in 300/400-level courses, students must 1) place resume with Career and Student Employment Services; 2) complete the following courses with a grade of "C" or better: CHEM 1100 and 1110, ECE 1000, IME 1020, PHYS 1150, and MATH 1220 or 1700. These courses are indicated below.

**Baccalaureate Writing Requirement**

Students who have chosen the Engineering Management Technology curriculum will satisfy the Baccalaureate Writing Requirement by successfully completing IME 4910 Multidisciplinary Senior Proposal and IME 4920 Multidisciplinary Senior Project.

**First Semester (14 hours)**

- CHEM 1100 - General Chemistry I Credits: 3 hours (Area VI) See number 4 in Requirements above.
- CHEM 1110 - General Chemistry Laboratory I Credits: 1 hour (Area VI) See number 4 in Requirements above.
- IME 1020 - Technical Communication Credits: 3 hours (Prof. 1) See number 4 in Requirements above.
- IME 1500 - Introduction to Manufacturing Credits: 3 hours (Area VII)
- MATH 1180 - Precalculus Mathematics Credits: 4 hours (Prof. 3)

**Second Semester (15 hours)**

- ECE 1000 - Fundamentals of Circuits and Electronics Credits: 3 hours See number 4 in Requirements above.
- IME 1420 - Engineering Graphics Credits: 3 hours
- MATH 1220 - Calculus I Credits: 4 hours or
- MATH 1700 - Calculus I, Science and Engineering Credits: 4 hours See number 4 in Requirements above.
- PHYS 1130 - General Physics I Credits: 4 hours (Area VI)
- PHYS 1140 - General Physics I Laboratory Credits: 1 hour See number 4 in Requirements above.

**Third Semester (15 hours)**

- AREA VIII Health and Well-Being* Credits: 2 hours
- CS 1040 - Introductory C/C++ Credits: 2 hours
- ECE 1010 - Fundamentals of Electronics and Machines Credits: 3 hours
- IME 1220 - Automobile in Society Credits: 3 hours
- PHYS 1150 - General Physics II Credits: 4 hours See number 4 in Requirements above.
- PHYS 1160 - General Physics II Laboratory Credits: 1 hour (Area VI)

**Fourth Semester (17 hours)**

- AREA I Fine Arts* Credits: 3 hours
- ACTY 2100 - Principles of Accounting I Credits: 3 hours
- IME 2460 - Introduction to Computer-Aided Design Credits: 3 hours
- MSE 2540 - Properties of Materials Credits: 3 hours
- MSE 2550 - Materials Science Laboratory Credits: 1 hour
- STAT 2600 - Elementary Statistics Credits: 4 hours

**Fifth Semester (17 hours)**

- ECON 2010 - Principles of Microeconomics Credits: 3 hours
- IME 2810 - Statics and Strength of Materials Credits: 4 hours
- IME 3050 - Work Analysis Credits: 3 hours
- IME 3150 - Work Analysis and Design Lab Credits: 1 hour
- IME 3160 - Report Preparation Credits: 3 hours
- IME 3200 - Engineering Cost Analysis Credits: 3 hours

**Sixth Semester (16 hours)**

- IME 3120 - Systems Decision Making Credits: 3 hours
- IME 3260 - Operations Planning and Control Credits: 3 hours
- IME 3280 - Quality Assurance and Control Credits: 3 hours
- IME 4040 - Plant Layout and Material Handling Credits: 4 hours
- IME 4220 - Engineering Teams: Theory and Practice Credits: 3 hours (Area V)
Seventh Semester (14 hours)
See departmental advisor for a list of approved technical elective courses in each specialized area. Also see Technical Elective Requirements below.
Technical Elective Credits: 3 hours
Technical Elective Credits: 3 hours
IME 4020 - Supervision of Industrial Operations Credits: 3 hours
IME 4120 - Industrial Systems Management Credits: 3 hours
IME 4910 - Multidisciplinary Senior Proposal Credits: 2 hours (Prof. 2)

Eighth Semester (15 hours)
See departmental advisor for a list of approved technical elective courses in each specialized area. Also see Technical Elective Requirements below.
AREA II Humanities* Credits: 3 hours
AREA III The United States: Cultures and Issues* Credits: 3 hours
Technical Elective Credits: 3 hours
IME 4920 - Multidisciplinary Senior Project Credits: 2 hours (Prof. 2)
IME 4930 - Multidisciplinary Senior Project Consultation Credits: 1 hour
MGMT 3520 - Human Resource Management Credits: 3 hours

Spring Semester of Senior Year (6 hours)
AREA IV Other Cultures and Civilizations* Credits: 3 hours
IME 4200 - Modern Industrial Systems Credits: 3 hours

Footnote: *At least one of the General Education Area courses must be at the 3000-4000 level.

Technical Elective Requirements
Nine (9) credits of electives must be selected from the following areas of concentration. To earn an option, four (4) courses in a single area of concentration must be completed. This raises the total hours in the curriculum to 132.

A selection of a group of courses provides the student an opportunity to concentrate in one of the several specialized areas listed below:

Automotive
IME 3240 - Automotive Power Systems Credits: 3 hours
IME 3250 - Automotive Electrical Systems Credits: 3 hours
IME 4250 - Automotive Drive Systems Credits: 3 hours
IME 4260 - Automotive Structure, Ride, and Safety Credits: 3 hours

Cast Metals
IME 3520 - Metal Casting Credits: 3 hours
IME 4520 - Die Casting Credits: 3 hours
IME 4560 - Process Testing and Measurement Credits: 3 hours
IME 5520 - Casting Simulation and Solidification Credits: 3 hours

Plastics Processing
IME 2500 - Plastics Properties and Processing Credits: 3 hours
IME 3500 - Production Thermoplastic Processing Credits: 3 hours
IME 4560 - Process Testing and Measurement Credits: 3 hours
IME 4590 - Mold Design and Construction Credits: 3 hours

Integrated Supply Matrix Management
Alternatively, the student may choose to obtain a minor in Integrated Supply Matrix Management.
Manufacturing Engineering Technology
Accredited by the Technology Accreditation Commission of ABET, Inc., 111 Market Place, Suite 1050, Baltimore, MD 21202-4012; telephone (410) 347-7700.

The Manufacturing Engineering Technology curriculum offers preparation for entry positions in manufacturing industries. Understanding of materials and production processes equips graduates to plan manufacturing practices and to develop tooling, machines and systems necessary for efficient production. Program options allow students to specialize in cast metals or plastics.

The educational objectives of the Manufacturing Engineering Technology program are:
1. Produce job-ready graduates for careers benefiting from manufacturing engineering technology knowledge, skills, and abilities.
2. Enable student competency in the use of the state-of-the-art manufacturing tools and processes for the solution of industrial problems.
3. Gain an awareness of the challenges and rewards of manufacturing engineering technology, the need for professional ethics and social responsibility, and the importance to engage in life-long learning to respond to the changing needs of the global manufacturing environment.
4. Involve manufacturing and industrial organizations in collaborative relationships to support engineering research and teaching.

(For up-to-date educational objectives and learning outcomes, see department web page at www.wmich.edu/imc)

Baccalaureate Writing Requirement
Students who have chosen the Manufacturing Engineering Technology curriculum will satisfy the Baccalaureate Writing Requirement by successfully completing IME 4910 Multidisciplinary Senior Proposal and IME 4920 Multidisciplinary Senior Project.

Requirements
1. A grade point average of 2.0 or better must be earned in required courses with ECE, MSE, ME, and IME prefixes.
2. No more than two grades of “D” or “DC” in courses presented for graduation may be counted for graduation.
3. Complete the following program of 131 semester hours. The schedule below is an example of one leading to graduation in eight semesters, beginning in fall.
4. Prior to enrollment in 3000/4000-level courses, students must 1) place resume with Career and Student Employment Services; 2) complete the following courses with a grade of "C" or better: CHEM 1100 and 1110, ECE 1000, IME 1020, PHYS 1150, and MATH 1220 or 1700. These courses are indicated below.

First Semester (17 hours)
CHEM 1100 - General Chemistry I Credits: 3 hours (Area VI)  See number 4 in Requirements above.
CHEM 1110 - General Chemistry Laboratory I Credits: 1 hour (Area VI)  See number 4 in Requirements above.
IME 1020 - Technical Communication Credits: 3 hours
IME 1420 - Engineering Graphics Credits: 3 hours
IME 1500 - Introduction to Manufacturing Credits: 3 hours (Area VII)
MATH 1180 - Precalculus Mathematics Credits: 4 hours

Second Semester (16 hours)
AREA VIII Health and Well-Being* Credits: 2 hours
CS 1040 - Introductory C/C++ Credits: 2 hours
IME 1220 - Automobile in Society Credits: 3 hours (Area VII)
MATH 1220 - Calculus I Credits: 4 hours or
MATH 1700 - Calculus I, Science and Engineering Credits: 4 hours See number 4 in Requirements above.
PHYS 1130 - General Physics I Credits: 4 hours (Area VI)
PHYS 1140 - General Physics I Laboratory Credits: 1 hour (Area VI)

Third Semester (17 hours)
COM 1040 - Public Speaking Credits: 3 hours
ECE 1000 - Fundamentals of Circuits and Electronics Credits: 3 hours See number 4 in Requirements above.
IME 2460 - Introduction to Computer-Aided Design Credits: 3 hours
IME 2540 - Machining Processes Credits: 3 hours
PHYS 1150 - General Physics II Credits: 4 hours See number 4 in Requirements above.
PHYS 1160 - General Physics II Laboratory Credits: 1 hour See number 4 in Requirements above.

Fourth Semester (18 hours)
ECE 1010 - Fundamentals of Electronics and Machines Credits: 3 hours
IME 2500 - Plastics Properties and Processing Credits: 3 hours
IME 2810 - Statics and Strength of Materials Credits: 4 hours
MSE 2540 - Properties of Materials Credits: 3 hours
MSE 2550 - Materials Science Laboratory Credits: 1 hour
STAT 2600 - Elementary Statistics Credits: 4 hours

Fifth Semester (16 hours)
IME 2830 - Thermodynamics Credits: 2 hours
IME 2840 - Fluid Mechanics and Hydraulics Credits: 2 hours
IME 3260 - Operations Planning and Control Credits: 3 hours
IME 3480 - Designing for Production Credits: 3 hours
IME 3520 - Metal Casting Credits: 3 hours
IME 3570 - Fabrication, Assembly, and Finishing Credits: 3 hours

Sixth Semester (15 hours)
Approved Elective Credits: 3 hours
AREA IV Other Cultures and Civilizations* Credits: 3 hours
IME 3200 - Engineering Cost Analysis Credits: 3 hours
IME 3280 - Quality Assurance and Control Credits: 3 hours
IME 3580 - Computer-Aided Manufacturing Credits: 3 hours

Seventh Semester (17 hours)
Approved Elective Credits: 3 hours
AREA I Fine Arts* Credits: 3 hours
IME 4220 - Engineering Teams: Theory and Practice Credits: 3 hours (Area V)
IME 4580 - Manufacturing Systems Integration Credits: 3 hours
IME 4810 - Metrology Credits: 3 hours
IME 4910 - Multidisciplinary Senior Proposal Credits: 2 hours

Eighth Semester (15 hours)
Approved Elective Credits: 3 hours
AREA II Humanities* Credits: 3 hours
AREA III The United States: Cultures and Issues* Credits: 3 hours
IME 4020 - Supervision of Industrial Operations Credits: 3 hours
IME 4920 - Multidisciplinary Senior Project Credits: 2 hours
IME 4930 - Multidisciplinary Senior Project Consultation Credits: 1 hour

Footnote: *At least one of the General Education Area courses must be at the 3000-4000 level.

Approved Electives/Options Requirements
Nine (9) credits of electives must be selected from the following areas of concentration. To earn an option, four (4) courses in a single area of concentration must be completed. This raises the total hours in the curriculum to 134.

Automotive Option
IME 3240 - Automotive Power Systems Credits: 3 hours
IME 3250 - Automotive Electrical Systems Credits: 3 hours
IME 4250 - Automotive Drive Systems Credits: 3 hours
IME 4260 - Automotive Structure, Ride, and Safety Credits: 3 hours
Cast Metals Option
IME 2990 - Cooperative Education Credits: 1 to 3 hours (in Cast Metals Industry) Credits: 3 hours
IME 4520 - Die Casting Credits: 3 hours
IME 4560 - Process Testing and Measurement Credits: 3 hours
IME 5520 - Casting Simulation and Solidification Credits: 3 hours

Plastics Option
IME 3500 - Production Thermoplastic Processing Credits: 3 hours
IME 4560 - Process Testing and Measurement Credits: 3 hours
IME 4590 - Mold Design and Construction Credits: 3 hours

Select Either
IME 2990 - Cooperative Education Credits: 1 to 3 hours (in the Plastics Industry) Credits: 3 hours or
IME 5500 - Advanced Plastics Processing Credits: 3 hours

Manufacturing Engineering
John A. Patten, Chair
David Meade
Joseph Petro, Jr., Advisor
or

WMU EUP Offices:
WMU, Kendall Center
Battle Creek, MI
(269) 965-5380
www.wmich.edu/mfe

WMU, Muskegon
Muskegon Community College
Stevenson Center
Muskegon, MI
(231) 777-0500

The Department of Manufacturing Engineering offers a curriculum leading to the degree of Bachelor of Science in Engineering (Manufacturing). The goal of this curriculum is to develop students who have the ability to take a product design or concept and design the manufacturing process. The curriculum includes mathematics, general education subjects, the basic sciences, the engineering sciences and specially designed courses for manufacturing engineering. The curriculum has extensive coverage of materials, manufacturing processing, and tool design. Background is also provided in engineering mechanics, industrial engineers, electrical/electronics and manufacturing management.

Manufacturing engineers work in industries to design, develop and implement manufacturing processes to manufacture products. Manufacturing engineers can be found working in a broad range of industries such as automotive, aircraft, appliances, furniture, metal working, plastics, paper, and other industries. The manufacturing engineer might be expected to troubleshoot a manufacturing problem, to layout a manufacturing line, to write purchase specifications for manufacturing equipment, to implement automation equipment or to supervise production operations. The intent of this program is to prepare students for a diverse role in a manufacturing enterprise.

This curriculum was designed with the aid of an industrial advisory committee. This committee included a wide representation of manufacturers and represents their collective thinking as to what a modern-day manufacturing curriculum should include. Manufacturing engineers are in great demand as industries compete in the global marketplace. This degree program is one of only a few manufacturing engineering degrees offered nationwide.
Manufacturing Engineering

Academic Advising
Students should contact an advisor at the WMU Branch Campuses (Battle Creek or Muskegon) as early as possible in the program to set up an academic plan of work. Alternately, students can contact the Office of Advising and Admissions, College of Engineering and Applied Sciences, Room E-102 CEAS, Western Michigan University, Parkview Campus, Kalamazoo, Michigan (269) 276-3270.

Baccalaureate Writing Requirement
Students who have chosen the Manufacturing Engineering curriculum will satisfy the Baccalaureate Writing Requirement by successfully completing IME 3160 Report Preparation.

Requirements
Candidates for the Bachelor of Science in Engineering (Manufacturing) must satisfy the following requirements in addition to those required by Western Michigan University:
1. A grade point average of 2.0 or better must be earned in courses presented for graduation with MFE, ME, IME, and ECE prefixes.
2. No more than two grades of “D” or “DC” in courses presented for graduation may be counted for graduation.
3. Complete the following program of 128 semester credit hours.

First Semester (16 hours)
Area I Fine Arts* Credits: 3 hours
IME 1020 - Technical Communication Credits: 3 hours Pre-engineering requirement
IME 1420 - Engineering Graphics Credits: 3 hours
IME 1500 - Introduction to Manufacturing Credits: 3 hours
MATH 1220 - Calculus I Credits: 4 hours or
MATH 1700 - Calculus I, Science and Engineering Credits: 4 hours Pre-engineering requirement

Second Semester (17 hours)
Area III The United States: Cultures and Issues* Credits: 3 hours
CHEM 1100 - General Chemistry I Credits: 3 hours Pre-engineering requirement
CHEM 1110 - General Chemistry Laboratory I Credits: 1 hour Pre-engineering requirement
MATH 1230 - Calculus II Credits: 4 hours or
MATH 1710 - Calculus II, Science and Engineering Credits: 4 hours Pre-engineering requirement
MFE 1200 - Engineering Design and Verification Credits: 3 hours Pre-engineering requirement
PHIL 2200 - Critical Reasoning Credits: 3 hours

Third Semester (16 hours)
Area VIII Health and Well-Being* Credits: 2 hours
COM 1040 - Public Speaking Credits: 3 hours
CS 2000 - Programming Language Experience Credits: 2 hours Pre-engineering requirement
MATH 2720 - Multivariate Calculus and Matrix Algebra Credits: 4 hours Pre-engineering requirement
PHYS 2050 - Mechanics and Heat Credits: 4 hours Pre-engineering requirement
PHYS 2060 - Mechanics and Heat Laboratory Credits: 1 hour Pre-engineering requirement

Fourth Semester (18 hours)
IME 2610 - Engineering Statistics Credits: 3 hours
MATH 3740 - Differential Equations and Linear Algebra Credits: 4 hours Pre-engineering requirement
ME 2560 - Statics Credits: 3 hours
MFE 2200 - Principles of NC/CNC Machining Credits: 3 hours
PHYS 2070 - Electricity and Light Credits: 4 hours Pre-engineering requirement
PHYS 2080 - Electricity and Light Laboratory Credits: 1 hour Pre-engineering requirement
Fifth Semester (16 hours)
ECE 2120 - Electronic Circuits and Systems Credits: 3 hours
ME 2580 - Dynamics Credits: 3 hours
MFE 3300 - Manufacturing Materials I Credits: 4 hours
MFE 3400 - Design for People at Work Credits: 3 hours
PHIL 3160 - Ethics in Engineering and Technology Credits: 3 hours

Sixth Semester (15 hours)
ECE 3120 - Fundamentals of Electronics and Machines Credits: 3 hours
IME 3100 - Engineering Economy Credits: 3 hours
IME 3160 - Report Preparation Credits: 3 hours
ME 2570 - Mechanics of Materials Credits: 3 hours
MFE 3600 - Computer Control of Manufacturing Operations Credits: 3 hours

Seventh Semester (15 hours)
Area IV Other Cultures and Civilizations* Credits: 3 hours
MFE 4300 - Manufacturing Materials II Credits: 4 hours
MFE 4400 - Production Engineering Credits: 3 hours
MFE 4420 - Quality Assurance Credits: 3 hours
MFE 4800 - Senior Design Project I Credits: 2 hours

Eighth Semester (15 hours)
Area V Social and Behavioral Sciences* Credits: 3 hours
MFE 4200 - Advanced Manufacturing Processes Credits: 4 hours
MFE 4240 - Tool Design Credits: 3 hours
MFE 4440 - Simulation of Industrial Operations Credits: 3 hours
MFE 4820 - Senior Design Project II Credits: 2 hours

Footnote: *At least two the General Education Area courses must be at the 3000-4000 level.

Manufacturing Technology Minor
The manufacturing technology minor is available to Haworth College of Business students. It is recommended that students selecting the manufacturing technology minor fulfill their General Education Area VI requirements by taking CHEM 1100 and 1110 or CHEM 1030 and 1140 and Proficiency 2 or 4b by taking MATH 1220 or 2000 or 1710. The manufacturing technology minor totals 18-19 semester credit hours including three required courses and three approved elective courses selected in consultation with a student's major advisor.

Required Courses (9 hours)
IME 1420 - Engineering Graphics Credits: 3 hours
IME 1500 - Introduction to Manufacturing Credits: 3 hours
IME 3280 - Quality Assurance and Control Credits: 3 hours

Approved Electives (9 hours)
Select three (3) courses.
ECE 1000 - Fundamentals of Circuits and Electronics Credits: 3 hours
ECE 1010 - Fundamentals of Electronics and Machines Credits: 3 hours
ECE 2500 - Digital Logic Credits: 3 hours
ID 2220 - Wood Furniture Design Credits: 3 hours
IME 1220 - Automobile in Society Credits: 3 hours
IME 2460 - Introduction to Computer-Aided Design Credits: 3 hours
IME 2500 - Plastics Properties and Processing Credits: 3 hours
IME 2540 - Machining Processes Credits: 3 hours
IME 3260 - Operations Planning and Control Credits: 3 hours
IME 3500 - Production Thermoplastic Processing Credits: 3 hours

Footnote: *At least two the General Education Area courses must be at the 3000-4000 level.
IME 3520 - Metal Casting Credits: 3 hours
IME 3580 - Computer-Aided Manufacturing Credits: 3 hours
MSE 2540 - Properties of Materials Credits: 3 hours
MSE 2550 - Materials Science Laboratory Credits: 1 hour

Manufacturing Engineering - Off Campus
The Bachelor of Science in Manufacturing Engineering is offered only at the Muskegon Regional Center and the Battle Creek Regional Center. This program is not available on campus. Additional information can be obtained by contacting the Director of Engineering and Technical Programs at the WMU Muskegon Regional Center at (231) 777-0500 or the WMU Battle Creek Regional Center at (269) 965-5380. You may also refer to the Department of Manufacturing Engineering section of this catalog.

General Programs
General programs in the College of Engineering and Applied Sciences are designed to meet specific student needs not satisfied by any other curricula in the college.

General College Curriculum
Non-engineering students who have not decided on a particular program in the College of Engineering and Applied Sciences may initially enroll in the General College Curriculum.

Written permission of the academic advisor is required to enroll in this curriculum beyond the second year.

Materials Science and Engineering
Pnina Ari-Gur
Valery Bliznyuk

The Department of Materials Science and Engineering offers the following curriculum:
Materials Science and Engineering - M.S. degree

Mechanical and Aeronautical Engineering
Parviz Merati, Chair
Judah Ari-Gur
Christopher S.K. Cho
Muralidhar Gantasala
Philip J. Guichelaar
Richard Hathaway
James Kamman
Daniel Kujawski
Ho Sung Lee
William W. Liou
Tianshu Liu
Koorosh Naghshineh
Kapseong Ro
Iskender Sahin
Rameshwar P. Sharma
Bade Shrestha
Dennis J. VandenBrink

The Department of Mechanical and Aeronautical Engineering offers programs leading to the degree of Bachelor of Science in Engineering (Mechanical or Aeronautical). The two programs are accredited by the Engineering Accreditation Commission
Mechanical engineers are found in almost every industry. Examples of areas for career opportunities include manufacturing, machine tool design, and product development; land, sea, air, and space vehicles and systems; energy conversion and energy distribution; computer hardware and computer software; environmental systems; and construction and urban development. Opportunities for mechanical engineers continue to develop with the rapid expansion of our knowledge base and population growth.

Aeronautical Engineers find career opportunities in the aerospace industry and other engineering areas capitalizing on their strong applied engineering background. Much of their course work is specialized to the aerospace fields.

Opportunities for those interested in automotive engineering include internal combustion engines, engine design, vehicle design, vehicle dynamics, and vehicle structural design.

Academic Advising
Students should contact a mechanical or aeronautical engineering academic advisor as early as possible. Advisors are available to assist in individual program planning, to recommend electives appropriate to a student's educational objectives, to discuss employment opportunities, and to help solve academic problems. Substitutions and transfer credit must be approved by a departmental advisor, the curriculum committee, and the department chair. The academic advisors are located in Room E-102, CEAS, (269) 276-3260.

Scholarships and Awards
Several scholarships are available through the College of Engineering and Applied Sciences. These include, but are not limited to, scholarships through the Giffels Associates, Lakehead-Pipeline, Society of Manufacturing Engineers, H. H. Harris Foundation, Kalamazoo Antique Auto Restorers Club, Knight scholarship, and the College itself. Program announcements are distributed during the application period.

The Department of Mechanical and Aeronautical Engineering also annually presents several awards, which include:
1. Dean E. Bluman Memorial Award - presented to an outstanding student of mechanical engineering who has demonstrated interest and ability in liberal studies. This is in honor and recognition of the late Dr. Bluman who, during his tenure as Professor and Chairman of Mechanical Engineering, was an active supporter of liberal education for engineering students.
2. Outstanding Mechanical Engineering Scholar Award - presented to a mechanical engineering student who is outstanding scholastically, involved in extra-curricular activities, and demonstrates leadership ability and the professionalism associated with mechanical engineering.
3. Outstanding Aeronautical Engineering Scholar Award - presented to an aeronautical engineering student who is outstanding scholastically, involved in extra-curricular activities, and demonstrates leadership ability and the professionalism associated with aeronautical engineering.
4. Mechanical Engineering Presidential Scholar Award - presented to an outstanding mechanical engineering student who is selected using University-wide criteria which includes senior standing, superior scholastic ability, extra-curricular involvement, and professional promise.

Cooperative Education
Students may elect the cooperative plan of education. In this plan, the student alternates a semester of study on campus with a semester of compensated industrial experience. Students may work in any area in which mechanical engineers may be found.

Internships
A number of students choose to do internships while continuing their studies. Taking a reduced course load enables the student to gain valuable engineering experience while being continuously enrolled.

Aeronautical Engineering
Accredited by the Engineering Accreditation Commission of ABET, Inc., 111 Market Place, Suite 1050, Baltimore, MD 21202-4012; telephone (410) 347-7700.
The educational objectives for the Aeronautical Engineering program are:
1. Graduates will have engineering positions or pursue their graduate degrees.
2. Graduates will apply their broad and fundamental knowledge to solve relevant problems in the field of aeronautical engineering or related fields.
3. Graduates will consider professional and ethical responsibilities and the impact of engineering solutions in a global and societal context.
4. Graduates will maintain knowledge of contemporary issues and engage in lifelong learning.
5. Graduates will function well on teams and communicate effectively in the field of aeronautical engineering and related fields.

(For up-to-date educational objectives and learning outcomes, see the Department's web page at www.mae.wmich.edu)

Admission
To be admitted to this Engineering curriculum, a student must complete all pre-engineering requirements with grades of "C" or better. These requirements may be found in the beginning of the College of Engineering and Applied Sciences section.

Students seeking admission to this curriculum must submit an application following procedures established by the College of Engineering and Applied Sciences. Upper level transfer students may complete an application prior to their first semester of enrollment. Only students in good academic standing as defined by the University will be admitted to this curriculum.

Baccalaureate Writing Requirement
Students who have chosen the Aeronautical Engineering curriculum will satisfy the Baccalaureate Writing Requirement by successfully completing:

Requirements
Candidates for the Bachelor of Science in Engineering (Aeronautical) must satisfy the following requirements in addition to those required by Western Michigan University:
1. A grade point average of 2.0 or better must be earned in courses presented for graduation with AAE, ECE, IME, and ME prefixes.
2. A student is required to earn a grade of "C" or better in all 1000-2000 level departmental prerequisite courses before enrollment is permitted in the next sequence course.
3. No more than two grades of "D" or "DC" in courses presented for graduation may be counted for graduation.
4. Complete the following program of 129-130 semester credit hours. The schedule below is an example of one leading to graduation in eight semesters, beginning in the fall.

First Semester (15-16 hours)
AREA I Fine Arts* Credits: 4 hours
CHEM 1100 - General Chemistry I Credits: 3 hours Pre-engineering requirement
CHEM 1110 - General Chemistry Laboratory I Credits: 1 hour Pre-engineering requirement
CS 1022 - Introduction to Engineering Computing 2: Mathematical Software Credits: 1 hour or
CS 1023 - Introduction to Engineering Computing 3: Computer Programming Credits: 1 hour
ENGL 1050 - Thought and Writing Credits: 4 hours or
IME 1020 - Technical Communication Credits: 3 hours Pre-engineering requirement
MATH 1220 - Calculus I Credits: 4 hours or
MATH 1700 - Calculus I, Science and Engineering Credits: 4 hours Pre-engineering requirement

Second Semester (17 hours)
AREA II Humanities* Credits: 3 hours
AREA VIII Health and Well-Being* Credits: 2 hours
AAE 2610 - Introduction to Aeronautical Engineering Credits: 3 hours
MATH 1230 - Calculus II Credits: 4 hours or
MATH 1710 - Calculus II, Science and Engineering Credits: 4 hours Pre-engineering requirement
PHYS 2050 - Mechanics and Heat Credits: 4 hours Pre-engineering requirement
PHYS 2060 - Mechanics and Heat Laboratory Credits: 1 hour Pre-engineering requirement
Third Semester (18 hours)
AREA III The United States: Cultures and Issues* Credits: 3 hours
MATH 2720 - Multivariate Calculus and Matrix Algebra Credits: 4 hours Pre-engineering requirement
ME 2320 - Thermodynamics I Credits: 3 hours
ME 2560 - Statics Credits: 3 hours Pre-engineering requirement
PHYS 2070 - Electricity and Light Credits: 4 hours Pre-engineering requirement
PHYS 2080 - Electricity and Light Laboratory Credits: 1 hour Pre-engineering requirement

Fourth Semester (17 hours)
AAE 2500 - Materials Science Credits: 3 hours
ECE 2100 - Circuit Analysis Credits: 4 hours
MATH 3740 - Differential Equations and Linear Algebra Credits: 4 hours
ME 2580 - Dynamics Credits: 3 hours

Select Either
The following courses are Pre-engineering requirements.
CHEM 1120 - General Chemistry II Credits: 3 hours or
PHYS 3090 - Introductory Modern Physics Credits: 3 hours

Fifth Semester (16 hours)
AAE 3610 - Flight Vehicle Aerodynamics Credits: 4 hours
IME 1420 - Engineering Graphics Credits: 3 hours
ME 2570 - Mechanics of Materials Credits: 3 hours
ME 3580 - Mechanism Analysis Credits: 3 hours
ME 3620 - Theory of Engineering Experimentation Credits: 3 hours

Sixth Semester (16 hours)
AREA IV Other Cultures and Civilizations* Credits: 3 hours
AAE 3710 - Fundamentals of Aerodynamics Credits: 4 hours
ME 3350 - Instrumentation Credits: 3 hours
ME 3600 - Control Systems Credits: 3 hours
ME 3650 - Machine Design I Credits: 3 hours

Seventh Semester (18 hours)
AAE 4500 - Flight Vehicle Performance Credits: 3 hours
AAE 4600 - Aircraft Stability and Control Credits: 3 hours
AAE 4630 - Aircraft Structural Design Credits: 4 hours
AAE 4660 - Aeronautical Propulsion Systems Credits: 4 hours
ME 4310 - Heat Transfer Credits: 3 hours
ME 4790 - Mechanical and Aeronautical Engineering Project Planning Credits: 1 hour

Eighth Semester (12 hours)
AREA V Social and Behavioral Sciences* Credits: 3 hours
AAE 4690 - Aircraft Design Credits: 3 hours
ME 4800 - Mechanical and Aeronautical Engineering Project Credits: 3 hours

Select Either
Approved Design Elective
or
AAE 4590 - Flight Test Engineering and Design Credits: 3 hours

Footnote: * At least two of these General Education Area courses must be at the 3000-4000 level.
Mechanical Engineering
Accredited by the Engineering Accreditation Commission of ABET, Inc., 111 Market Place, Suite 1050, Baltimore, MD 21202-4012; telephone (410) 347-7700.

1. Graduates will have engineering positions or pursue their graduate degrees.
2. Graduates will apply their broad and fundamental knowledge to solve relevant problems in the field of mechanical engineering or related fields.
3. Graduates will consider professional and ethical responsibilities and the impact of engineering solutions in a global and societal context.
4. Graduates will maintain their knowledge of contemporary issues and engage in lifelong learning.
5. Graduates will function well on teams and communicate effectively in the field of mechanical engineering or related fields.

(For up-to-date educational objectives and learning outcomes, see the Department's web page at www.mae.wmich.edu)

Admission
1. To be admitted to this Engineering curriculum, a student must complete all pre-engineering requirements with grades of “C” or better. These requirements may be found in the beginning of the College of Engineering and Applied Sciences section.
2. Students seeking admission to this curriculum must submit an application following procedures established by the College of Engineering and Applied Sciences. Upper level transfer students may complete an application prior to their first semester of enrollment. Only students in good academic standing as defined by the University will be admitted to this curriculum.

Baccalaureate Writing Requirement
Students who have chosen the Mechanical Engineering curriculum will satisfy the Baccalaureate Writing Requirement by successfully completing ME 3650 Machine Design I or ME 4800 Mechanical and Aeronautical Engineering Project.

Requirements
Candidates for the Bachelor of Science in Engineering (Mechanical) degree must satisfy the following requirements in addition to those required by Western Michigan University:
1. A grade point average of 2.0 or better must be earned in courses presented for graduation with AAE, ECE, IME, and ME prefixes.
2. A student is required to earn a grade of “C” or better in all 1000-2000-level departmental pre-requisite courses before enrollment is permitted in the next sequence course.
3. No more than two grades of “D” or “DC” in courses presented for graduation may be counted for graduation.
4. Complete the following program of 129-136 semester credit hours. The schedule below is an example of one leading to graduation in eight semesters, beginning in fall.

First Semester (17-18 hours)
AREA I Fine Arts* Credits: 3 hours
CHEM 1100 - General Chemistry I Credits: 3 hours Pre-engineering requirement
CHEM 1110 - General Chemistry Laboratory I Credits: 1 hour Pre-engineering requirement
IME 1420 - Engineering Graphics Credits: 3 hours
MATH 1220 - Calculus I Credits: 4 hours or
MATH 1700 - Calculus I, Science and Engineering Credits: 4 hours Pre-engineering requirement
Select Either
ENGL 1050 - Thought and Writing Credits: 4 hours or
IME 1020 - Technical Communication Credits: 3 hours Pre-engineering requirement

Second Semester (17 hours)
CS 1022 - Introduction to Engineering Computing 2: Mathematical Software Credits: 1 hour or
CS 1023 - Introduction to Engineering Computing 3: Computer Programming Credits: 1 hour
MATH 1230 - Calculus I Credits: 4 hours or
MATH 1700 - Calculus I, Science and Engineering Credits: 4 hours Pre-engineering requirement
ME 2200 - Processes and Materials in Manufacturing Credits: 4 hours
ME 2500 - Materials Science Credits: 3 hours
PHYS 2050 - Mechanics and Heat Credits: 4 hours Pre-engineering requirement
PHYS 2060 - Mechanics and Heat Laboratory Credits: 1 hour Pre-engineering requirement

Third Semester (18 hours)
AREA II Humanities* Credits: 3 hours
The following courses are Pre-engineering requirements.
MATH 2720 - Multivariate Calculus and Matrix Algebra Credits: 4 hours
ME 2320 - Thermodynamics I Credits: 3 hours
ME 2560 - Statics Credits: 3 hours
PHYS 2070 - Electricity and Light Credits: 4 hours
PHYS 2080 - Electricity and Light Laboratory Credits: 1 hour

Fourth Semester (18 hours)
ECE 2100 - Circuit Analysis Credits: 4 hours Pre-engineering requirement
MATH 3740 - Differential Equations and Linear Algebra Credits: 4 hours
ME 2570 - Mechanics of Materials Credits: 3 hours
ME 2580 - Dynamics Credits: 3 hours

Select Either:
The following courses are Pre-engineering requirements.
CHEM 1120 - General Chemistry II Credits: 3 hours and
CHEM 1130 - General Chemistry Laboratory II Credits: 1 hour OR
PHYS 3090 - Introductory Modern Physics Credits: 3 hours and
PHYS 3100 - Introductory Modern Physics Lab Credits: 1 hour

Fifth Semester (18 to 19 hours)
ME Group 1 Elective (3 to 4)
ECE 2110 - Machines and Electronic Circuits Credits: 3 hours
ME 3560 - Fluid Mechanics Credits: 3 hours
ME 3580 - Mechanism Analysis Credits: 3 hours
ME 3620 - Theory of Engineering Experimentation Credits: 3 hours
ME 3650 - Machine Design I Credits: 3 hours

Sixth Semester (15 to 16 hours)
ME Group 3 Elective Credits: 3 to 4 hours
AREA III The United States: Cultures and Issues* Credits: 3 hours
ME 3350 - Instrumentation Credits: 3 hours
ME 3600 - Control Systems Credits: 3 hours
ME 4310 - Heat Transfer Credits: 3 hours

Seventh Semester (13 to 16 hours)
ME Group 2 Elective Credits: 3 hours
ME Group 3 Elective Credits: 3 to 4 hours
ME Group 3 Elective Credits: 3 to 4 hours
AREA V Social and Behavioral Sciences* Credits: 3 hours
ME 4790 - Mechanical and Aeronautical Engineering Project Planning Credits: 1 hour

Eighth Semester (13 to 16 hours)
ME Group 2 Elective Credits: 3 to 4 hours
AREA IV Other Cultures and Civilizations* Credits: 3 hours
AREA VIII Health and Well-Being* Credits: 2 hours
IME 3090 - Engineering Economy for Mechanical Engineers Credits: 2 hours
ME 4800 - Mechanical and Aeronautical Engineering Project Credits: 3 hours

Footnote:   *At least two of the General Education Area courses must be at the 3000-4000 level.
**Mechanical Engineering Electives**

Students must complete a total of six elective courses from the list below (Groups 1, 2, and 3). One course is selected from Group 1, two courses from Group 2, and three courses from Group 3. Two of the selected courses must have laboratory experience (marked with an “L” in list).

**Group 1: Advanced Thermodynamics electives (select one)**

- **AAE 4660 - Aeronautical Propulsion Systems** Credits: 4 hours (L)
- **ME 4320 - Thermodynamics II** Credits: 3 hours

**Group 2: Design electives (select two)**

Thermal Systems Design electives (select one)

- **ME 4330 - Environmental Systems Design in Buildings** Credits: 3 hours This course has a prerequisite that is an elective.
- **ME 4390 - Design of Thermal Systems** Credits: 3 hours (L) This course has a prerequisite that is an elective.
- **ME 4680 - Engine Design** Credits: 3 hours This course has a prerequisite that is an elective.
- **ME 5390 - Advanced Thermal Design** Credits: 3 hours

Mechanical Systems Design electives (select one)

- **AAE 4630 - Aircraft Structural Design** Credits: 4 hours
- **ME 4530 - Machine Design II** Credits: 3 hours
- **ME 4700 - Vehicle Structural Design** Credits: 3 hours
- **ME 5730 - Engineering Materials** Credits: 3 hours

**Group 3: Elective Emphasis (select three; must be different from any selected from Groups 1 and 2)**

**Thermal/Fluid Systems**

- **AAE 3610 - Flight Vehicle Aerodynamics** Credits: 4 hours (L)
- **AAE 4660 - Aeronautical Propulsion Systems** Credits: 4 hours (L)
- **ME 3670 - Internal Combustion Engines I** Credits: 3 hours (L)
- **ME 4320 - Thermodynamics II** Credits: 3 hours
- **ME 4330 - Environmental Systems Design in Buildings** Credits: 3 hours This course has a prerequisite that is an elective.
- **ME 4390 - Design of Thermal Systems** Credits: 3 hours (L) This course has a prerequisite that is an elective.
- **ME 4680 - Engine Design** Credits: 3 hours (L)
- **ME 5390 - Advanced Thermal Design** Credits: 3 hours
- **ME 5710 - Gas Dynamics** Credits: 3 hours

**Solid Mechanics and Structures**

- **AAE 4630 - Aircraft Structural Design** Credits: 4 hours
- **AAE 4690 - Aircraft Design** Credits: 3 hours
- **ME 4530 - Machine Design II** Credits: 3 hours
- **ME 4570 - Experimental Solid Mechanics** Credits: 3 hours (L)
- **ME 4700 - Vehicle Structural Design** Credits: 3 hours
- **ME 5530 - Advanced Product Engineering** Credits: 3 hours This course has a prerequisite that is an elective.
- **ME 5690 - Principles of Fatigue and Fracture** Credits: 3 hours
- **ME 5730 - Engineering Materials** Credits: 3 hours
- **ME 5750 - Tribology - Principles and Applications** Credits: 3 hours

**Dynamics and Control**

- **AAE 4600 - Aircraft Stability and Control** Credits: 3 hours
- **ME 4590 - Dynamics of Machinery** Credits: 3 hours
- **ME 4650 - Vehicle Dynamics** Credits: 3 hours
- **ME 4710 - Motion and Control** Credits: 3 hours (L)
- **ME 4810 - Vehicle Design** Credits: 3 hours (L)
- **ME 5400 - Automatic Control of Flight Vehicles** Credits: 3 hours
- **ME 5550 - Intermediate Dynamics** Credits: 3 hours
- **ME 5580 - Mechanical Vibrations** Credits: 3 hours
Paper Engineering, Chemical Engineering, and Imaging
Said AbuBakr, Chair
Larry Ahleman
Raja G. Aravamuthan
John H. Cameron
Paul D. Fleming
Harold Hladky
Margaret Joyce
Thomas W. Joyce
Andrew Kline
Lois Lemon
Peter E. Parker
Alexandra Pekarovicova
David K. Peterson
Dewei Qi
Abhay Sharma
Jay Unwin

The Department of Paper Engineering, Chemical Engineering, and Imaging offers four B.S. programs (paper engineering, paper science, chemical engineering, and imaging), an M.S. program, and a Ph.D. program which provide extensive scientific and technical education. These programs prepare graduates for professional employment in research and development, manufacturing, process engineering, marketing, and management. The paper program focuses on pulp, paper, environmental, and allied fields. The imaging program emphasizes imaging, inks, and related fields. The chemical engineering program focuses on the chemical process industries, with emphasis on energy management, inks and imaging, life sciences, pollution prevention, and pulp and paper.

Academic Advising
Students should contact the Paper Engineering, Chemical Engineering, and Imaging academic advisors as early as possible. An advisor is available to assist in individual program planning, recommend electives appropriate to a student's educational objectives, discuss employment opportunities, and to help solve academic problems. Substitutions and transfer credit must be approved by a departmental advisor, curriculum committee, and department chair. The academic advisor for Paper Engineering, Paper Science, and Imaging is Dr. Raja Aravamuthan. The academic advisor for Chemical Engineering is Dr. Peter Parker. Appointments can be made by calling the Engineering Advising Office at (269) 276-3270.

Work Experience
Industrial experience is encouraged through employment by paper, imaging, chemical processing, or related companies for at least one of the three summers, as well as through employment in the outstanding pilot plants. The pilot plants and laboratory facilities are among the best in the world. In addition, co-op experience through a contiguous academic semester is encouraged.

Additional Information
General information regarding advising, scholarships, and special programs of interest to students in this department may be found in the beginning of the College of Engineering and Applied Sciences' section of this catalog.

Students graduating from Paper Science, Paper Engineering, Chemical Engineering, or with a Paper or Chemical Engineering minor, must earn a grade of "C" or better in all CHEG and IMAG and PAPR prefixed prerequisite courses or their equivalent.

Chemical Engineering
Accredited by the Engineering Accreditation Commission of ABET, Inc., 111 Market Place, Suite 1050, Baltimore, MD 21202-4012; telephone (410) 347-7700.
The educational objectives for the Chemical Engineering program are:
1. Graduates of the Chemical Engineering program understand the fundamentals of chemical engineering to solve problems of importance to their employers.
2. Graduates of the Chemical Engineering program will be ready, willing, and able to accept expected job responsibilities upon employment.
3. Graduates of the Chemical Engineering program actively participate in the development of the chemical engineering profession through contributions to society, life-long learning, and support of the appropriate professional societies.
4. The program provides an environment that is conducive for the continued development of the students, both socially and professionally, while in attendance at WMU.
5. Students can function effectively as both team members and team leaders, understanding the basic dynamics of team behavior, communication, and leadership skills.
6. Students display a reasoned understanding of the role of chemical engineering in the global societal environment, including social needs, cultural awareness and sensitivity, environmental sensitivity and complexity, and professional ethics.

(For up-to-date educational objectives and learning outcomes, see the Department's web page at www.wmich.edu/pci/ChE/WebPage)

Admission
1. To be admitted to this Engineering curriculum, a student must complete all Pre-engineering requirements with grades of "C" or better. These requirements may be found in the beginning of the College of Engineering and Applied Sciences section.
2. Students seeking admission to this curriculum must submit an application following procedures established by the College of Engineering and Applied Sciences. Upper level transfer students should complete an application prior to their first semester of enrollment. Only students in good academic standing as defined by the University will be admitted to this curriculum.

Baccalaureate Writing Requirement
Students who have chosen the Chemical Engineering major will satisfy the Baccalaureate Writing requirement by successfully completing CHEG 4870 Senior Design Project.

Requirements
Candidates for the Bachelor of Science in Engineering (Chemical) must satisfy the following requirements in addition to those required by Western Michigan University:
1. Students must earn a "C" or better in all departmental prefixed course. The requirement of departmental prefixed prerequisite will not be fulfilled with a grade less than "C". Requests for exceptions to this policy must follow the departmental appeal policy (available in the department office).
2. No more than two grades of "D" or "DC" may be presented for graduation.
3. All departmental prefixed courses submitted for graduation must be passed with a grade of "C" or better. No exemptions will be permitted.
4. At least two of the General Education courses must be at the 3000-4000 level.
5. Students must complete the following program of 132 semester credit hours, which includes the courses in one of the following elective options. One option must be selected and taken in its entirety. The schedules below are examples leading to graduation in eight semesters, beginning in fall. However, depending on the individual's curricular and scheduling needs, the program can take more than eight semesters.

First Semester (17 hours)
AREA I Fine Arts* Credits: 3 hours
The following courses are Pre-engineering requirements.
CHEG 1010 - Introduction to Chemical Engineering Credits: 3 hours
CHEM 1100 - General Chemistry I Credits: 3 hours
CHEM 1110 - General Chemistry Laboratory I Credits: 1 hour
IME 1020 - Technical Communication Credits: 3 hours
MATH 1220 - Calculus I Credits: 4 hours or
MATH 1700 - Calculus I, Science and Engineering Credits: 4 hours

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Second Semester (18 hours)
AREA III The United States: Cultures and Issues* Credits: 3 hours
CHEG 1810 - Introduction to Chemical Engineering Computation Credits: 2 hours
CHEM 1120 - General Chemistry II Credits: 3 hours Pre-engineering requirement
CHEM 1130 - General Chemistry Laboratory II Credits: 1 hour Pre-engineering requirement
MATH 1230 - Calculus II Credits: 4 hours or
MATH 1710 - Calculus II, Science and EngineeringCredits: 4 hours Pre-engineering requirement
PHYS 2050 - Mechanics and Heat Credits: 4 hours Pre-engineering requirement
PHYS 2060 - Mechanics and Heat Laboratory Credits: 1 hour Pre-engineering requirement

Third Semester (17 hours)
CHEG 2810 - Data Acquisition and Handling Credits: 1 hour Pre-engineering requirement
IME 2610 - Engineering Statistics Credits: 3 hours
MATH 2720 - Multivariate Calculus and Matrix Algebra Credits: 4 hours Pre-engineering requirement
PHYS 2070 - Electricity and Light Credits: 4 hours
PHYS 2080 - Electricity and Light Laboratory Credits: 1 hour
Approved Elective Credits: 4 hours Elective to be selected with the approval of the Chemical Engineering advisor. The electives will be selected from one of the options listed

Fourth Semester (15 hours)
CHEG 2610 - Environmental Engineering Credits: 3 hours
CHEG 2960 - Material and Energy Balance Credits: 4 hours
MATH 3740 - Differential Equations and Linear Algebra Credits: 4 hours
Select Either
Approved Elective Credits: 4 hours Elective to be selected with the approval of the Chemical Engineering advisor. The electives will be selected from one of the options listed.
or
ME 2530 - Statics and Mechanics of Materials Credits: 4 hours

Fifth Semester (17 hours)
CHEG 3110 - Unit Operations in Chemical Engineering I Credits: 3 hours
CHEG 3200 - Chemical Engineering Thermodynamics Credits: 3 hours
CHEG 3810 - Computer Modeling and Simulation - Chemical Processes Credits: 1 hour
CHEM 4300 - Physical Chemistry I Credits: 3 hours
ECON 2010 - Principles of Microeconomics Credits: 3 hours General Education Area V
Select Either
Approved Elective Credits: 4 hours Elective to be selected with the approval of the Chemical Engineering advisor. The electives will be selected from one of the options listed.
or
ME 2530 - Statics and Mechanics of Materials Credits: 4 hours

Sixth Semester (15 hours)
AREA II Humanities* Credits: 3 hours
AREA VIII Health and Well-Bring* Credits: 2 hours
CHEG 3120 - Unit Operations in Chemical Engineering II Credits: 3 hours
CHEG 3300 - Mass Transfer Credits: 3 hours
CHEM 3750 - Organic Chemistry I Credits: 3 hours
CHEM 3760 - Organic Chemistry Lab I Credits: 1 hour

Seventh Semester (17 hours)
CHEG 4100 - Chemical Reaction Engineering Credits: 3 hours
CHEG 4600 - Plant Economics and Project Design Credits: 3 hours
CHEG 4830 - Process Control I Credits: 4 hours
CHEM 3770 - Organic Chemistry II Credits: 3 hours
CHEM 3780 - Organic Chemistry Lab II Credits: 1 hour
Approved Elective Credits: 3 hours
Elective to be selected with the approval of the Chemical Engineering advisor. The electives will be selected from one of the options listed

Eighth Semester (16 hours)
AREA IV Other Cultures and Civilizations* Credits: 4 hours
CHEG 4200 - Separation Processes Credits: 3 hours
CHEG 4870 - Senior Design Project Credits: 3 hours
Approved Elective Credits: 3 hours  Elective to be selected with the approval of the Chemical Engineering advisor. The electives will be selected from one of the options listed
Approved Elective Credits: 3 hours  Elective to be selected with the approval of the Chemical Engineering advisor. The electives will be selected from one of the options listed

Footnote:  *At least two of the General Education Area courses must be at the 3000-4000 level.

**Energy Management Option (17 hours minimum)**

Required Courses:
CHEG 3100 - Work Experience/Coop Credits: 1 to 2 hours
CHEG 4440 - Energy Management Engineering Credits: 3 hours
PAPR 4840 - Process Control II Credits: 4 hours

Elect The Balance Of The 17 Hours From The Following:
ECE 2100 - Circuit Analysis Credits: 4 hours
ECE 2110 - Machines and Electronic Circuits Credits: 3 hours
IME 1420 - Engineering Graphics Credits: 3 hours
ME 4320 - Thermodynamics II Credits: 3 hours
ME 4330 - Environmental Systems Design in Buildings Credits: 3 hours
ME 4390 - Design of Thermal Systems Credits: 3 hours
PAPR 4510 - Air Pollution Control Credits: 3 hours

**Inks and Imaging Option (15 to 17 hours)**
IMAG 1570 - Imaging Systems Credits: 3 hours

Select Either
IMAG 1500 - Introduction to Imaging Credits: 4 hours or
PAPR 1030 - Printing Processes Credits: 2 hours

Plus at least 10 hours from the following:
CHEG 3100 - Work Experience/Coop Credits: 1 to 2 hours
IMAG 2510 - Multimedia Publication and Design Credits: 3 hours
IMAG 2570 - Computer Graphics Credits: 3 hours
IMAG 3500 - Offset Lithography Credits: 4 hours
IMAG 3570 - Color Management Credits: 3 hours
IMAG 3580 - Flexography Credits: 4 hours
IMAG 3590 - Rotogravure Credits: 4 hours
IMAG 4150 - Inks and Imaging Credits: 3 hours
IMAG 4160 - Imaging Materials and Processes Credits: 4 hours

**Life Sciences Option (17 hours)**
Choose at least 17 hours from the following, including at least one 3000-level course:
BIOS 1500 - Molecular and Cellular Biology Credits: 4 hours
BIOS 1510 - Organismal Biology Credits: 4 hours
BIOS 2110 - Human Anatomy Credits: 4 hours
BIOS 2320 - Microbiology and Infectious Diseases Credits: 4 hours
BIOS 2400 - Human Physiology Credits: 4 hours
BIOS 2500 - Genetics Credits: 3 hours
BIOS 3500 - Human Physiology for Majors Credits: 5 hours
BIOS 5310 - Biology of Aging Credits: 3 hours
BIOS 5610 - Pharmacology Credits: 3 hours
BIOS 5970 - Topics in Biological Sciences Credits: 3 to 4 hours
CHEG 3100 - Work Experience/Coop Credits: 1 to 2 hours
CHEM 3550 - Introductory Biochemistry Credits: 3 hours

**Pollution Prevention Option (17 hours)**
Choose at least 17 hours from the following:

- CHEG 3100 - Work Experience/Coop Credits: 1 to 2 hours
- CHEM 5250 - Techniques in Water Analysis Credits: 2 hours
- ENVS 2150 - Environmental Systems and Cycles Credits: 3 hours
- ENVS 3400 - Environmental Policy Credits: 4 hours
- ENVS 4100 - Appropriate Technologies and Sustainability Credits: 3 hours
- GEOS 1440 - Environmental Earth Science Credits: 3 hours
- PAPR 3480 - Water Quality and Regulations Credits: 2 hours
- PAPR 3490 - Water Quality and Regulations (Lab) Credits: 1 hour
- PAPR 3530 - Wastewater Treatment Systems Credits: 4 hours
- PAPR 4500 - Solid Waste Treatment Credits: 3 hours
- PAPR 4510 - Air Pollution Control Credits: 3 hours

**Pulp and Paper Option (17 hours minimum)**

- CHEG 3100 - Work Experience/Coop Credits: 1 to 2 hours
- PAPR 1040 - Introduction to Paper Industry and Technology Credits: 1 hour
- PAPR 2040 - Stock Preparation and Papermaking Credits: 4 hours
- PAPR 3030 - Pulping and Bleaching Credits: 4 hours
- PAPR 3040 - Chemical Recovery Credits: 3 hours
- PAPR 3050 - Paper Physics Fundamentals Credits: 4 hours
- PAPR 3410 - Converting Processes Credits: 2 hours
- PAPR 3420 - Coating Credits: 4 hours
- PAPR 4300 - Surface and Wet End Science Credits: 3 hours

**Imaging - Business Option**
Bachelor of Science

Candidates for the Bachelor of Science in Imaging must satisfy all of the requirements of 127 hours of the Business Option, the Computer Option, the Multimedia Option, or the Substrate Option. The schedule below is an example of one leading to graduation in eight semesters starting in fall.

**Baccalaureate Writing Requirement**
Students who have chosen the Imaging major will satisfy the Baccalaureate Writing Requirement by successfully completing:
IMAG 4850 - Research Design Credits: 3 hours

**First Semester (17 hours)**
BUS 1750 - Business Enterprise Credits: 3 hours
CHEM 1100 - General Chemistry I Credits: 3 hours
CHEM 1110 - General Chemistry Laboratory I Credits: 1 hour
IMAG 1500 - Introduction to Imaging Credits: 4 hours
IME 1020 - Technical Communication Credits: 3 hours
MATH 1160 - Finite Mathematics with Applications Credits: 3 hours
Second Semester (16 hours)
Area I Fine Arts* Credits: 3 hours
ECON 2010 - Principles of Microeconomics Credits: 3 hours
IMAG 1570 - Imaging Systems Credits: 3 hours
PAPR 1000 - Introduction to Pulp and Paper Manufacture Credits: 3 hours
STAT 2160 - Business Statistics Credits: 3 hours

Third Semester (15 hours)
ECON 2020 - Principles of Macroeconomics Credits: 3 hours
IMAG 2510 - Multimedia Publication and Design Credits: 3 hours
IME 1500 - Introduction to Manufacturing Credits: 3 hours
MKTG 2500 - Marketing Principles Credits: 3 hours
PAPR 1600 - Introduction to Environmental Technology Credits: 3 hours

Fourth Semester (15 hours)
Area VIII Health and Well-Being* Credits: 2 hours
ACTY 2100 - Principles of Accounting I Credits: 3 hours
BUS 2700 - Information and Communication Infrastructure Credits: 3 hours
IMAG 2150 - Introduction to Ink Credits: 4 hours
IMAG 2570 - Computer Graphics Credits: 3 hours

Fifth Semester (17 hours)
Area II Humanities* Credits: 3 hours
IMAG 3500 - Offset Lithography Credits: 4 hours
IMAG 3570 - Color Management Credits: 3 hours
IMAG 3590 - Rotogravure Credits: 4 hours
MGMT 2500 - Organizational Behavior Credits: 3 hours

Sixth Semester (16 hours)
Area III The United States: Cultures and Issues* Credits: 3 hours
Approved Electives Credits: 6 hours (See Approved Electives below)
FIN 3200 - Business Finance Credits: 3 hours
IMAG 3580 - Flexography Credits: 4 hours

Seventh Semester (16 hours)
Approved Elective Credits: 3 hours (See Approved electives below)
IMAG 4580 - Digital Imaging and Workflow Credits: 3 hours
IMAG 4620 - Imaging Estimating Credits: 4 hours
IMAG 4630 - Finishing/Bindery Credits: 3 hours
IMAG 4850 - Research Design Credits: 3 hours

Eighth Semester (15 hours)
Approved Elective Credits: 4 hours (See Approved electives below)
Area IV Other Cultures and Civilizations* Credits: 3 hours
IMAG 3100 - Work Experience/Coop Credits: 1 hour
IMAG 4400 - Seminar Credits: 1 hour
IMAG 4570 - Advanced Multimedia Credits: 3 hours
IMAG 4660 - Systems in Printing Management Credits: 3 hours

Footnote: *At least two of the General Education Area courses must be at the 3000-4000 level.

Approved Electives
A minimum of 13 hours of electives must be selected from the following:

IMAG 5100 - Printability Analysis Credits: 3 hours
IME 2500 - Plastics Properties and Processing Credits: 3 hours
IME 3050 - Work Analysis Credits: 3 hours
IME 3260 - Operations Planning and Control Credits: 3 hours
IME 3280 - Quality Assurance and Control Credits: 3 hours
LAW 3500 - Computer Law Credits: 3 hours
LAW 3800 - Legal Environment Credits: 3 hours
LAW 3850 - e-Business Law Credits: 3 hours
MATH 1230 - Calculus II Credits: 4 hours or
MATH 1710 - Calculus II, Science and Engineering Credits: 4 hours
MGMT 3520 - Human Resource Management Credits: 3 hours
MKTG 3710 - Marketing Research Credits: 3 hours
MKTG 3740 - Advertising and Promotion Credits: 3 hours

Either
MATH 1220 - Calculus I Credits: 4 hours or
MATH 1700 - Calculus I, Science and Engineering Credits: 4 hours or
MATH 2000 - Calculus with Applications Credits: 4 hours

**Imaging - Computer Option**
Bachelor of Science

Candidates for the Bachelor of Science in Imaging must satisfy all of the requirements of 127 hours of the Business Option, the Computer Option, the Multimedia Option, or the Substrate Option. The schedule below is an example of one leading to graduation in eight semesters starting in fall.

**Baccalaureate Writing Requirement**
Students who have chosen the Imaging major will satisfy the Baccalaureate Writing Requirement by successfully completing:
IMAG 4850 - Research Design Credits: 3 hours

**First Semester (15 hours)**
CHEM 1100 - General Chemistry I Credits: 3 hours
CHEM 1110 - General Chemistry Laboratory I Credits: 1 hour
IMAG 1500 - Introduction to Imaging Credits: 4 hours
IME 1020 - Technical Communication Credits: 3 hours
MATH 1180 - Precalculus Mathematics Credits: 4 hours

**Second Semester (17 hours)**
Area I Fine Arts* Credits: 3 hours
CS 1110 - Computer Science I Credits: 4 hours
IMAG 1570 - Imaging Systems Credits: 3 hours
MATH 1220 - Calculus I Credits: 4 hours or
MATH 1700 - Calculus I, Science and Engineering Credits: 4 hours
PAPR 1000 - Introduction to Pulp and Paper Manufacture Credits: 3 hours

**Third Semester (17 hours)**
CS 1120 - Computer Science II Credits: 4 hours
ECE 2500 - Digital Logic Credits: 3 hours
IMAG 2510 - Multimedia Publication and Design Credits: 3 hours
MATH 1230 - Calculus II Credits: 4 hours or
MATH 1710 - Calculus II, Science and Engineering Credits: 4 hours
PAPR 1600 - Introduction to Environmental Technology Credits: 3 hours

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### Fourth Semester (16 hours)
Area VIII Health and Well-Being* Credits: 2 hours  
ECE 2510 - Introduction to Microprocessors I Credits: 4 hours  
ECON 2010 - Principles of Microeconomics Credits: 3 hours  
IMAG 2150 - Introduction to Ink Credits: 4 hours  
IMAG 2570 - Computer Graphics Credits: 3 hours

### Fifth Semester (16 hours)
CS 2010 - Programming in FORTRAN Credits: 2 hours  
IMAG 3500 - Offset Lithography Credits: 4 hours  
IMAG 3570 - Color Management Credits: 3 hours  
IMAG 3590 - Rotogravure Credits: 4 hours  
IME 2610 - Engineering Statistics Credits: 3 hours

### Sixth Semester (16 hours)
Area II Humanities* Credits: 3 hours  
Approved Elective Credits: 3 hours (See Approved Electives below)  
CS 3310 - Data and File Structures Credits: 3 hours  
ECON 2020 - Principles of Macroeconomics Credits: 3 hours  
IMAG 3580 - Flexography Credits: 4 hours

### Seventh Semester (16 hours)
Area III The United States: Cultures and Issues* Credits: 3 hours  
Approved Elective Credits: 3 hours (See Approved Electives below)  
CS 3400 - Graphical User Interface Development Credits: 3 hours  
IMAG 3100 - Work Experience/Coop Credits: 1 hour  
IMAG 4580 - Digital Imaging and Workflow Credits: 3 hours  
IMAG 4850 - Research Design Credits: 3 hours

### Eighth Semester (14 hours)
Area IV Other Cultures and Civilizations* Credits: 3 hours  
Approved Elective Credits: 7 hours (See Approved Electives below)  
IMAG 4400 - Seminar Credits: 1 hour  
IMAG 4570 - Advanced Multimedia Credits: 3 hours

Footnote: *At least two of the General Education Area courses must be at the 3000-4000 level.

**Electives**
A minimum of 16 hours of electives must be selected from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>CS 2230</td>
<td>Computer Organization and Assembly Language</td>
<td>3 hours</td>
</tr>
<tr>
<td>CS 2240</td>
<td>System Programming Concepts</td>
<td>3 hours</td>
</tr>
<tr>
<td>ECE 2100</td>
<td>Circuit Analysis</td>
<td>4 hours</td>
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<tr>
<td>ECE 3570</td>
<td>Computer Architecture</td>
<td>3 hours</td>
</tr>
<tr>
<td>IMAG 4620</td>
<td>Imaging Estimating</td>
<td>4 hours</td>
</tr>
<tr>
<td>IMAG 4630</td>
<td>Finishing/Bindery</td>
<td>3 hours</td>
</tr>
<tr>
<td>IMAG 4660</td>
<td>Systems in Printing Management</td>
<td>3 hours</td>
</tr>
<tr>
<td>IMAG 5100</td>
<td>Printability Analysis</td>
<td>3 hours</td>
</tr>
<tr>
<td>IME 1420</td>
<td>Engineering Graphics</td>
<td>3 hours</td>
</tr>
<tr>
<td>IME 2460</td>
<td>Introduction to Computer-Aided Design</td>
<td>3 hours</td>
</tr>
<tr>
<td>MATH 2720</td>
<td>Multivariate Calculus and Matrix Algebra</td>
<td>4 hours</td>
</tr>
<tr>
<td>MATH 3740</td>
<td>Differential Equations and Linear Algebra</td>
<td>4 hours</td>
</tr>
</tbody>
</table>
Imaging - Multimedia Option
Bachelor of Science

Candidates for the Bachelor of Science in Imaging must satisfy all of the requirements of 127 hours of the Business Option, the Computer Option, the Multimedia Option, or the Substrate Option. The schedule below is an example of one leading to graduation in eight semesters starting in fall.

Baccalaureate Writing Requirement
Students who have chosen the Imaging major will satisfy the Baccalaureate Writing Requirement by successfully completing:
IMAG 4850 - Research Design Credits: 3 hours

First Semester (17 hours)
CHEM 1100 - General Chemistry I Credits: 3 hours
CHEM 1110 - General Chemistry Laboratory I Credits: 1 hour
COM 1700 - Interpersonal Communication Credits: 3 hours
IMAG 1500 - Introduction to Imaging Credits: 4 hours
IME 1020 - Technical Communication Credits: 3 hours
MATH 1160 - Finite Mathematics with Applications Credits: 3 hours

Second Semester (16 hours)
Area I Fine Arts* Credits: 3 hours
ECON 2010 - Principles of Microeconomics Credits: 3 hours
IMAG 1570 - Imaging Systems Credits: 3 hours
PAPR 1000 - Introduction to Pulp and Paper Manufacture Credits: 3 hours
STAT 2160 - Business Statistics Credits: 3 hours

Third Semester (15 hours)
COM 2000 - Introduction to Communication Theory Credits: 3 hours
COM 2400 - Introduction to Media and Telecommunications Credits: 3 hours
ECON 2020 - Principles of Macroeconomics Credits: 3 hours
IMAG 2510 - Multimedia Publication and Design Credits: 3 hours
PAPR 1600 - Introduction to Environmental Technology Credits: 3 hours

Fourth Semester (15 hours)
Approved Elective Credits: 3 hours (See Approved Electives below)
Area VII Health and Well-Being* Credits: 2 hours
COM 2410 - Film Communication Credits: 3 hours
IMAG 2150 - Introduction to Ink Credits: 4 hours
IMAG 2570 - Computer Graphics Credits: 3 hours

Fifth Semester (17 hours)
Area II Humanities* Credits: 3 hours
COM 2560 - Broadcast Operations Credits: 3 hours
IMAG 3500 - Offset Lithography Credits: 4 hours
IMAG 3570 - Color Management Credits: 3 hours
IMAG 3590 - Rotogravure Credits: 4 hours

Sixth Semester (16 hours)
Area III The United States: Cultures and Issues* Credits: 3 hours
Approved Elective Credits: 6 hours (See Approved Electives below)
COM 3540 - Interactive Media Credits: 3 hours
IMAG 3580 - Flexography Credits: 4 hours
Seventh Semester (16 hours)
Approved Elective Credits: 3 hours  (See Approved Electives below)
IMAG 4580 - Digital Imaging and Workflow Credits: 3 hours
IMAG 4620 - Imaging Estimating Credits: 4 hours
IMAG 4630 - Finishing/Bindery Credits: 3 hours
IMAG 4850 - Research Design Credits: 3 hours

Eighth Semester (16 hours)
Approved Elective Credits: 4 hours  (See Approved Electives below)
Area IV Other Cultures and Civilizations* Credits: 3 hours
IMAG 3100 - Work Experience/Coop Credits: 1 hour
IMAG 4400 - Seminar Credits: 1 hour
IMAG 4570 - Advanced Multimedia Credits: 3 hours
IMAG 4660 - Systems in Printing Management Credits: 3 hours

Footnote: *At least two of the General Education Area courses must be at the 3000-4000 level.

Approved Electives
A minimum of 16 hours of electives must be selected from the following:

IMAG 4860 - Independent Research Credits: 3 hours
COM 1040 - Public Speaking Credits: 3 hours
COM 2570 - Radio Programming and Production Credits: 3 hours
COM 3070 - Freedom of Expression Credits: 3 hours
COM 3410 - Film Modes and Genres Credits: 3 hours
COM 3420 - The International Film Industry Credits: 3 hours
COM 3430 - American Film History Credits: 3 hours
COM 4410 - Documentary in Film and Television Credits: 3 hours
COM 4430 - Media Theory and Social Change Credits: 3 hours
COM 4440 - Mass Communication, News, and Public Affairs Credits: 3 hours
COM 4450 - Media Criticism Credits: 3 hours
COM 4550 - International Telecommunications Credits: 3 hours
IMAG 5100 - Printability Analysis Credits: 3 hours
MATH 1230 - Calculus II Credits: 4 hours or
MATH 1710 - Calculus II, Science and Engineering Credits: 4 hours

Select Either
MATH 1220 - Calculus I Credits: 4 hours or
MATH 1700 - Calculus I, Science and Engineering Credits: 4 hours or
MATH 2000 - Calculus with Applications Credits: 4 hours

Imaging - Substrate Option
Bachelor of Science
Candidates for the Bachelor of Science in Imaging must satisfy all of the requirements of 127 hours of the Business Option, the Computer Option, the Multimedia Option, or the Substrate Option. The schedule below is an example of one leading to graduation in eight semesters starting in fall.

Baccalaureate Writing Requirement
Students who have chosen the Imaging major will satisfy the Baccalaureate Writing Requirement by successfully completing:
IMAG 4850 - Research Design Credits: 3 hours
First Semester (15 hours)
CHEM 1100 - General Chemistry I Credits: 3 hours
CHEM 1110 - General Chemistry Laboratory I Credits: 1 hour
IMAG 1500 - Introduction to Imaging Credits: 4 hours
IME 1020 - Technical Communication Credits: 3 hours
MATH 1180 - Precalculus Mathematics Credits: 4 hours

Second Semester (16 hours)
Area I Fine Arts* Credits: 3 hours
IMAG 1570 - Imaging Systems Credits: 3 hours
IME 1500 - Introduction to Manufacturing Credits: 3 hours
MATH 1220 - Calculus I Credits: 4 hours or
MATH 1700 - Calculus I, Science and Engineering Credits: 4 hours
PAPR 1000 - Introduction to Pulp and Paper manufacture Credits: 3 hours

Third Semester (16 hours)
IMAG 2510 - Multimedia Publication and Design Credits: 3 hours
MATH 1230 - Calculus II Credits: 4 hours or
MATH 1710 - Calculus II, Science and Engineering Credits: 4 hours
PAPR 2040 - Stock Preparation and Papermaking Credits: 4 hours
PHYS 2050 - Mechanics and Heat Credits: 4 hours
PHYS 2060 - Mechanics and Heat Laboratory Credits: 1 hour

Fourth Semester (15 hours)
Area VIII Health and Well-Being* Credits: 2 hours
ECON 2010 - Principles of Microeconomics Credits: 3 hours
IMAG 2150 - Introduction to Ink Credits: 4 hours
IMAG 2570 - Computer Graphics Credits: 3 hours
IME 2500 - Plastics Properties and Processing Credits: 3 hours

Fifth Semester (17 hours)
ECON 2020 - Principles of Macroeconomics Credits: 3 hours
IMAG 3500 - Offset Lithography Credits: 4 hours
IMAG 3570 - Color Management Credits: 3 hours
IMAG 3590 - Rotogravure Credits: 4 hours
IME 2610 - Engineering Statistics Credits: 3 hours

Sixth Semester (16 hours)
Area II Humanities* Credits: 3 hours
Approved Elective Credits: 6 hours (See Approved Electives below)
CHEG 2610 - Environmental Engineering Credits: 3 hours
IMAG 3580 - Flexography Credits: 4 hours

Seventh Semester (16 hours)
Approved Elective Credits: 3 hours (See Approved Electives below)
Area III The United States: Cultures and Issues* Credits: 3 hours
IMAG 4580 - Digital Imaging and Workflow Credits: 3 hours
IMAG 4850 - Research Design Credits: 3 hours
PAPR 3050 - Paper Physics Fundamentals Credits: 4 hours

Eighth Semester (16 hours)
Approved Elective Credits: 4 hours (See Approved Electives below)
Area IV Other Cultures and Civilizations* Credits: 3 hours
IMAG 3100 - Work Experience/Coop Credits: 1 hour
IMAG 4400 - Seminar Credits: 1 hour
IMAG 4570 - Advanced Multimedia Credits: 3 hours
Footnote: *At least two of the General Education Area courses must be at the 3000-4000 level.

Approved Electives
A minimum of 16 hours of electives must be selected from the following:

- CHEM 1120 - General Chemistry II Credits: 3 hours
- CHEM 1130 - General Chemistry Laboratory II Credits: 1 hour
- CHEM 3700 - Introduction to Organic Chemistry Credits: 3 hours
- CHEM 3710 - Introduction to Organic Chemistry Lab Credits: 1 hour
- IMAG 4620 - Imaging Estimating Credits: 4 hours
- IMAG 4630 - Finishing/Bindery Credits: 3 hours
- IMAG 4660 - Systems in Printing Management Credits: 3 hours
- IMAG 5100 - Printability Analysis Credits: 3 hours
- IME 1420 - Engineering Graphics Credits: 3 hours
- IME 2460 - Introduction to Computer-Aided Design Credits: 3 hours
- MATH 2720 - Multivariate Calculus and Matrix Algebra Credits: 4 hours
- MATH 3740 - Differential Equations and Linear Algebra Credits: 4 hours
- PAPR 3410 - Converting Processes Credits: 2 hours
- PAPR 3480 - Water Quality and Regulations Credits: 2 hours
- PHYS 2070 - Electricity and Light Credits: 4 hours
- PHYS 2080 - Electricity and Light Laboratory Credits: 1 hour

**Paper Engineering**
Accredited by the Engineering Accreditation Commission of ABET, Inc., 111 Market Place, Suite 1050, Baltimore, MD 21202-4012; telephone (410) 347-7700.

The educational objectives for the Paper Engineering program are:
1. Enable a student to become a job-ready graduate by acquiring the technical skills, knowledge and experience required of a process engineer working in the pulp, paper, and related industry.
2. Enable a student to develop organizational, leadership, teamwork, and communication skills.
3. Promote the development of personal attributes of a thirst for knowledge and discovery, global perspective, and moral and ethical responsibility to help the graduates become responsible members of the society.

(For up-to-date educational objectives and learning outcomes, see the Department's web page at www.wmich.edu/ppse)

**Admission**
1. To be admitted to this Engineering curriculum, a student must complete all Pre-engineering requirements with grades of "C" or better. These requirements are indicated below.
2. Students seeking admission to this curriculum must submit an application following procedures established by the College of Engineering and Applied Sciences. Upper level transfer students should complete an application prior to their first semester of enrollment. Only students in good academic standing as defined by the University will be admitted to this curriculum.

**Baccalaureate Writing Requirement**
Students who have chosen the Paper Engineering major will satisfy the Baccalaureate Writing Requirement by successfully completing PAPR 4850 Research Design.

**Requirements**
Candidates for the Bachelor of Science in Engineering (Paper) must satisfy the following requirements in addition to those required by Western Michigan University:
1. Students must earn a "C" or better grade in all departmental prefixed prerequisite courses. The requirement of departmental prefixed prerequisite will not be fulfilled with a grade less than a "C". Requests for exceptions to this policy must follow the departmental appeal policy (available in the department office).
2. No more than two grades of "D" or "DC" may be presented for graduation.
3. All departmental prefixed courses submitted for graduation must be passed with a grade of "C" or better. No exceptions will be permitted.
4. At least two of the General Education courses must be at the 3000-4000 level.
5. Students must complete the following program of 136 semester credit hours, which includes the courses in one of the following elective sequences: Paper Engineering/Process or Paper Engineering/Environmental. One sequence must be elected and taken in its entirety. The schedules below are examples leading to graduation in eight semesters, beginning in fall. However, depending on the individual's curricular and scheduling needs, the program can take more than eight semesters.

**Paper Engineering/Process**

**First Semester (16 hours)**
PEN 1000 - Introduction to Pulp and Paper Manufacture Credits: 3 hours
MATH 1220 - Calculus I Credits: 4 hours or
MATH 1700 - Calculus I, Science and Engineering Credits: 4 hours Pre-engineering requirement

**Second Semester (18 hours)**
AREA I Fine Arts* Credits: 3 hours
Preferred Electives
CHEM 1110 - General Chemistry Laboratory I Credits: 1 hour Pre-engineering requirement
CHEM 1120 - General Chemistry II Credits: 3 hours Pre-engineering requirement
CHEG 1810 - Introduction to Chemical Engineering Computation Credits: 2 hours
IME 1020 - Technical Communication Credits: 3 hours Pre-engineering requirement

**Third Semester (18 hours)**
AREA III The United States: Cultures and Issues* Credits: 3 hours
CHEG 2610 - Engineering Statistics Credits: 3 hours
CHEG 2960 - Material and Energy Balance Credits: 4 hours
PAPR 3030 - Pulping and Bleaching Credits: 4 hours

**Fourth Semester (18 hours)**
CHEG 2960 - Material and Energy Balance Credits: 4 hours
MATH 2720 - Multivariate Calculus and Matrix Algebra Credits: 4 hours
PAPR 3050 - Paper Physics Fundamentals Credits: 4 hours

**Fifth Semester (18 hours)**
AREA V Social and Behavioral Sciences (ECON 2010) 3
Elective Credits: 4 hours (See the Elective Core below)
PAPR 3100 - Unit Operations in Chemical Engineering I Credits: 3 hours

**Sixth Semester (17 hours)**
CHEG 3120 - Unit Operations in Chemical Engineering II Credits: 3 hours
MATH 3740 - Differential Equations and Linear Algebra Credits: 4 hours
PAPR 3040 - Chemical Recovery Credits: 3 hours
PAPR 3420 - Coating Credits: 4 hours
PAPR 3520 - Recycling and Deinking Credits: 3 hours

Seventh Semester (16 hours)
Elective Credits: 4 hours  (See the Electives Core below)
CHEG 4830 - Process Control I Credits: 4 hours
CHEM 4300 - Physical Chemistry I Credits: 3 hours
PAPR 3100 - Work Experience / Co-op Credits: 1 to 3 hours Credits: 1 hour
PAPR 4400 - Seminar Credits: 1 hour
PAPR 4850 - Research Design Credits: 3 hours

Eighth Semester (14 hours)
Elective Credits: 4 hours  (See the Elective Core below)
PAPR 4300 - Surface and Wet End Science Credits: 3 hours
PAPR 4400 - Seminar Credits: 1 hour
PAPR 4600 - Plant Economics and Project Design Credits: 3 hours
PAPR 4860 - Independent Research Credits: 3 hours

Footnote: *At least two of the General Education Area courses must be at the 3000-4000 level.

Electives
Students must select a minimum of 12 credit hours from the following:

CHEG 3200 - Chemical Engineering Thermodynamics Credits: 3 hours
CHEG 3810 - Computer Modeling and Simulation - Chemical Processes Credits: 1 hour Preferred Elective
CHEG 4100 - Chemical Reaction Engineering Credits: 3 hours
ECE 2100 - Circuit Analysis Credits: 4 hours
IME 3100 - Engineering Economy Credits: 3 hours Another course in IME, MGMT, or COM can be substituted for IME 3100 with permission of the advisor.
ME 2530 - Statics and Mechanics of Materials Credits: 4 hours Preferred Elective
PAPR 3100 - Work Experience / Co-op Credits: 1 to 3 hours
PAPR 3410 - Converting Processes Credits: 2 hours
PAPR 4840 - Process Control II Credits: 4 hours
STAT 5670 - Statistical Design and Analysis of Experiments Credits: 4 hours Preferred Elective

Paper Engineering/ Environmental

First Semester (16 hours)
PEGN - Physical Education Credits: 2 hours
AREA I Fine Arts* Credits: 3 hours
CHEM 1100 - General Chemistry I Credits: 3 hours Pre-engineering requirement
CHEM 1110 - General Chemistry Laboratory I Credits: 1 hour Pre-engineering requirement
MATH 1220 - Calculus I Credits: 4 hours or
MATH 1700 - Calculus I, Science and Engineering Credits: 4 hours Pre-engineering requirement
PAPR 1000 - Introduction to Pulp and Paper Manufacture Credits: 3 hours

Second Semester (18 hours)
AREA II Humanities* Credits: 3 hours
CHEG 1810 - Introduction to Chemical Engineering Computation Credits: 2 hours
CHEM 1120 - General Chemistry II Credits: 3 hours
CHEM 1130 - General Chemistry Laboratory II Credits: 1 hour
IME 1020 - Technical Communication Credits: 3 hours
MATH 1230 - Calculus II Credits: 4 hours or
MATH 1710 - Calculus II, Science and Engineering Credits: 4 hours Pre-engineering requirement
PAPR 1030 - Printing Processes Credits: 2 hours

Third Semester (18 hours)
AREA III The United States: Cultures and Issues* Credits: 3 hours
CHEM 3750 - Organic Chemistry I Credits: 3 hours
CHEM 3760 - Organic Chemistry Lab I Credits: 1 hour
IME 2610 - Engineering Statistics Credits: 3 hours
PAPR 2040 - Stock Preparation and Papermaking Credits: 4 hours
PHYS 2050 - Mechanics and Heat Credits: 4 hours

Fourth Semester (19 hours)
AREA IV Other Cultures and Civilizations* Credits: 4 hours
CHEG 2610 - Environmental Engineering Credits: 3 hours
CHEG 2960 - Material and Energy Balance Credits: 4 hours
MATH 2720 - Multivariate Calculus and Matrix Algebra Credits: 4 hours
PHYS 2070 - Electricity and Light Credits: 4 hours

Fifth Semester (18 hours)
AREA V Social and Behavioral Sciences* (ECON 2010) Credits: 3 hours
Elective Credits: 4 hours  (See the Elective Core below)
CHEG 3110 - Unit Operations in Chemical Engineering I Credits: 3 hours
PAPR 3030 - Pulping and Bleaching Credits: 4 hours
PAPR 3050 - Paper Physics Fundamentals Credits: 4 hours

Sixth Semester (17 hours)
Elective Credits: 4 hours  (See the Elective Core below)
CHEG 3120 - Unit Operations in Chemical Engineering II Credits: 3 hours
MATH 3740 - Differential Equations and Linear Algebra Credits: 4 hours
PAPR 3040 - Chemical Recovery Credits: 3 hours
PAPR 3520 - Recycling and Deinking Credits: 3 hours

Seventh Semester (16 hours)
Elective Credits: 4 hours  (See the Elective Core below)
CHEG 4830 - Process Control I Credits: 4 hours
CHEM 4300 - Physical Chemistry I Credits: 3 hours
PAPR 3100 - Work Experience / Co-op Credits: 1 to 3 hours Credits: 1 hour
PAPR 4400 - Seminar Credits: 1 hour
PAPR 4850 - Research Design Credits: 3 hours

Eighth Semester (14 hours)
Elective Credits: 4 hours  (See the Elective Core below)
PAPR 4300 - Surface and Wet End Science Credits: 3 hours
PAPR 4400 - Seminar Credits: 1 hour
PAPR 4600 - Plant Economics and Project Design Credits: 3 hours
PAPR 4860 - Independent Research Credits: 3 hours

Footnote: *At least two of the General Education Area courses must be at the 3000-4000 level.

Electives
Students must select a minimum of 16 credit hours from the following:

BIOS 1050 - Environmental Biology Credits: 3 hours Preferred Elective
CHEG 3200 - Chemical Engineering Thermodynamics Credits: 3 hours
CHEG 3810 - Computer Modeling and Simulation - Chemical Processes Credits: 1 hour Preferred Elective
CHEG 4100 - Chemical Reaction Engineering Credits: 3 hours
PAPR 3100 - Work Experience / Co-op Credits: 1 to 3 hours
PAPR 3410 - Converting Processes Credits: 2 hours
PAPR 3480 - Water Quality and Regulations Credits: 2 hours Preferred Elective
PAPR 3490 - Water Quality and Regulations (Lab) Credits: 1 hour Preferred Elective
PAPR 3530 - Wastewater Treatment Systems Credits: 4 hours Preferred Elective
PAPR 4500 - Solid Waste Treatment Credits: 3 hours Preferred Elective
PAPR 4510 - Air Pollution Control Credits: 3 hours Preferred Elective
PAPR 4840 - Process Control II Credits: 4 hours Preferred Elective
STAT 5670 - Statistical Design and Analysis of Experiments Credits: 4 hours

Paper Science
Baccalaureate Writing Requirement

Students who have chosen the Paper Science major will satisfy the Baccalaureate Writing Requirement by successfully completing PAPR 4850 Research Design.

Requirements
Candidates for the Bachelor of Science must satisfy the following requirements in addition to University requirements stated elsewhere in this bulletin:
1. All students must complete a sequence of two courses (minimum of six credit hours) in the humanities, fine arts, social sciences, and/or behavioral sciences. The sequence must begin with a course at the 1000-2000 level and conclude with a course at the 3000-4000 level. Both courses must have the same course prefix, must provide depth, and must not be a selection of unrelated introductory courses. The sequence may be selected from General Education Areas I, II, III, IV and/or V as part of the University General Education requirements. If the University General Education requirements have been otherwise satisfied, the sequence may be from any of the humanities, fine arts, social sciences, and/or behavioral sciences.
2. Students must earn a “C” or better grade in all departmental-prefixed courses. The requirement of departmental-prefixed prerequisite will not be fulfilled with a grade less than “C.” Requests for exceptions to this policy must follow the departmental appeal policy (available in the department office).
3. No more than two grades of “D” or “DC” may be presented for graduation.
4. All departmental-prefixed courses submitted for graduation must be passed with a grade of “C” or better. No exceptions or exemptions will be permitted.
5. At least two of the General Education courses must be at the 3000-4000 level.
6. Students must complete the following program of 136 semester credit hours. The schedule below is an example of one leading to graduation in eight semesters, beginning in fall. However, depending on the individual's curricular and scheduling needs, the program can take more than eight semesters.

First Semester (16 hours)
AREA I Fine Arts* Credits: 3 hour
AREA VIII Health and Well-Being* Credits: 2 hours
CHEM 1100 - General Chemistry I Credits: 3 hours Pre-engineering requirement
CHEM 1110 - General Chemistry Laboratory I Credits: 1 hour Pre-engineering requirement
MATH 1220 - Calculus I Credits: 4 hours or
MATH 1720 - Calculus I, Science and Engineering Credits: 4 hours Pre-engineering requirement
PAPR 1000 - Introduction to Pulp and Paper Manufacture Credits: 3 hours

Second Semester (18 hours)
AREA II Humanities* Credits: 3 hours
CHEG 1810 - Introduction to Chemical Engineering Computation Credits: 2 hours
CHEM 1120 - General Chemistry II Credits: 3 hours Pre-engineering requirement
CHEM 1130 - General Chemistry Laboratory II Credits: 1 hour Pre-engineering requirement
IME 1020 - Technical Communication Credits: 3 hours Pre-engineering requirement
MATH 1230 - Calculus II Credits: 4 hours or
MATH 1730 - Calculus II, Science and Engineering Credits: 4 hours Pre-engineering requirement
PAPR 1030 - Printing Processes Credits: 2 hours
Third Semester (18 hours)
ARE A III The United States: Cultures and Issues* Credits: 3 hours
CHEM 3750 - Organic Chemistry I Credits: 3 hours
CHEM 3760 - Organic Chemistry Lab I Credits: 1 hour
IME 2610 - Engineering Statistics Credits: 3 hours
PAPR 2040 - Stock Preparation and Papermaking Credits: 4 hours
PHYS 2050 - Mechanics and Heat Credits: 4 hours

Fourth Semester (19 hours)
ARE A IV Other Cultures and Civilizations* Credits: 4 hours
CHEG 2610 - Environmental Engineering Credits: 3 hours
CHEG 2960 - Material and Energy Balance Credits: 4 hours
MATH 2720 - Multivariate Calculus and Matrix Algebra Credits: 4 hours Pre-engineering requirement
PHYS 2070 - Electricity and Light Credits: 4 hours

Fifth Semester (18 hours)
ARE A V Social and Behavioral Sciences* (ECON 2010) Credits: 3 hours
Elective Credits: 4 hours (See the Electives Core below)
CHEG 3110 - Unit Operations in Chemical Engineering I Credits: 3 hours
PAPR 3030 - Pulping and Bleaching Credits: 4 hours
PAPR 3050 - Paper Physics Fundamentals Credits: 4 hours

Sixth Semester (17 hours)
CHEG 3120 - Unit Operations in Chemical Engineering II Credits: 3 hours
MATH 3740 - Differential Equations and Linear Algebra Credits: 4 hours
PAPR 3040 - Chemical Recovery Credits: 3 hours
PAPR 3420 - Coating Credits: 4 hours
PAPR 3520 - Recycling and Deinking Credits: 3 hours

Seventh Semester (15 hours)
CHEG 4830 - Process Control I Credits: 4 hours
PAPR 3100 - Work Experience / Co-op Credits: 1 to 3 hours Credits: 1 hour
PAPR 4400 - Seminar Credits: 1 hour
PAPR 4850 - Research Design Credits: 3 hours

Eighth Semester (15 hours)
Elective Credits: 3 hours
Elective Credits: 3 hours (See the Electives Core below)
CHEM 4360 - Physical Chemistry Laboratory I Credits: 2 hours
PAPR 4300 - Surface and Wet End Science Credits: 3 hours
PAPR 4400 - Seminar Credits: 1 hour
PAPR 4860 - Independent Research Credits: 3 hours

Footnote: *At least two of the General Education Area courses must be at the 3000-4000 level.

Electives
Students must select a minimum of 13 credit hours from the following.

CHEG 3200 - Chemical Engineering Thermodynamics Credits: 3 hours
CHEG 3810 - Computer Modeling and Simulation - Chemical Processes Credits: 1 hour Preferred Elective
CHEG 4100 - Chemical Reaction Engineering Credits: 3 hours
CHEM 2250 - Quantitative Analysis Credits: 3 hours Preferred Elective
CHEM 3770 - Organic Chemistry II Credits: 3 hours Preferred Elective
CHEM 3780 - Organic Chemistry Lab II Credits: 1 hour
CHEM 4310 - Physical Chemistry II Credits: 3 hours Preferred Elective
CHEM 4370 - Physical Chemistry Laboratory II Credits: 1 hour
CHEM 5200 - Instrumental Methods in Chemistry Credits: 3 hours
PAPR 3100 - Work Experience / Co-op Credits: 1 to 3 hours
PAPR 3410 - Converting Processes Credits: 2 hours
PAPR 4840 - Process Control II Credits: 4 hours
STAT 5670 - Statistical Design and Analysis of Experiments Credits: 4 hours Preferred Elective

**Paper Science and Engineering Minor**

**Program Requirements**
A minor in paper science and engineering may be earned by completing a minimum of 20 semester hours from the following departmental courses:

- CHEG 2960 - Material and Energy Balance Credits: 4 hours
- PAPR 1030 - Printing Processes Credits: 2 hours
- PAPR 2040 - Stock Preparation and Papermaking Credits: 4 hours
- PAPR 3030 - Pulping and Bleaching Credits: 4 hours
- PAPR 3040 - Chemical Recovery Credits: 3 hours
- PAPR 3520 - Recycling and Deinking Credits: 3 hours

Select Either
- PAPR 1000 - Introduction to Pulp and Paper Manufacture Credits: 3 hours
- PAPR 1040 - Introduction to Paper Industry and Technology Credits: 1 hour

**Additional Information**
The minor is suitable for other engineering graduates and physics and chemistry graduates, as they will have most of the prerequisites for these courses.

**Imaging Minor**
Eighteen Hours of Departmental Courses

A minor in Imaging may be earned by completing satisfactorily the following eighteen hours of departmental courses:

- IMAG 1500 - Introduction to Imaging Credits: 4 hours
- IMAG 1570 - Imaging Systems Credits: 3 hours
- IMAG 2510 - Multimedia Publication and Design Credits: 3 hours

And at least eight hours elected from among:

- IMAG 2150 - Introduction to Ink Credits: 4 hours
- IMAG 2570 - Computer Graphics Credits: 3 hours
- IMAG 3500 - Offset Lithography Credits: 4 hours
- IMAG 3570 - Color Management Credits: 3 hours
- IMAG 3580 - Flexography Credits: 4 hours
- IMAG 3590 - Rotogravure Credits: 4 hours
- IMAG 4570 - Advanced Multimedia Credits: 3 hours
- IMAG 4580 - Digital Imaging and Workflow Credits: 3 hours

**Chemical Engineering Minor**

**Requirements**
A minor in Chemical Engineering may be earned by completing the following 20 semester hours of Chemical Engineering courses:

- CHEG 1010 - Introduction to Chemical Engineering Credits: 3 hours
- CHEG 2810 - Data Acquisition and Handling Credits: 1 hour
CHEG 2960 - Material and Energy Balance Credits: 4 hours
CHEG 3110 - Unit Operations in Chemical Engineering I Credits: 3 hours
CHEG 3120 - Unit Operations in Chemical Engineering II Credits: 3 hours
CHEG 3300 - Mass Transfer Credits: 3 hours
CHEG 4100 - Chemical Reaction Engineering Credits: 3 hours

Prerequisites
In addition, students would complete the following as prerequisites for CHEG 4100.
CHEM 1120 - General Chemistry II Credits: 3 hours
CHEM 1130 - General Chemistry Laboratory II Credits: 1 hour
CHEM 4300 - Physical Chemistry I Credits: 3 hours

Additional Information
The minor is most suitable for other engineering graduates, as well as physics and chemistry graduates, as they will have most of the prerequisites for these courses.

Interdisciplinary Programs

Integrated Supply Matrix Management Minor (ISMN) (15 hours)
This program was originally developed in 1989 to integrate business and technological concepts for a successful career in supply management. The program offers a major for students in the Haworth College of Business and a minor geared toward students in the College of Engineering and Applied Sciences.

Core Classes (9 hours) (take all of the following)
IME 3260 - Operations Planning and Control Credits: 3 hours or
IME 4160 - Operations Control in Industry Credits: 4 hours
MKTG 3720 - Purchasing Management Credits: 3 hours
MKTG 4630 - Manufacturing Logistics Credits: 3 hours

Capstone class (3 hours) (take one of the following)
MGMT 4800 - Materials Management Strategy Credits: 3 hours
MGMT 4810 - Integrated Materials Systems Credits: 3 hours

Select Either:
IME 4880 - Applied Process Reengineering Credits: 3 hours or
MKTG 4850 - Applied Process Reengineering Credits: 3 hours

Electives (3 hours) (one of the following)
IME 3180 - Statistical Quality Control Credits: 3 hours or
IME 3280 - Quality Assurance and Control Credits: 3 hours
LAW 4860 - Marketing and Sales Law Credits: 3 hours
MGMT 4800 - Materials Management Strategy Credits: 3 hours
MGMT 4810 - Integrated Materials Systems Credits: 3 hours

Select Either:
IME 4880 - Applied Process Reengineering Credits: 3 hours or
MKTG 4850 - Applied Process Reengineering Credits: 3 hours
College of Fine Arts

Margaret Merrion
Dean

Jim Hopfensperger
Associate Dean

Mission
The mission of the College of Fine Arts is to provide scholarly activity, creative experiences and research that inform and support instruction, performance and exhibitions. In addition, the College must provide the resources that will allow students to become effective performers, artists, educators, practitioners, scholars, researchers and specialists in their chosen disciplines. These professionals will be sensitive and experienced in working with diverse populations in schools, arts organizations, communities and families. Critical to this mission are the constant evolution of effective instruction for students; the exploration of meaningful and ever-changing aesthetic issues; educational and artistic partnerships throughout the region; and national and international outreach that enriches the lives of all.

Goals
• to graduate students who will be artist-practitioners in the various fine arts;
• to educate teachers who will perpetuate the strong traditions of the arts;
• to educate therapists to use the arts in a healing capacity;
• to prepare scholars who will continue to disseminate historical and theoretical information;
• to engender an appreciation of the arts among general university students, who will constitute the growing body of people whose lives are enriched by the arts;
• to contribute to the cultural life of the university and the greater Kalamazoo community; and
• to expand our outreach nationally and internationally.

Academic Units:
Art
Dance
Music
Theatre

Art
Phillip Vander Weg, Director
Karen Bondarchuk
William Charland
Cat Crotchett
William Davis
Richard dePeaux
David Gall
Caroline Gore
Edward Harkness
Tricia Hennessy
Jim Hopfensperger
Richard J. Keaveny
Joyce Kubiski
Albert LaVergne
John Link
Nichole Maury
Bruce Naftel
Ginger Owen

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The main goal of the School of Art is to provide education in the visual arts to the students of Western Michigan University. An innovative foundation program integrates traditional skills with recent computer technologies; while rigorous upper division course work allows the student to specialize in one or more media. The faculty fosters the technical skills, critical thinking, and creative freedom necessary to prepare students for careers in the competitive fields of studio art, graphic design, art education, and art history. Through our programs we also provide visual arts education to the wider university population in an effort to enhance art appreciation and visual literacy.

The School of Art also acts as a regional resource, working to advance the arts and their roles in our community. We provide facilities and instruction for special programs in the public school system, K-12. Through the exhibitions in our galleries, a visiting artists and scholars program, and a campus wide sculpture tour, we provide the community access to local, national, and international artists and scholars.

As artists and scholars ourselves, we also exhibit and publish our creative work and research. Through these activities we not only advance our respective fields in the visual arts, but we are better equipped to mentor our students in a world of constantly changing methodologies, technologies, and expectations for art.

Accreditation
Western Michigan University is an accredited member of the National Association of Schools of Art and Design and subscribes to the recommendations of this organization.

Admission
Only the Office of Admissions and Orientation grants admission to Western Michigan University for undergraduate students. Application forms may be obtained by writing to the Office of Admissions and Orientation.

Enrollment in the Bachelor of Arts in Art curriculum is contingent upon both admission to the University and approval of the School of Art, the latter of which is achieved through the portfolio review process. The student should begin by making application to the University and requesting portfolio information from the School of Art. Prospective art history majors should submit writing samples, as outlined in the portfolio information. Both procedures should be commenced early in the senior year of high school, or early in the final year at a community college.

Approval to become an art major is based upon the student's background in art, as demonstrated in the portfolio application. The School of Art's portfolio review will help many students make a more intelligent choice regarding their educational career. Information regarding admission to Bachelor of Art in Art curriculum may be obtained by writing the Art Student Advisor in the School of Art. The Department welcomes the opportunity to confer with prospective students, parents, and counselors regarding educational goals and plans.

Students interested in pursuing the Bachelor of Fine Arts program, please see below under "Art Major-Bachelor of Fine Arts" and "Graphic Design Major-Bachelor of Fine Arts."

Students who wish to declare an Art Education Major are required to apply before registering for Art 2520. Application includes a portfolio review, letter of intent, and advising checks. More complete information is available in the Art Advising Office.

Transfer Credit
Transfer credit may be used to fulfill no more than half the number of credit hours required for the student's Art major or minor. Art credits earned at a college accredited by the National Association of Schools of Art and Design, or a regionally recognized accrediting agency, in which a grade of "C" or better is earned, will transfer in most cases. Successful art course transfer is dependent upon the degree of positive content relationship to existing WMU courses, particularly at the foundation level.
If you receive general art credit for any course you feel would fulfill a required art course, or for any course needed to fulfill a prerequisite for a course you wish to take, you must present a portfolio for consideration. Based on the results of this portfolio review, the course in question will either receive a direct course equivalent number or remain general art credit. General art credits can be used to fulfill the art elective category or be used as electives you may need to complete the minimum number of hours required for graduation (122).

If you do not wish to show a portfolio for any courses in which you have received general "art credit," you do not have to do so. These credits will automatically be used as electives wherever needed.

For portfolio guidelines please write to: Screening Committee, School of Art, Western Michigan University, Kalamazoo, MI 49008, or call (269) 387-2440.

Advising
All art majors and minors are required to see an art advisor as soon as they are on campus and at least once each Fall and Spring semester thereafter. To make an appointment please call (269) 387-2440.

Miscellaneous

Baccalaureate Writing Requirement
Students who major in Art will satisfy the Baccalaureate Writing Requirement by successfully completing ART 3250 Writing About Art.

Students who major in Art History will satisfy the Baccalaureate Writing Requirement by successfully completing ART 3270 Writing About Art History.

Students who major in Art Education will satisfy the Baccalaureate Writing Requirement by successfully completing ES/ED 3950 School and Society.

Technology Requirement
Every undergraduate student with a major in Art must demonstrate proficiency in computer usage through one of the following options:
1. Satisfactory completion of ART 1140 Digital Media in the Arts.
2. Waiver from the instructor of record based on demonstrable competence in all topics/modules of ART 1140. Such competence must be demonstrated to the instructor of record in one of the following ways:
   a. The presentation of the syllabus for a course covering those topics taken previously by the student and evidence of successful completion of said course.
   b. Demonstration of proficiency in the course topics.

Computer Usage
The School of Art utilizes computers in virtually all aspects of the visual arts. Our computer lab is open to all Art majors and minors.

Computer usage and design play a vital role in our Graphic Design Program, and our Design Center is fully equipped for exclusive use of Graphic Design students.

Exhibition Requirement
Each Bachelor of Fine Arts candidate must present a graduating exhibition as stated in Art 4900-4970 in the B.F.A. degree requirements. The B.F.A. candidate is to arrange such an exhibition in consultation with their B.F.A. Committee Chairperson. B.F.A. candidates must submit to the department a minimum of two sets of 18 slides of their art work before receiving a grade for their graduation presentation.

Grading
Art majors and minors receiving a grade below a "C" in a required course must repeat the course.
**Studios**

Advanced undergraduates occasionally are given studios. All other students may work in the regular classroom studios at night and on Saturdays. The department and its instructors cannot be responsible for student work left in studios after the end of each semester or term. Studio classes are usually limited to between 15 and 20 students.

**Programs**

The School of Art offers the following degree programs: Bachelor of Fine Arts with a major in Art and an emphasis in either Ceramics, Jewelry/Metalsmithing, Painting, Printmaking, or Sculpture; Bachelor of Fine Arts with a major in Graphic Design; Bachelor of Fine Arts with an emphasis in Photography and Intermedia; Bachelor of Arts with a major in Art; Bachelor of Arts with a major in Art History; Bachelor of Arts with a major in Art Education. All programs are within the Art curriculum, which is composed of the General Education requirements of the University and the Art major requirements of the B.A. or B.F.A. degrees. The department also offers two minors: Art and Art History.

Those seeking a broadly inclusive studio experience in art are advised to take ART 1300 and/or 1400. Further recommended courses in specific media for non-art majors include Drawing 2010, Acrylic Painting 2020, Printmaking 2030, Sculpture 2050, Ceramics 2060, Jewelry 2070, and Watercolor 2080. ART 1200, 1300, 1400, 1480, 2200, and 2210 are open with no prerequisites to non-art majors and can satisfy the Area I, Fine Arts, requirements of General Education.

**Art Major - Bachelor of Fine Arts (85 hours)**

This degree is designed for qualified students who intend to become professional artists or pursue graduate study in art. Art majors must make application to a departmental committee for admission to B.F.A. candidacy in a specific area of emphasis after completing 30 hours in art and one semester residency in the department. It also is necessary to be at or above the 3000-level in the area to which they are applying.

Areas of emphasis: ceramics, jewelry/metalsmithing, painting, photography, printmaking, and sculpture. Art Education students who are also BFA candidates must complete the requirements of one of the studio areas of emphasis in addition to the certification requirements of the College of Education and the art education sequence in the School of Art: ART 2520, 3520, 4520, and 5520.

The requirements of the art curriculum of the College of Fine Arts have to be satisfied. Eighty-five hours in art satisfy both the major and the minor requirements of this curriculum and are distributed as follows:

**Basic Studies Requirement (12 hours)**
ART 1040 - Object Drawing Credits: 3 hours
ART 1050 - Drawing Studio Credits: 3 hours
ART 1070 - Form and Surface Credits: 3 hours
ART 1080 - Form and Space Credits: 3 hours

**Art History Requirement (12 to 15 hours)**
Two additional Art History courses at the 3000- or 4000-level, or at the 5000-level with permission of instructor (6 to 9 hours)
ART 2200 - History of Art Credits: 3 hours
ART 2210 - History of Art Credits: 3 hours

**Baccalaureate Writing Requirement (3 hours)**
ART 3250 - Writing About Art Credits: 3 hours

**Studio Emphasis (21 to 31 hours)**
Areas include: Ceramics, Painting, Photography, Printmaking, and Sculpture.

**Art Electives (21 to 34 hours)**
Electives and required art courses must be determined in consultation with a faculty advisor within the studio area of emphasis. Three (3) hours of non-Western Art History may be applied to the elective requirement in certain emphases, with advisor approval.
Graduation Presentation (3 hours)
Select one from:
ART 4900 - Graduation Presentation and Seminar-Painting Credits: 3 hours
ART 4910 - Graduation Presentation and Seminar-Sculpture Credits: 3 hours
ART 4940 - Graduation Presentation and Seminar-Printmaking Credits: 3 hours
ART 4950 - Graduation Presentation and Seminar-Jewelry/Metalsmithing Credits: 3 hours
ART 4960 - Graduation Presentation and Seminar-Ceramics Credits: 3 hours

Graphic Design Major - Bachelor of Fine Arts (85 hours)
This degree is designed for qualified students who intend to become professional graphic designers or pursue graduate study in graphic design. Art majors must make specific application for B.F.A. candidacy with a major in graphic design to a departmental committee of graphic design faculty. Courses in the program are sequential beginning in the fall semester of each year and will take a minimum of three years to complete after admission.

Application requires a portfolio review, personal interview, submission of an unofficial transcript, and completion of application forms. Applications and deadlines may be obtained from the advising office. Reviews are held only in the spring semester for admission into the following fall semester. Students must have completed or be enrolled in 12 hours of the Basic Studies courses and 3 hours of Art History.

Students' portfolios are reviewed for understanding of perspective, composition, and color acquired in foundation courses. Academic abilities reflected in the grade point average and an ability to articulate the fundamentals acquired at the basic level of study are also considered as part of the interview process.

The requirements of the B.F.A. curriculum of the School of Art and the College of Fine Arts must be satisfied. Eighty-five hours in art satisfy the major requirements of this curriculum and are distributed as follows:

Basic Studies Requirement (12 hours)
ART 1040 - Object Drawing Credits: 3 hours
ART 1050 - Drawing Studio Credits: 3 hours
ART 1070 - Form and Surface Credits: 3 hours
ART 1080 - Form and Space Credits: 3 hours

Graphic Design Courses (46 hours)
ART 2500 - Color for Graphic Design Credits: 3 hours
ART 2510 - Typography I Credits: 3 hours
ART 2600 - Graphic Design I: Visual Aesthetics Credits: 3 hours
ART 2610 - Graphic Design II: Graphic Form Credits: 3 hours
ART 3500 - Typography II Credits: 3 hours
ART 3510 - Typography III Credits: 3 hours
ART 3510 - Typography III Credits: 3 hours
ART 3600 - Graphic Design III: Visual Systems Credits: 3 hours
ART 3610 - Graphic Design IV: Design Applications Credits: 3 hours
ART 3710 - Special Topics Credits: 3 hours
ART 4600 - Graphic Design V: Advanced Problems Credits: 3 hours
ART 4610 - Graphic Design VI: Senior Projects Credits: 4 hours
ART 4920 - Graduation Presentation and Seminar-Graphic Design Credits: 3 hours
ART 5700 - Intern I Credits: 3 hours
ART 5710 - Intern II Credits: 3 to 6 hours Credits: 6 hours

Photography Courses (6 hours)
ART 2480 - Photography I Credits: 3 hours
ART 3480 - Photography II Credits: 3 hours

Baccalaureate Writing Requirement (3 hours)
ART 3250 - Writing About Art Credits: 3 hours
Art History Courses (12 hours)
Two additional Art History courses at the 3000- or 4000-level, or at the 5000-level with permission of instructor Credits: 6 hours
ART 2200 - History of Art Credits: 3 hours
ART 2210 - History of Art Credits: 3 hours

Art Electives (9 hours)
Select from Art Studio courses. Two courses must be in sequence.

Emphasis in Photography and Intermedia - Bachelor of Fine Arts (85 hours)
This option in the BFA is designed for qualified students who intend to become professional photographers or pursue graduate study in art. Art majors must make application to a departmental committee for admission to B.F.A. candidacy in a specific area of emphasis after completing 30 hours in art and one semester residency in the department. It also is necessary to be at or above the 3000-level in the area to which they are applying. Portfolio reviews for admission into the Photography and Intermedia BFA will be held on the last Saturday of each semester before finals week.

The requirements of the art curriculum of the College of Fine Arts have to be satisfied. Eighty-five hours in art satisfy both the major and the minor requirements of this curriculum and are distributed as follows:

Basic Studies Requirement (12 hours)
ART 1040 - Object Drawing Credits: 3 hours
ART 1050 - Drawing Studio Credits: 3 hours
ART 1070 - Form and Surface Credits: 3 hours
ART 1080 - Form and Space Credits: 3 hours

Art History Requirement
Two additional upper-division Art History courses, and a minimum of one upper- or lower-division Non-Western Art History course (3 hours each). Credits: 9 hours
ART 2200 - History of Art Credits: 3 hours
ART 2210 - History of Art Credits: 3 hours

Photography Emphasis Requirement (31 hours)
ART 2480 - Photography I Credits: 3 hours
ART 2560 - Computer Imaging Credits: 3 hours
ART 3480 - Photography II Credits: 3 hours
ART 3560 - Web Design Credits: 3 hours
ART 4480 - Photography III Credits: 3 hours
ART 4560 - Introduction to Time-Based Media Credits: 3 hours
ART 4710 - Special Topics in Photography and Intermedia Credits: 3 hours
ART 5480 - Photography Workshop Credits: 1 to 4 hours
ART 5560 - Video Credits: 1 to 4 hours Repeat this course

Baccalaureate-Level Writing Requirement (3 hours)
ART 3250 - Writing About Art Credits: 3 hours

Art Studio Electives (21 hours)
Studio courses to include:
ART 2450 - Graphic Design-Non BFA in Graphic Design Credits: 3 hours

Graduation Presentation (3 hours)
ART 4930 - Graduation Presentation in Photography and Intermedia Credits: 3 hours
Art Major - Bachelor of Arts (54 hours)
This program is designed for the liberal arts-oriented students who want to major in the visual arts. It provides maximum flexibility in terms of electives in art and non-art courses. Professionally oriented art students may start in this program and apply for admission to the B.F.A. program when eligible.

The requirements of the art curriculum of the College of Fine Arts have to be satisfied. Fifty-four hours in art satisfy both the major and the minor requirements of this curriculum and are distributed as follows:

Basic Studies Requirement (12 hours)
ART 1040 - Object Drawing Credits: 3 hours
ART 1050 - Drawing Studio Credits: 3 hours
ART 1070 - Form and Surface Credits: 3 hours
ART 1080 - Form and Space Credits: 3 hours

Art History Requirement (12 hours)
Two additional Art History courses at the 3000- or 4000-level, or at the 5000-level with permission of instructor Credits: 6-9 hours
ART 2200 - History of Art Credits: 3 hours
ART 2210 - History of Art Credits: 3 hours

Baccalaureate Writing Requirement (3 hours)
ART 3250 - Writing About Art Credits: 3 hours

Art Electives (27 hours)
Art major studio credits. Electives and required art courses should be determined in consultation with a faculty advisor within the studio area of emphasis. Three (3) hours of non-Western Art History may be applied to the elective requirement.

Art History Major - Bachelor of Arts (40 hours)
The Art History degree provides instruction in Art History and art criticism and is dedicated to a multi-cultural perspective. Course work is offered in Asian, African, Native American, and Western Art ranging from prehistoric to contemporary. The faculty combines expertise to ensure that students are broadly educated in a variety of art historical methods, including a traditional formalist approach, as well as more recent post-modern and post-colonial theories. The program, while housed in the School of Art, is interdisciplinary in nature and requires or encourages complementary course work in History, Anthropology, Languages, and other areas. Students receive a variety of classroom-related experiences, as well as opportunities for internships and study abroad.

2000-Level Survey Requirement (9 hours)
ART 2200 - History of Art Credits: 3 hours
ART 2210 - History of Art Credits: 3 hours and either
ART 2220 - Art of Africa, Oceania, and the Americas Credits: 3 hours or
ART 2230 - Introduction to Asian Art History Credits: 3 hours

3000-Level Requirement (12 hours)
Baccalaureate Level Writing
ART 3270 - Writing About Art History Credits: 3 hours

Choose One (1) From Area One:
ART 3210 - Topics in Art History: Variable Topics Credits: 3 hours
ART 3810 - Greek and Roman Art Credits: 3 hours
ART 3830 - Medieval Art Credits: 3 hours
ART 3850 - Renaissance Art Credits: 3 hours
ART 3860 - Baroque Art Credits: 3 hours

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Choose One (1) From Area Two:
- ART 3210 - Topics in Art History: Variable Topics Credits: 3 hours
- ART 3880 - Nineteenth Century European and American Art Credits: 3 hours
- ART 3890 - European and American Art 1900—1945 Credits: 3 hours
- ART 3900 - Twentieth-Century Art: 1945 to Present Credits: 3 hours
- ART 3910 - Women in Art Credits: 3 hours
- ART 3920 - Twentieth Century Design History Credits: 3 hours
- HIST 3150 - Popular Art and Architecture in America Credits: 3 hours

Choose One (1) From Area Three:
- ART 3210 - Topics in Art History: Variable Topics Credits: 3 hours
- ART 3630 - Native American Art Credits: 3 hours
- ART 3640 - African Art Credits: 3 hours
- ART 3650 - Chinese Art Credits: 3 hours
- ART 3660 - Japanese Art Credits: 3 hours
- ART 3670 - Arts of India Credits: 3 hours

4000- And 5000-Level Requirement (10 hours)

Required Courses (4 hours)
- ART 4990 - Senior Thesis Credits: 1 hour
- ART 5270 - Art History Methods Credits: 3 hours

Choose One (1)
- ART 4350 - Art of the Book Credits: 3 hours
- ART 4360 - Contemporary/Alternative Art Credits: 3 hours
- ART 4370 - History of Photography Credits: 3 hours
- ART 4660 - Buddhist Art Credits: 3 hours
- HIST 4680 - Topics in European History Credits: 1 to 3 hours Russian Art and Art Patronage
  Credits: 3 hours

Choose One (1)
- ART 5210 - Topics in Art History: Variable Topics Credits: 3 hours
- ART 5220 - Topics in Medieval and Renaissance Art Credits: 3 hours
- ART 5230 - Topics in Modern Art Credits: 3 hours
- ART 5240 - Topics in Native American and African Art Credits: 3 hours
- ART 5250 - Topics in Asian Art Credits: 3 hours

Electives
- ART 5200 - Independent Study in Art History Credits: 2 to 3 hours
- ART 5290 - Art History Internship Credits: 1 hour

Elective Requirement (9 hours)
Art History majors may fill the 9 hours of electives required in the major by taking course work in the following areas: Art History and Art Studio (major courses only), as well as courses numbered 300 or above in the following departments: History; Comparative Religion; literature courses in the Departments of English and of Foreign Languages and Literatures; archaeology and cultural anthropology courses in the Department of Anthropology;

The following courses in the Department of Family and Consumer Sciences: FCS 2510 - Period Interiors I Credits: 3 hours;
FCS 2520 - Period Interiors II Credits: 3 hours; FCS 3260 - History of Fashion Credits: 3 hours;

The following courses in the Department of Philosophy: PHIL 3200 - Introduction to Formal Logic Credits: 4 hours,

Foreign Language Requirement (8 hours)
Eight hours of one foreign language are required. French and German are recommended as research languages; however, Spanish, Italian, Chinese, Japanese, or other languages approved by the Art History faculty can also be applied to the
requirement. Students may test out of this requirement by placement in the 2000-level or above on a Foreign Language Proficiency Examination. The foreign language requirement credits are counted under Proficiency 4g of the General Education requirements.

Art Education Major - Bachelor of Arts (64 hours)

Procedures for Admission to Art Education Major
Students who wish to declare an Art Education Major are required to apply before registering for Art 2520. Application includes a portfolio review, letter of intent, and advising checks. More complete information is available in the Art Advising Office.

Program Requirements
This program is intended to develop artist-teachers certified to teach Art at the elementary and secondary levels and who will be prepared to continue their studies at the graduate level. The requirements of the secondary curriculum of the College of Education must be satisfied. Sixty-four to sixty-five credit hours in art satisfy the major/minor requirements of this curriculum and are distributed as follows:

Basic Studies Requirement (12 hours)
ART 1040 - Object Drawing Credits: 3 hours
ART 1050 - Drawing Studio Credits: 3 hours
ART 1070 - Form and Surface Credits: 3 hours
ART 1080 - Form and Space Credits: 3 hours

2000-Level Requirement (15 hours)
ART 2100 - Life Drawing Credits: 3 hours
ART 2300 - Ceramics Credits: 3 hours
ART 2310 - Sculpture Credits: 3 hours or
ART 2380 - Jewelry and Metallurgy Credits: 3 hours
ART 2410 - Intaglio and Relief Credits: 3 hours or
ART 2480 - Photography I Credits: 3 hours or
ART 2560 - Computer Imaging Credits: 3 hours

Upper-Level Studio Requirement (5 hours)
Students must complete 5 hours in one studio discipline at the 3000- and 5000-level, utilizing one of the following sequences:

Drawing
ART 3100 - Intermediate Drawing Credits: 3 hours
ART 5100 - Drawing Workshop Credits: 1 to 6 hours Credits: 2 hours

Painting
ART 3400 - Painting II Credits: 3 hours
ART 5400 - Painting Workshop Credits: 1 to 6 hours Credits: 2 hours

Ceramics
ART 3300 - Ceramics Credits: 3 hours
ART 5300 - Ceramics Workshop Credits: 1 to 6 hours Credits: 2 hours

Sculpture
ART 3310 - Sculpture Credits: 3 hours
ART 5310 - Sculpture Workshop Credits: 1 to 6 hours

Photography
ART 3480 - Photography II Credits: 3 hours
ART 4480 - Photography III Credits: 3 hours Credits: 2 hours
Computer Imaging
ART 3560 - Web Design Credits: 3 hours
ART 4560 - Introduction to Time-Based Media Credits: 3 hours

Jewelry and Metalsmithing
ART 3380 - Jewelry and Metalsmithing Credits: 3 hours
ART 5380 - Jewelry and Metalsmithing Workshop Credits: 1 to 6 hours Credits: 2 hours

Printmaking
ART 3410 - Intaglio and Relief Credits: 3 hours
ART 5410 - Printmaking Workshop Credits: 1 to 6 hours Credits: 2 hours

Art History Requirement (12 hours)
Two additional Art History course at the 3000- or 4000-level (see course requirements). One of these courses must focus on non-Western Art. (6 hours)
ART 2200 - History of Art Credits: 3 hours
ART 2210 - History of Art Credits: 3 hours

Art Education Requirement (12 hours)
Art Education courses (2520, 3520, 4520, and 5520) must be taken in sequence and may not be taken concurrently. Intern teaching occurs in the last semester and includes both elementary and secondary placements. Art Education majors must enroll in ART 2520 in the fall semester of the sophomore year, and continue taking one Art Education course each semester in order to intern teach in the fifth semester and graduate within four years.

ART 2520 - Art Education Workshop (Majors) Credits: 3 hours
ART 3520 - Preparation for Art Teaching (Elementary) Credits: 3 hours
ART 4520 - Preparation for Art Teaching (Secondary) Credits: 3 hours
ART 5520 - Preparation for Art Teaching Credits: 3 hours

Art Electives (8 hours)
Electives must be determined in consultation with an art advisor.

College of Education Courses (21 hours)
ED 2500 - Human Development Credits: 3 hours
ED 3050 - K-12 Content Area Literacy Credits: 3 hours
ED 3950 - School and Society Credits: 3 hours
ED 4100 - Seminar in Education Credits: 1 to 2 hours Credits: 2 hours
ED 4750 - Intern Teaching: Middle School/Secondary Credits: 5 or 10 hours Credits: 10 hours
ES 3950 - School and Society Credits: 3 hours

Art Minor (24 hours)
This program is designed to expose the student to the field of art. Art minors must register with the art advisor before completing any art courses. A minor slip is required.

Basic Studies Requirement (12 hours)
ART 1040 - Object Drawing Credits: 3 hours
ART 1050 - Drawing Studio Credits: 3 hours
ART 1070 - Form and Surface Credits: 3 hours
ART 1080 - Form and Space Credits: 3 hours

Art Electives (12 hours)
Must be art studio (will not include art history courses).
Art History Minor (18 hours)
This program is designed for liberal arts students interested in art history. A minor slip is required. The 18 credit hours are distributed as follows:

**Required Core Courses (6 hours)**
ART 2200 - History of Art Credits: 3 hours
ART 2210 - History of Art Credits: 3 hours

**Art History Electives (12 hours)**
Choose One Non-Western Art History Elective From Among The Following (3 hours)
ART 2220 - Art of Africa, Oceania, and the Americas Credits: 3 hours
ART 2230 - Introduction to Asian Art History Credits: 3 hours
ART 3210 - Topics in Art History: Variable Topics Credits: 3 hours (with a non-Western topic)
ART 3630 - Native American Art Credits: 3 hours
ART 3640 - African Art Credits: 3 hours
ART 3650 - Chinese Art Credits: 3 hours
ART 3660 - Japanese Art Credits: 3 hours
ART 3670 - Arts of India Credits: 3 hours

Choose Three Art History Electives From Among The Following: (9 hours)
One Course Must Be At The 4000- Or 5000 level
ART 3210 - Topics in Art History: Variable Topics Credits: 3 hours
ART 3810 - Greek and Roman Art Credits: 3 hours
ART 3830 - Medieval Art Credits: 3 hours
ART 3850 - Renaissance Art Credits: 3 hours
ART 3860 - Baroque Art Credits: 3 hours
ART 3880 - Nineteenth Century European and American Art Credits: 3 hours
ART 3890 - European and American Art 1900—1945 Credits: 3 hours
ART 3900 - Twentieth-Century Art: 1945 to Present Credits: 3 hours
ART 3910 - Women in Art Credits: 3 hours
ART 3920 - Twentieth Century Design History Credits: 3 hours
ART 4350 - Art of the Book Credits: 3 hours
ART 4360 - Contemporary/Alternative Art Credits: 3 hours
ART 4370 - History of Photography Credits: 3 hours
ART 4660 - Buddhist Art Credits: 3 hours
ART 5200 - Independent Study in Art History Credits: 2 to 3 hours Credits: 3 hours
ART 5210 - Topics in Art History: Variable Topics Credits: 3 hours
ART 5220 - Topics in Medieval and Renaissance Art Credits: 3 hours
ART 5230 - Topics in Modern Art Credits: 3 hours
ART 5240 - Topics in Native American and African Art Credits: 3 hours
ART 5250 - Topics in Asian Art Credits: 3 hours
ART 5270 - Art History Methods Credits: 3 hours
ART 5290 - Art History Internship Credits: 1 hour Credits: 1 to 3 hours
HIST 4680 - Topics in European History Credits: 1 to 3 hours Credits: 3 hours

Russian Art and Art Patronage

Dance
Nina Nelson, Chair
Jane Baas
Tony Calucci
David Curwen
Western Michigan University's Department of Dance is nationally recognized as a community that values aesthetic breadth, student choice, and disciplinary excellence. As a dance community we are committed to:

- The highest aesthetic standards,
- Being of service to our diverse cultural community,
- Excellence in creative and scholarly research,
- Exemplary, experientially-based teaching.

It is the goal of this student-centered department to prepare versatile graduates who will

- participate in dance and dance-related activities,
- integrate theory and practice,
- demonstrate skills, credentials and knowledge needed to carve careers,
- articulate and apply a personal aesthetics

**Programs**

The Department of Dance offers three programs in dance: Bachelor of Fine Arts in Dance (80 hours); Bachelor of Arts in Dance (53 hours); and a Dance Minor (18 hours). The BFA program emphasizes performance, choreographic and aesthetic training and is designed for the student seeking employment at the professional level. The BA program offers an opportunity to explore the diversity of the dance profession within a strong liberal arts component, and BA students individualize their program by choosing electives that support their dance career goals. The Dance Minor is designed for students who wish to continue their dance studies as an avocation. Dance courses offered include four levels of ballet, jazz, and modern dance, three levels of choreography, three dance history courses, dance science and analysis, conditioning, pedagogy and production. An audition is required for acceptance into all dance major programs. For additional information, please refer to specific Program Requirements.

**Courses for General Students**

Introductory dance courses are offered for general students. Dance technique courses open to general students without audition include: DANC 1010, 1020, 1030, 1040, 1250, and 1810. A fee is required for each student enrolled in DANC 1010, 1020, 1030, and 1250 in order to provide musical accompaniment.

DANC 1450, a dance survey course, may be elected by any student to satisfy Area I - Fine Arts of the University General Education Program beginning in Fall 1996. A $25 fee is required for each student to provide funding for guest artists.

**Admission**

Admission to the University is granted only by the Office of Admissions and Orientation for undergraduate students. Applications are available by writing to the Office of Admissions and Orientation, calling at (269) 387-2000, or via WMU's web site: www.wmich.edu

Enrollment in dance major programs at WMU is contingent upon admission to the University and acceptance to the department via an audition. Auditions for acceptance into the dance department are normally held in November, February and March. The audition consists of taking class in ballet, jazz and modern, including sections designed to showcase quick-study and improvisation skills. Prospective dance majors must place into the technique level I in at least two dance idioms to meet the minimum standard for acceptance. No audition is required for dance minors; however, prospective dance minors should contact the dance academic advisor to discuss program plans and to gain entry to dance courses which have prerequisites.

Prospective students may also elect to apply for scholarships via the November or February audition dates. In addition to the three classes, scholarship candidates also write an essay on-site and have an interview with a member of the faculty.
Candidates must submit two letters of recommendation, one of which must be from a dance teacher. Awards average $1,000 per academic year, some of which may be renewable.

Students interested in pursuing the Bachelor of Fine Arts program may petition for entrance after completion of: at least one semester each of ballet, jazz and modern major technique courses; DANC 1800 Choreography I; DANC 1810 Dance Improvisation and at least one dance major theory course. The eligibility of transfer students to apply for the BFA degree will be evaluated on an individual basis.

The results of all of the above are communicated in writing to the student within three weeks following the audition or petition. Further information is available by calling the dance department at (269) 387-5830 or contacting the dance academic advisor by email at: jane.baas@wmich.edu.

**Transfer Credit**

Dance credit from other institutions transfers as a direct equivalent to a WMU course, as an unspecified dance credit, or as credit by department recommendation only. Transfer students should schedule an appointment with the dance academic advisor immediately after admission to the University to evaluate dance credits taken at other institutions.

**Advising**

Dorothy U. Dalton Center, Room 3123;
(269) 387-5845

Upon admission to the University and acceptance into the dance program, each major and minor student should complete a Declaration Form with the dance academic advisor. It is the responsibility of the student to make an appointment with the advisor each semester in order to prepare for the next semester's registration. Each student should meet with the advisor during his/her junior year to secure a Graduation Audit Statement before registration for the final semester.

The dance academic advisor is also available to counsel students on selection of appropriate majors/minors, selection of General Education courses, and other University requirements. Matters which are beyond the advisor's qualifications will be referred to offices, on- and off-campus, qualified to assist.

Graduation requirements must be completed as stipulated in the Undergraduate Catalog in effect at the time the student is admitted. Requirements cannot be added during the student's enrollment, but the student may take advantage of course and curriculum alterations if these changes enhance the student's education. Each student is responsible for knowing the requirements of the degree and for taking the steps necessary for completion of these requirements. All dance students are urged to take advantage of advising services in the Department of Dance for assistance in making educational choices and for interpretation of requirements stated in the Undergraduate Catalog.

**Miscellaneous**

**Technology Requirement**

Every undergraduate student with a major in Dance must demonstrate proficiency in computer usage through one of the following options:

1. Satisfactory completion of DANC 1140 Digital Media in the Arts.
2. Waiver from the instructor of record based on demonstrable competence in all topics/modules of DANC 1140. Such competence must be demonstrated to the instructor of record in one of the following ways:
   a. The presentation of the syllabus for a course covering those topics taken previously by the student and evidence of successful completion of said course.
   b. Demonstration of proficiency in the course topics.
3. Satisfactory completion of a computer literacy course from a program outside the College of Fine Arts. This option is only for majors in the Department of Dance who also have a second major in another college that has its own computer literacy requirement. This option must be approved by the Department of Dance Academic Advisor.

**Focus of Major Technique Courses**

Ballet courses emphasize technical and artistic skills based on a foundation of correct body alignment, placement and turnout, musicality, vocabulary, strength, stamina, flexibility, and kinesthetic movement quality. Piano accompaniment is provided and a variety of international ballet styles are introduced. Students are exposed to a variety of modern dance styles
such as Cunningham, Limon, and Release Technique as well as Bartenieff Fundamentals and elements of Laban Movement Analysis. Courses emphasize understanding of the anatomical principles and movement theories that support these and other modern dance styles. Piano or percussion accompaniment is provided. Jazz courses support technique concepts used in ballet and modern, in addition to exploring rhythmic and dynamic qualities inherent in jazz and social dance styles. Recorded and/or live accompaniment is used in jazz courses.

**Major Technique Course Progression**

It is expected that the dance major/minor will spend at least two semesters in each level of technique. This is consistent with level advancement in professional schools. A passing grade in a technique class does not imply automatic progression to the next level. Faculty determine a student's ability to move to the next level just prior to Registration for the coming semester.

**Class Fees for Major Technique Courses**

A fee is required from each student enrolled in DANC 1100, 1140, 1200, 1210, 1250, 1300, 1450, 1960, 2100, 2200, 2250, 2300, 3100, 3200, 3300, 4250, and 4400. A majority of the fee is used to provide musical accompaniment. The remainder is used to pay the fees and related expenses to provide such special events as classes, performances, choreography, and lectures by guest artists.

**Scholarships**

Scholarships are available for new and current students. Awardees are selected by the faculty on the basis of outstanding achievement in the field and overall academic excellence. Entering students who wish to be considered for scholarships must audition, submit two letters of recommendation, as well as have an interview with the faculty at either the November or February New Student Audition Day. Current students apply in February for the next academic year. For specific information, contact the Department of Dance or visit the website of the Office of Student Financial Aid and Scholarships at www.wmich.edu/finaid or email the Office at finaid-info@wmich.edu or call the Office at (269) 387-6000.

**Annual Meetings**

Department meetings are held the day before classes begin or the first day of classes for the fall semester to prepare the student for the academic year. At these meetings, students will receive a calendar of events and information regarding Department policies and procedures. Attendance is mandatory for all dance majors and minors. Juniors and seniors enrolled in the Bachelor of Fine Arts program will be required to attend an additional meeting regarding BFA required projects on the same day of the department meeting. A winter department meeting is held in January to inform students of additional events and changes that affect them.

**Additional Study Options**

Students are encouraged to study with dance professionals whenever possible and to afford themselves the opportunity for study with artists-in-residence on Western's campus. Limited scholarships may be available for off-campus study. For specific information, contact the Department of Dance.

**Performance and Choreographic Opportunities**

Students have a variety of opportunities to perform in department concerts, informal showings, graduating presentations, special class-related performances, University musicals and operas, and the department performing ensemble. Students must be enrolled in and regularly attending at least one major/minor technique course during rehearsal and performance periods and be in good academic standing in order to perform in department concerts. Students whose cumulative GPA falls below 2.0 may not audition or perform for formal dance concerts. The Department is committed to publicly presenting the dances of students who demonstrate choreographic proficiency. Special opportunities in performance and choreography are available on- and off-campus and are posted as they occur.

**Dance Major - Bachelor of Fine Arts (80 hours)**

Students may petition for entrance into the BFA program after completion of:

1. at least one semester each of ballet, jazz, and modern major technique courses
2. DANC 1800 Choreography I
3. DANC 1810 Dance Improvisation
4. At least one dance theory course.
Eligibility of transfer students to petition will be determined on an individual basis by the dance department advisor. Petition forms are posted in November and March.

Continuation in the BFA program will be determined by the dance faculty during the second semester of the student's enrollment. In order to continue in the BFA program, the student must: demonstrate potential to succeed as a professional dancer and/or choreographer; have at least B-level skills in technique and performance; and have demonstrated professional commitment in dance course work and dance-related activities. Any student discontinued from the program may reapply for the BFA after a minimum of one additional semester at WMU.

By the end of the student's junior year, the BFA student must create and perform a solo dance in a public showing which exhibits his/her choreographic, technical, and performance skills. At this time, the student must also submit an essay addressing his/her strengths and weaknesses in choreography, technique and performance. In order to enroll in DANC 4800 Graduating Presentation, the dance and essay must be acceptable to the dance faculty.

A grade of "C" or better is mandatory in all required dance courses.

**General Education Requirements**
The student enrolled in the BFA in Dance must complete all General Education Requirements as described in this catalog. Since the BFA in Dance is a credit-hour intensive curriculum, the BFA student may count DANC 1450 Experiencing Dance in both the dance major and in Area I of the General Education Distribution Program.

DANC 1960 Conditioning for Dance, in combination with DANC 2950 Introduction to Dance Science and Kinesiology, meets the Area VIII Health and Well-being General Education requirement for dance majors.

**Baccalaureate Writing Requirements**
Students who have chosen the Dance major will satisfy the baccalaureate-level writing requirement by successfully completing DANC 3450 Twentieth Century American Dance.

**Required Courses In Technique And Performance (32 hours)**
The following courses may be used to complete the Technique/Performance requirement.
DANC 1250 - Special Studies in Introductory Dance Technique Credits: 1 to 6 hours
DANC 2250 - Special Studies in Intermediate Dance Technique Credits: 1 to 6 hours
DANC 4250 - Advanced Technique Credits: 1 to 6 hours

**Technique Courses**
BFA students must complete one semester of DANC 1210 and enroll in two major technique courses (listed below) each semester of the freshman, sophomore, and junior years:

DANC 1100 - Ballet Technique I Credits: 2 hours
DANC 1200 - Jazz Technique I Credits: 2 hours
DANC 1300 - Modern Technique I Credits: 2 hours
DANC 2100 - Ballet Technique II Credits: 2 hours
DANC 2200 - Jazz Technique II Credits: 2 hours
DANC 2300 - Modern Technique II Credits: 2 hours
DANC 3100 - Ballet Technique III Credits: 2 hours
DANC 3200 - Jazz Technique III Credits: 2 hours
DANC 3300 - Modern Technique III Credits: 2 hours

**Technique Courses - Senior Year**
During the senior year, candidates must: enroll in at least one major technique course each semester; serve as a demonstrator in one technique course during the fall semester; and through enrollment in DANC 4000, serve as a teaching assistant in a technique course during the winter semester.
DANC 4000 - Practicum Credits: 1 to 4 hours
Technique Courses - Performance Course
Courses must be selected to ensure the student is participating in a technique class five days per week. At least four hours must be selected from performance courses:
DANC 4600 - Performance Credits: Variable
DANC 4650 - Dance Ensemble Credits: 1 to 3 hours

Technique Courses - Ballet, Jazz, and Modern
The student must complete at least two semesters each of ballet, jazz, and modern technique courses; one semester of:
DANC 1210 - Roots of Jazz Credits: 2 hours
And At Least One Semester Of Two Of The Following:
DANC 3100 - Ballet Technique III Credits: 2 hours
DANC 3200 - Jazz Technique III Credits: 2 hours
DANC 3300 - Modern Technique III Credits: 2 hours

Required Courses In Choreography (10 hours)
DANC 1800 - Choreography I Credits: 2 hours (Prereq: consent of advisor)
DANC 1810 - Dance Improvisation Credits: 1 hour
DANC 2800 - Choreography II Credits: 2 hours (Prereq: 1800, 1810)
DANC 3800 - Choreography III Credits: 2 hours (Prereq: 2800)
DANC 4800 - Graduating Presentation Credits: 3 hours (Prereq: 3800)

Required Courses In Theory (29 hours)

History (9 hours)
DANC 1450 - Experiencing Dance Credits: 3 hours (also counts in General Education Area I)
DANC 2450 - Ballet History Credits: 3 hours (Prereq: 1450)
DANC 3450 - Twentieth Century American Dance Credits: 3 hours (Prereq: 1450) (Dance majors use this course to meet the University Baccalaureate-level Writing Requirement)

Music (4 hours)
DANC 1850 - Music Fundamentals for Dancers Credits: 2 hours
DANC 2850 - Musical Style and Form for Dancers Credits: 2 hours (Prereq: 1850)

Production and Management (4 hours)
DANC 3890 - Lighting and Staging for Dance Credits: 2 hours (Prereq: Approved application required)
DANC 4890 - Dance Management Credits: 2 hours (Prereq: Approved application required)

Dance Science/Analysis (8 hours)
DANC 1950 - Introduction to Bartenieff Fundamentals(SM) Credits: 1 hour
DANC 1960 - Conditioning for Dancers Credits: 2 hours
DANC 2950 - Introduction to Dance Science and Kinesiology Credits: 3 hours
DANC 2960 - Introduction to Laban Movement Analysis Credits: 2 hours (Prereq: Sophomore standing)

Pedagogy (2 hours)
DANC 4400 - Teaching Dance Technique Credits: 2 hours (Prereq: Consent of advisor)

Capstone Experience (2 hours)
(DANC 4800 Graduating Presentation is also considered a capstone experience in choreography, production, and management for the BFA student.)
DANC 4000 - Practicum Credits: 1 to 4 hours (Prereq: Approved application required)
(1 hour)
DANC 4450 - Senior Seminar Credits: 1 hours (Prereq: Senior standing)
Related Studies (9 hours)
The Department of Dance believes that the professionally oriented student must augment his/her education via study in the related arts and sciences which complement specific career goals. The student will consult with the dance academic advisor in selecting 9 hours from the courses listed below, some of which may also meet General Education requirements:

- ANTH 2400 - Principles of Cultural Anthropology Credits: 3 hours
- ART 1400 - Studio Experience - (2-D) Credits: 3 hours
- ART 2200 - History of Art Credits: 3 hours
- ART 2210 - History of Art Credits: 3 hours
- BIOS 1120 - Principles of Biology Credits: 3 hours
- BIOS 2110 - Human Anatomy Credits: 4 hours (Prereq: BIOS 1120)
- ED 2300 - The Nature of Creativity Credits: 3 hours
- ENGL 1050 - Thought and Writing Credits: 4 hours
- ENGL 1100 - Literary Interpretation Credits: 4 hours
- ENGL 1500 - Literature and Other Arts Credits: 4 hours
- ENGL 3050 - Practical Writing Credits: 4 hours
- FREN 1000 - Basic French I Credits: 4 hours
- FREN 1010 - Basic French II Credits: 4 hours (Prereq: 1000 or equivalent)
- HIST 3150 - Popular Art and Architecture in America Credits: 3 hours
- MGMT 3140 - Small Business Management Credits: 3 hours
- MUS 1500 - Music Appreciation: Live Music Credits: 4 hours
- MUS 1510 - Music Appreciation: Jazz/Pop Credits: 4 hours
- MUS 3500 - American Music Credits: 4 hours
- MUS 3520 - Non-Western Music Credits: 4 hours
- MUS 4500 - Music Appreciation: The Symphony Credits: 3 hours
- PHIL 2000 - Introduction to Philosophy Credits: 4 hours
- PHIL 3120 - Philosophy of Art Credits: 3 hours Credits: 4 hours
- REL 3110 - Myth and Ritual Credits: 4 hours
- THEA 1000 - Introduction to Theatre Credits: 3 hours
- THEA 1050 - Introduction to African-American Theatre Credits: 3 hours
- THEA 1410 - Introduction to Acting Credits: 3 hours
- THEA 1420 - Acting I: Action and Personalization Credits: 3 hours

Select Either:
- ART 1480 - Direct Encounter with the Arts Credits: 4 hours or
- DANC 1480 - Direct Encounter with the Arts Credits: 4 hours or
- MUS 1480 - Direct Encounter with the Arts ($50 fee) Credits: 4 hours or
- THEA 1480 - Direct Encounter with the Arts Credits: 4 hours

Dance Major - Bachelor of Arts (53 hours)
During the second year of enrollment in the program, the student will be evaluated by the dance faculty regarding his/her progress in the program. The student is required to schedule an appointment with the assigned dance faculty member to receive the faculty feedback.

By the beginning of the junior year, the BA student is expected to declare an area of focus in dance electives, including choreography and theory courses. By the end of the junior year, the student must design and propose a practicum project as a capstone experience which will further develop the focus area. The practicum proposal must be approved by a member of the dance faculty, who agrees to supervise the practicum experience, prior to the student's enrollment in DANC 4700 in the senior year.

A grade of "C" or better is mandatory in all required courses.
General Education Requirement
The student enrolled in the BA in Dance must complete all General Education Requirements as described in this catalog. DANC 1960 Conditioning for Dance, in combination with DANC 2950 Introduction to Dance Science and Kinesiology, meets the Area VIII Health and Well-being General Education requirement for dance majors.

Baccalaureate Writing Requirement
Students who have chosen the Dance major will satisfy the Baccalaureate-level Writing Requirement by successfully completing DANC 3450 Twentieth Century American Dance.

Liberal Arts Requirements
In addition to the minimum University General Education Proficiency and Distribution Requirements, the student enrolled in the BA in dance must take 30 credit hours of liberal arts courses. One course each must be selected from approved General Education courses in Art, Music, and Theatre. The remaining credit hours may be chosen from any course approved for General Education, or may include a minor in a liberal arts area. Any other courses must have specific approval of the dance academic advisor in order to satisfy the Liberal Arts Requirement.

Required Courses in Technique and Performance (18 hours)

Technique Course
BA students must enroll in at least one major technique course each semester.

DANC 1100 - Ballet Technique I Credits: 2 hours
DANC 1200 - Jazz Technique I Credits: 2 hours
DANC 1300 - Modern Technique I Credits: 2 hours
DANC 2100 - Ballet Technique II Credits: 2 hours
DANC 2200 - Jazz Technique II Credits: 2 hours
DANC 2300 - Modern Technique II Credits: 2 hours
DANC 3100 - Ballet Technique III Credits: 2 hours
DANC 3200 - Jazz Technique III Credits: 2 hours
DANC 3300 - Modern Technique III Credits: 2 hours

Electives
During his/her program, the student must elect at least one course in each of the following areas: ballet technique, jazz technique, modern technique, and performance.
DANC 4600 - Performance Credits: Variable
DANC 4650 - Dance Ensemble Credits: 1 to 3 hours

One Semester of:
The student must complete one semester of:
DANC 1210 - Roots of Jazz Credits: 2 hours

One Semester of One of the Following:
The student must complete at least one semester of one of the following:
DANC 3100 - Ballet Technique III Credits: 2 hours
DANC 3200 - Jazz Technique III Credits: 2 hours
DANC 3300 - Modern Technique III Credits: 2 hours

18-hour Technique/Performance requirement
May be used to complete the 18-hour Technique/Performance requirement.

DANC 1250 - Special Studies in Introductory Dance Technique Credits: 1 to 6 hours
DANC 2250 - Special Studies in Intermediate Dance Technique Credits: 1 to 6 hours
DANC 4250 - Advanced Technique Credits: 1 to 6 hours
Required Courses in Dance Studies (Choreography and Theory) (35 hours)

Choreography (5 hours)
DANC 1800 - Choreography I Credits: 2 hours
DANC 1810 - Dance Improvisation Credits: 1 hour
DANC 2800 - Choreography II Credits: 2 hours

History (9 hours)
DANC 1450 - Experiencing Dance Credits: 3 hours
DANC 2450 - Ballet History Credits: 3 hours
DANC 3450 - Twentieth Century American Dance Credits: 3 hours

Music (4 hours)
DANC 1850 - Music Fundamentals for Dancers Credits: 2 hours
DANC 2850 - Musical Style and Form for Dancers Credits: 2 hours

Production (2 hours)
DANC 3890 - Lighting and Staging for Dance Credits: 2 hours

Dance Science/Analysis (6 hours)
DANC 1950 - Introduction to Bartenieff Fundamentals(SM) Credits: 1 hour
DANC 1960 - Conditioning for Dancers Credits: 2 hours
DANC 2950 - Introduction to Dance Science and Kinesiology Credits: 3 hours

Pedagogy (2 hours)
DANC 4400 - Teaching Dance Technique Credits: 2 hours

Theory Electives (4 hours)
Select hours from:
DANC 2960 - Introduction to Laban Movement Analysis Credits: 2 hours (Prereq: Sophomore standing)
DANC 3250 - Special Studies in Dance Theory Credits: 1 to 6 hours Credits: 1 to 4 hours
DANC 3800 - Choreography III Credits: 2 hours
DANC 3850 - Introduction to Dance Notation Credits: 2 hours
DANC 4000 - Practicum Credits: 1 to 4 hours
DANC 4890 - Dance Management Credits: 2 hours (Prereq: Approved application required)

Capstone Experience (3 hours)
DANC 4450 - Senior Seminar Credits: 1 hours
DANC 4700 - Senior Capstone Project Credits: 2 hours (Prereq: Approved application required)

Dance Minor (18 hours)

Required Courses in Technique (6 hours)
Two credit hours in ballet selected from:
DANC 1010 - Beginning Ballet Credits: 2 hours
DANC 1100 - Ballet Technique I Credits: 2 hours
DANC 1250 - Special Studies in Introductory Dance Technique Credits: 1 to 6 hours Credits: 2 hours
DANC 2100 - Ballet Technique II Credits: 2 hours
DANC 3100 - Ballet Technique III Credits: 2 hours
DANC 4250 - Advanced Technique Credits: 1 to 6 hours Credits: 1 hour

Two credit hours in jazz selected from:
DANC 1020 - Beginning Jazz Credits: 2 hours
DANC 1200 - Jazz Technique I Credits: 2 hours
DANC 2200 - Jazz Technique II Credits: 2 hours
DANC 3200 - Jazz Technique III Credits: 2 hours

Two credit hours in modern selected from:
DANC 1030 - Beginning Modern Credits: 2 hours
DANC 1300 - Modern Technique I Credits: 2 hours
DANC 2300 - Modern Technique II Credits: 2 hours
DANC 3300 - Modern Technique III Credits: 2 hours

Required Courses In Choreography/Theory (4 total hours)
DANC 1450 - Experiencing Dance Credits: 3 hours
DANC 1810 - Dance Improvisation Credits: 1 hour

Choreography/Theory Electives (2 total hours)
A minimum of two hours to be elected from the following courses, in consultation with the dance academic advisor:
DANC 1800 - Choreography I Credits: 2 hours
DANC 1850 - Music Fundamentals for Dancers Credits: 2 hours
DANC 1950 - Introduction to Bartenieff Fundamentals(SM) Credits: 1 hour
DANC 1960 - Conditioning for Dancers Credits: 2 hours
DANC 2450 - Ballet History Credits: 3 hours
DANC 2950 - Introduction to Dance Science and Kinesiology Credits: 3 hours
DANC 2960 - Introduction to Laban Movement Analysis Credits: 2 hours (Prereq: Sophomore standing)
DANC 3250 - Special Studies in Dance Theory Credits: 1 to 6 hours varies
DANC 3450 - Twentieth Century American Dance Credits: 3 hours
DANC 3890 - Lighting and Staging for Dance Credits: 2 hours
DANC 4890 - Dance Management Credits: 2 hours

Electives (6 total hours)
Additional electives from any technique or theory courses for which the student has met the prerequisites. In order to ensure that the dance minor has experienced the rigors of intensive dance training, the student must complete one of the following courses. If one of these courses has not been elected under Required Courses in Technique listed above.
DANC 1100 - Ballet Technique I Credits: 2 hours
DANC 1200 - Jazz Technique I Credits: 2 hours
DANC 1250 - Special Studies in Introductory Dance Technique Credits: 1 to 6 hours
DANC 1300 - Modern Technique I Credits: 2 hours
DANC 2100 - Ballet Technique II Credits: 2 hours
DANC 2200 - Jazz Technique II Credits: 2 hours
DANC 2250 - Special Studies in Intermediate Dance Technique Credits: 1 to 6 hours
DANC 2300 - Modern Technique II Credits: 2 hours
DANC 3100 - Ballet Technique III Credits: 2 hours
DANC 3200 - Jazz Technique III Credits: 2 hours
DANC 3300 - Modern Technique III Credits: 2 hours
DANC 4250 - Advanced Technique Credits: 1 to 6 hours

Music
Richard O'Hearn, Chair
Richard Adams
John Campos
David Loberg Code
Scott Cowan
Curtis Curtis-Smith
Julie Evans
Igor Fedotov
Lin Foulk
Delores Gauthier
Daniel Jacobson
Stephen Jones
Renata Artman Knific
Thomas Knific
Trent P. Kynaston
David Little
John A. Lychner
Margaret Merrion
Michael Miller
David Montgomery
Judy Moonert
Stanley Pelkey
Kenneth Prewitt
Carl Ratner
Robert J. Ricci
Silvia Roederer
Wendy Rose
Edward Roth
Lori Sims
Christine Smith
David S. Smith
Kenneth H. Smith
Robert Spradling
Matthew Steel
Deanna Swoboda
Scott W. Thornburg
Bruce Uchimura
Karen Wicklund
Brian Wilson
Steve M. Wolfinbarger
Bradley Wong
Stephen Zegree

The Western Michigan University School of Music is dedicated to the advancement of the musical arts through traditional study and performance, while promoting the development of new musical paths that prepare students for an ever-changing profession. The School of Music serves local, state, national and international communities through performance, educational and therapeutic applications, composition, research, and technological innovation.

The School of Music is a member of the National Association of Schools of Music. The requirements for entrance and for graduation are in accordance with the published regulations of NASM and the National Council for Accreditation of Teacher Education. The School's program in music therapy is sanctioned by the American Music Therapy Association (formerly the National Association for Music Therapy).

Programs
The School of Music offers courses of study that lead to the Bachelor of Music, the Bachelor of Science, and the Bachelor of Arts degrees. The Bachelor of Music degree offers the student an opportunity to elect a major in performance, composition, jazz studies, music education, and music therapy. The Bachelor of Arts and Bachelor of Science degrees afford the student the opportunity to major in music and minor in another academic area.

Three majors carry certification upon completion of degree requirements: the Bachelor of Music with a major in music education carries certification to teach music in the public schools, grades K-12; the Bachelor of Science with a major in music and a minor in elementary education carries certification to teach in the elementary classroom and/or to teach as a music specialist in the classroom, grades K-8. The student with a Bachelor of Music in music therapy is eligible to sit for the
national board exam administered by the Certification Board for Music Therapists in order to earn the credential of Music Therapist - Board Certified.

A music minor program is offered through the School of Music for students who have a background in music and who wish to extend their formal education in that field of study.

Those students seeking a music minor must secure a minor slip from the advisor in the School of Music in order that the declaration of the minor be official. Official declaration of the music minor must be made prior to registration for the final eight hours of music course work which will apply to that minor.

Admission
Admission to Western Michigan University is granted only by the Office of Admissions and Orientation for undergraduate students. Application forms may be obtained by writing to the Office of Admission and Orientation.

Enrollment in a music curriculum is contingent upon admission to the University, which is achieved through the application process; and approval of the School of Music, which is achieved through the audition process. The student should begin by making application to the University and requesting audition information from the School of Music. Both procedures should be commenced early in the senior year, or early in the final year at a community college.

Approval to become a music major is based upon the student's background in music, as demonstrated on the major instrument or voice, the student's musical aptitude, and upon academic abilities reflected in grade point average and various scholastic test scores as they are available. Efforts are made to evaluate the student on the basis of musical potential and not upon desire to enter a specific professional area of music. All students commence a major in music with common “core” requirements and are, therefore, considered for entry into the major with this common basis in mind.

A student considering a music major should have a good background in applied music (instrumental or vocal study or performance). Preparation in piano, as a secondary instrument, is also helpful to the student, but not a requisite. Prior to entry into Basic Music 1600, which is required of all music majors in the first year of study, the student must demonstrate knowledge of fundamentals. A fundamentals examination will be administered at the time the student is initially advised about classes.

The School of Music's audition and testing program has helped many students make a more intelligent choice regarding their educational careers. Further information regarding admission to a music curriculum may be obtained by writing the Music Student Advisor in the School of Music. The School welcomes the opportunity to confer with prospective students, parents, and counselors regarding educational goals and plans.

Transfer Credit
Music credit from another institution is normally acceptable providing course substance is equivalent to a similar course required in the student's curriculum at Western and the student has earned a grade of “C” or better in that course. No credit hours exceeding the number granted for parallel work at Western will be accepted for transfer from another institution. In order to earn a Bachelor of Music degree from Western Michigan University, a student may not transfer more than thirty-seven (37) semester credit hours in music courses taken at a community college toward music curriculum requirements. If the “Performance Electives” requirement has not been completed at the time of the transfer, at least two of the remaining hours must be completed in major ensembles. Advisors will assist transfer students in finding ways of applying credit hours, not applicable to music curriculum requirements, toward General Education electives or free electives.

Three areas—applied music, music theory, and piano proficiency for non-pianists—are, by nature, skills courses which require competency at one level before the student is ready for the next level of course in a sequence. This competency can only be determined by demonstration and/or examination, which precludes the automatic transfer of credit in these areas.

Presumably, the transfer student will have completed many of the core requirements (see below) before enrolling at Western. In that case, the student must elect a major area of concentration within the music curriculum prior to enrollment. In order to maintain good standing as a major in music performance, composition, jazz studies, music history, or music theory, the student must earn a minimum grade point average of 3.25 in the first two courses that apply to the major area of concentration. The student who elects music education or music therapy as a major must maintain a grade point average of 3.0 in all courses in the major area of concentration in order to be recommended for intern teaching (music education) or
music therapy internship. All transfer students must take a Piano Placement Examination before admission in order to project the feasibility of completion of piano proficiency requirements.

For further information regarding the transfer of music credits, contact the Music Advisor in the School of Music.

Advising
Advisor: Margaret J. Hamilton
Appointments: 2132 Dalton Center (269-387-4672)

The Music Student Advising Office provides one-stop advising for all students in a music curriculum. Advice on general education and major/minor requirements can be provided by consulting the music student advisor. Only when a student pursues a minor outside of the School of Music is an appointment required with another advisor.

Graduation requirements must be completed as stipulated in the Undergraduate Catalog, which is in effect at the time the student is admitted. Requirements may not be added in the midst of the student's enrollment, but the student may take advantage of course and curriculum alterations that may occur while work on the degree is in progress if these changes enhance the student's education. Each student is responsible for knowing the requirements that must be completed for the degree and for taking the steps necessary for completion of requirements. All music students are urged to take advantage of the advising services in the School of Music for assistance in making educational choices and for interpretation of requirements as they are stated in the Undergraduate Catalog.

Miscellaneous In addition to required course work, all students must satisfy additional requirements in recital attendance and recital performance.

The requirement for recital attendance: All music majors are required to attend Music Convocation (MUS 1010) each semester they are in residence. Each student is allowed to be absent from one convocation per semester. Without exception, only one absence per semester will be excused. Any absences beyond “one” will be recorded in the student's file. Absences must be made up by attending other pre-approved School of Music concerts and recitals in which the student is not a participant. Absences in the student's record which have not been made up will prevent graduation.

The requirement(s) for recital performance are as follows:
1. Bachelor of Music candidates with a major in music performance must present a Senior Recital which is approved by and acceptable to the faculty of the respective performance area.
2. Bachelor of Music candidates with a major in areas other than music performance must present at least one successful solo performance on a student recital (scheduled public recitals, convocations, or area recitals) prior to graduation. Individual students may be required to give additional performances on student recitals at the discretion of their private teachers.

Prerequisite to performance on any student recital shall be a recommendation by the student's applied teacher. Prerequisite to the presentation of Junior and/or Senior Recitals is an approved hearing of that recital by the student's area faculty. Recitals should be scheduled in the Concerts Office in the School of Music as far in advance as possible.

Competency Examinations are available to students who qualify for advanced placement or a waiver of requirements in music courses even if no formal education at the college level may have been completed. Common areas of competency are applied music, secondary instruments, and music theory. Examinations may be scheduled in these areas to allow qualified students to demonstrate competency.

In the event that a student demonstrates competency in an area of study that is required in the curriculum, the student may elect two alternatives for fulfilling degree requirements: (1) request a waiver of the requirement and elect an equivalent number of hours in music courses of the student's choice or (2) receive credit for the course(s) in which competency is demonstrated by paying an examination fee according to the schedule approved by the Board of Trustees.

Scholarships and Grants in Music are awarded by the School of Music. Awards are made on the basis of musical talent and/or scholastic achievement. New students are eligible for consideration for these stipends at the time of their audition for admission to the music curriculum. Decisions on music scholarships are made beginning in mid-March, so early auditions are advised.
The School of Music adheres to the code of ethics of the National Association of Schools of Music (NASM). The acceptance of a scholarship by an applicant is considered a declaration of intent to attend the institution; after May 1, the applicant may not consider any other offer from a NASM member institution without the written consent of the first institution. Similarly, a transfer applicant from a NASM-accredited college or university cannot be considered for a scholarship without the recommendation of the institution from which the transfer is being made.

For a listing of music grants and scholarships, contact the School of Music or visit the website of the Office of Student Financial Aid and Scholarships at www.wmich.edu/finaid or email the Office at finaid-info@wmich.edu or call the Office at (269) 387-6000.

Music majors may also be eligible for any number of general University scholarships as described in the Student Financial Aid and Scholarships section of this catalog.

Curricula
When a student is admitted to the music curriculum, a major area of concentration is usually not declared. Before any student may declare a major area of concentration the student must complete requirements in the music “core,” which are courses required of all music majors, regardless of professional or vocational interests in the field. Core requirements will normally be taken in the first two years. For students who are interested in an in-depth introduction to the two professions for which this university offers certification courses (music education and music therapy), an opportunity will be provided for them to register for Field Experience courses.

Baccalaureate Writing Requirement
Students who have chosen any music major will satisfy the Baccalaureate Writing Requirement by successfully completing MUS 3520 Non-Western Music.

Students who have chosen any music major will satisfy the College of Fine Arts' technology requirement by successfully completing MUS 1140 Digital Media in the Arts.

The School Of Music Does Not Offer A Minor Leading To Elementary Or Secondary Teaching Certification.

**Bachelor of Music**

Core Requirements

*Music Convocation (7 semesters)*
MUS 1010 - Music Convocation Credits: No Credit

*Applied Music (14 hours)*
(See Electives below)
MUS 2000 - Applied Music Credits: 1 to 4 hours
MUS 3000 - Applied Music Credits: 1 to 4 hours

*Basic Music (12 hours)*
MUS 1600 - Basic Music I Credits: 3 hours
MUS 1610 - Basic Music II Credits: 3 hours
MUS 2600 - Basic Music III Credits: 3 hours
MUS 2610 - Basic Music IV Credits: 3 hours

*Aural Comprehension (4 hours)*
MUS 1620 - Aural Comprehension I Credits: 1 hour
MUS 1630 - Aural Comprehension II Credits: 1 hour
MUS 2590 - Aural Comprehension III Credits: 1 hour
MUS 2650 - Aural Comprehension IV Credits: 1 hour
History or Theory Elective (2 hours)
(see Electives below)

Music History and Literature (8 hours)
MUS 1700 - Music History I Credits: 2 hours
MUS 2700 - Music History II: Medieval/Renaissance Credits: 3 hours
MUS 2710 - Music History III: Nineteenth/Twentieth Century Credits: 3 hours

Performance Elective (8 hours)
(see Electives below)

Keyboard Fundamentals (2 hours)
MUS 1200 - Keyboard Fundamentals Credits: 1 hour
MUS 1210 - Keyboard Fundamentals Credits: 1 hour

Conducting (1 hour)
MUS 2150 - Conducting Credits: 1 hour

General Education Electives (37 hours)

Major Area of Concentration (13 to 41 hours)

Free Electives to make a minimum of 122 semester credit hours.

Music Clearance (verification of completion of recital performance and attendance requirements).

Exceptions To Core Requirements

Jazz Studies
Jazz Studies majors may fulfill two of the four semester major ensemble requirements by electing:
MUS 1180 - Gold Company II Credits: 1 hour
MUS 1190 - Gold Company Credits: 1 hour
MUS 2100 - Jazz Lab Band Credits: 1 hour or
MUS 2120 - Jazz Orchestra Credits: 1 hour

Music Therapy
Music Therapy majors complete only 8 hours of Applied Music 2000 (including successful completion of a Sophomore Hearing); only 4 hours of Performance Electives; and are not required to complete a theory/history elective.

Composition
Composition majors complete only eight hours of Applied Music 2000 (including successful completion of a Sophomore Hearing) and four hours of Applied Music 3000; and only four hours of Performance Electives.

Keyboard
Keyboard majors are to replace Keyboard Fundamentals 1200 and 1210 with MUS 1900 Accompanying (1 credit) in freshman-sophomore years and MUS 1000 Organ (1 credit) in junior-senior years.

Music Education: Choral/General/Music
Music Education: Choral/General Music majors complete only 7 semesters of Performance Electives. Students for whom keyboard is the applied instrument must elect MUS 1900 Accompanying in the freshman-sophomore years as one of the required performance electives, and may choose to substitute one credit of MUS 1000 Organ for one credit of MUS 3000 Piano. It is recommended that all Music Education majors have at least one jazz experience/ensemble.

Music Education: Instrumental
Music Education: Instrumental majors complete only 6 semesters of Performance Electives plus 2 semesters of Marching Band. Students for whom keyboard is the applied instrument must elect MUS 1900 Accompanying in the freshman-
sophomore years as one of the required performance electives, and may choose to substitute one credit of MUS 1000 Organ for one credit of MUS 3000 Piano. It is recommended that all Music Education majors have at least one jazz experience/ensemble.

*All Students Wishing to Earn a Teaching Certificate*

All students wishing to earn a teaching certificate should have minimal keyboard skills upon entry to the major. Therefore, Keyboard Fundamentals (1200--1210) may not be applied towards any major that leads to a teaching certification.

**Electives**

Performance electives may be selected from the following list of courses:

1. All students are required to elect four semesters of a major ensemble.

   The major ensembles are:
   - MUS 1070 - University Choruses Credits: 1 hour
   - MUS 1080 - Collegiate Singers Credits: 1 hour
   - MUS 1100 - Symphonic Band Credits: 1 hour
   - MUS 1110 - University Orchestra Credits: 1 hour
   - MUS 1120 - University Chorale Credits: 1 hour
   - MUS 1130 - Concert Band Credits: 1 hour

   Please note the following:
   At least two of the required four semesters of major ensemble must be taken during the junior-senior years.
   The four semesters MUST be taken in an ensemble in the student's applied area.
   (Keyboard majors may elect any large ensemble, except that Keyboard/Music Education---Choral/General majors must elect a vocal ensemble and Keyboard/Music Education---Instrumental majors must elect an instrumental ensemble.)

2. The Remaining Four Semester Hours of Performance Electives May be Selected From the Following:

   - MUS 1070 - University Choruses Credits: 1 hour
   - MUS 1080 - Collegiate Singers Credits: 1 hour
   - MUS 1090 - Marching Band Credits: 1 hour
   - MUS 1100 - Symphonic Band Credits: 1 hour
   - MUS 1110 - University Orchestra Credits: 1 hour
   - MUS 1120 - University Chorale Credits: 1 hour
   - MUS 1130 - Concert Band Credits: 1 hour
   - MUS 1180 - Gold Company II Credits: 1 hour
   - MUS 1900 - Accompanying Credits: 1 hour
   - MUS 2100 - Jazz Lab Band Credits: 1 hour
   - MUS 2110 - Studio Accompanying Credits: 1 hour
   - MUS 2120 - Jazz Orchestra Credits: 1 hour
   - MUS 2180 - Instrumental Chamber Music Credits: 1 hour
   - MUS 3170 - Opera Workshop Credits: 1 hour
   - MUS 5170 - Collegium Musicum Credits: 1 hour

   Please Note the Following:
   All keyboard majors are required to elect one semester of MUS 1900 Accompanying (therapy majors excepted).
   The student is expected to complete one performance elective during each term of enrollment.

**Theory Electives**

Theory electives may be selected from the following:

   - MUS 2630 - Composition Credits: 2 hours
   - MUS 3600 - Style Analysis Credits: 2 hours
   - MUS 5550 - Jazz Arranging Credits: 2 hours
   - MUS 5580 - Jazz Improvisation I Credits: 2 hours
   - MUS 5600 - Counterpoint Credits: 2 hours
   - MUS 5650 - Seminar in Music Theory Credits: 2 hours
MUS 5660 - Musical Acoustics Credits: 3 hours
MUS 5670 - Orchestration Credits: 2 hours

Music History/Literature Electives
Music History/Literature electives may be selected from the following list of courses:
MUS 5720 - Baroque Music (1600-1750) Credits: 3 hours
MUS 5730 - Classical Music (1750-1800) Credits: 2 hours
MUS 5740 - Romantic Music (1800-1910) Credits: 3 hours
MUS 5770 - Symphonic Literature Credits: 2 hours
MUS 5780 - Chamber Music Literature Credits: 2 hours
MUS 5790 - Operatic Literature Credits: 2 hours
MUS 5800 - Solo Literature: (Topics) Credits: 2 hours
MUS 5810 - Choral Music Literature Credits: 2 hours
MUS 5830 - Jazz History and Literature Credits: 3 hours
MUS 5850 - Medieval Music Credits: 2 hours
MUS 5860 - Renaissance Music Credits: 2 hours
MUS 5870 - Contemporary Music Credits: 3 hours

Electing a Major Area of Study
Music majors will elect a major area of concentration in the fourth semester of study. The student will be accepted in the area of choice if he/she qualifies under the following guidelines:

Composition
The student must have a minimum grade point average of 3.25 in "Core" courses which are in the same area as the elected major.

Music Performance
The student must have a minimum grade point average of 3.25 in "Core" courses which are in the same area as the elected major, as well as be approved for this major by taking a performance qualifying examination which should be passed not later than the Sophomore Hearing.

Music Education and Elementary Education/Music
The student must have met the standards of the College of Education; must have completed all Music Core courses, with no grade of less than a "C" and a 2.5 average in those courses; and must complete the formal admission procedure as described in the Music Student Handbook.

Music Therapy
Prior to beginning practicum (4000 level) courses in music therapy curriculum, the student must have completed 35 hours of course work, completed the music core in theory/history/aural comprehension/conducting with a GPA of 2.5 or better, have a GPA of 3.25 in music therapy core courses, and have an overall GPA of 2.5. See the Music Student Handbook for a complete description of admission procedures and standards.

Music Therapy and Music Education
Students must earn a minimum grade point average of 3.0 in course work in the area of the major in order to be recommended for an internship (music therapy) or for an intern teaching assignment (music education).

If the student does not qualify according to the guidelines outlined above, the application will be submitted to the faculty committee in the area of the major for approval. In the event that approval is denied and the student does not qualify for any other major area of concentration the music advisor will outline the course work in music which may be applied toward the Bachelor of Arts degree with a major in music.
Music Education Major: Choral/General Emphasis
Grants certification to teach music at any grade level (K-12) (17 hours)

General Music Methods (3 hours)
MUS 3360 - General Music Methods Credits: 3 hours

Choral Techniques (2 hours)
MUS 3390 - Choral Techniques Credits: 2 hours

Methods Elective I (3 hours)
Select one from the following:
MUS 3400 - Choral Methods Credits: 3 hours
MUS 3440 - Instrumental Methods I Credits: 3 hours
MUS 3450 - String Methods Credits: 2 hours

Teaching and Learning in Music (3 hours)
MUS 3480 - Teaching and Learning in Music Credits: 3 hours

Conducting (2 hours)
MUS 3300 - Choral Conducting and Literature Credits: 2 hours

Instrument elective (1 hour)
Select one from the following:
MUS 1260 - Fundamentals of Guitar Credits: 1 hour
MUS 2790 - Instruments of the Band and Orchestra Credits: 1 hour
MUS 2800 - Instruments of the Music Classroom Credits: 1 hour

Methods Elective II. (2 hours)
Select from the following:
MUS 3850 - Music for the Special Student Credits: 2 hours
MUS 3860 - Technology in Music and Music Education Credits: 3 hours

Second Instrument (4 hours)

Piano
Keyboard Musicianship 2200, 2210, 3200, 3210 and/or pass the exam administered by the Keyboard and Professional Education areas. Students who do not qualify for entry at the 2200 level must complete Keyboard Fundamentals (1200 and/or 1210) as a deficiency. No class is to be counted twice. Those students who test out of a course or courses in the Keyboard Musicianship sequence will select courses from the instrument or methods elective areas to complete course requirements.

MUS 1200 - Keyboard Fundamentals Credits: 1 hour
MUS 1210 - Keyboard Fundamentals Credits: 1 hour
MUS 2200 - Keyboard Musicianship Credits: 1 hour
MUS 2210 - Keyboard Musicianship Credits: 1 hour
MUS 3200 - Advanced Keyboard Musicianship Credits: 1 hour
MUS 3210 - Keyboard Skills for Singers Credits: 1 hour

Voice
Pass exam for Keyboard Musicianship 3210, given by the Keyboard and Professional Education areas. The student should take Vocal Techniques for Music Educators 1170 as part of four semesters of voice study. Four semesters of study are required, with one semester at 2000 level voice.

MUS 1170 - Vocal Techniques for Music Educators Credits: 1 hour
MUS 3210 - Keyboard Skills for Singers Credits: 1 hour
College of Education Courses (21 hours)
ED 2500 - Human Development Credits: 3 hours
ED 3050 - K-12 Content Area Literacy Credits: 3 hours
ED 3950 - School and Society Credits: 3 hours
ED 4100 - Seminar in Education Credits: 1 to 2 hours (2 hours)
ED 4750 - Intern Teaching: Middle School/Secondary Credits: 5 or 10 hours (10 hours)

Notes:
Before the student will be recommended for intern teaching, she/he must have completed all courses in the major with a minimum grade-point average of 3.0. The application for intern teaching assignment must be made in the Office of Professional Field Experiences prior to one full year before the assignment is to begin.

Music Education Major: Instrumental Emphasis
Grants certification to teach music at any grade level (K-12) (18 hours)

Instrumental Methods I (3 hours)
MUS 3440 - Instrumental Methods I Credits: 3 hours

Methods Elective I (3 hours)
Select from the following:
MUS 3360 - General Music Methods Credits: 3 hours
MUS 3400 - Choral Methods Credits: 3 hours
MUS 3450 - String Methods Credits: 2 hours
MUS 3470 - Instrumental Methods II Credits: 3 hours

Teaching and Learning in Music (3 hours)
MUS 3480 - Teaching and Learning in Music Credits: 3 hours

Conducting (2 hours)
MUS 3310 - Instrumental Conducting and Literature Credits: 2 hours

Class Instruments (6 hours)

Band
Complete these courses:
MUS 1300 - Percussion Class Credits: 1 hour
MUS 1330 - Clarinet Class Credits: 1 hour
MUS 1420 - Oboe/Bassoon Class Credits: 1 hour
MUS 1430 - Trumpet/Horn Class Credits: 1 hour
MUS 1440 - Trombone/Tuba Class Credits: 1 hour
MUS 1450 - Flute/Saxophone Class Credits: 1 hour

String
Complete three courses from those listed above for band emphasis and complete three semesters of study on a minimum of two string instruments other than own major string instrument, or complete the following two courses plus four courses from those listed above for band emphasis.

MUS 1280 - String Class-Cello, Double Bass Credits: 1 hour
MUS 1290 - String Class-Violin, Viola Credits: 1 hour

Note:
Those who test out of any of the above must fulfill their class instrument requirements by completing one or more of the following:
MUS 1170 - Vocal Techniques for Music Educator Credits: 1 hour
MUS 1280 - String Class-Cello, Double Bass Credits: 1 hour
MUS 1290 - String Class-Violin, Viola Credits: 1 hour
MUS 1300 - Percussion Class Credits: 1 hour
MUS 1330 - Clarinet Class Credits: 1 hour
MUS 1420 - Oboe/Bassoon Class Credits: 1 hour
MUS 1430 - Trumpet/Horn Class Credits: 1 hour
MUS 1440 - Trombone/Tuba Class Credits: 1 hour
MUS 1450 - Flute/Saxophone Class Credits: 1 hour

Methods Elective II (2 hours)
Select from the following:
MUS 3850 - Music for the Special Student Credits: 2 hours
MUS 3860 - Technology in Music and Music Education Credits: 3 hours

Keyboard Musicianship (2 hours)
Those who "comp out" of keyboard will complete this requirement by selecting courses from the class instrument or methods elective areas. Students who do not qualify for entry at the 2200 level must complete Keyboard Fundamentals (1200) and/or 1210 as a deficiency.

MUS 2200 - Keyboard Musicianship Credits: 1 hour
MUS 2210 - Keyboard Musicianship Credits: 1 hour

College of Education Courses (21 hours)
ED 2500 - Human Development Credits: 3 hours
ED 3050 - K-12 Content Area Literacy Credits: 3 hours
ED 3950 - School and Society Credits: 3 hours
ED 4100 - Seminar in Education Credits: 1 to 2 hours (2 hours)
ED 4750 - Intern Teaching: Middle School/Secondary Credits: 5 or 10 hours (10 hours)

Note:
Wind/Percussion students must complete two semesters of Marching Band (1090). All other instrumental emphasis majors are also strongly urged to elect MUS 1090 (see "Exceptions To Core Requirements" in the Bachelor of Music Program).

Before the student will be recommended for intern teaching, he/she must have completed all courses in the major with a minimum grade point of 3.0. The application for intern teaching assignment must be made in the Office of Professional Field Experiences prior to one full semester before the assignment is to begin.

Music Therapy Major
The student must achieve a 3.0 grade point average in the therapy major in order to be recommended for MUS 4810. In completing the General Education requirements the therapy major must complete OT 2000 and SPPA 2000. The therapy major must complete at least one course in dance.

Core Requirements

Music Convocation (7 semesters)
MUS 1010 - Music Convocation Credits: No Credit

Applied Music (14 hours)
(See Electives below)
MUS 2000 - Applied Music Credits: 1 to 4 hours
MUS 3000 - Applied Music Credits: 1 to 4 hours

Basic Music (12 hours)
MUS 1600 - Basic Music I Credits: 3 hours
MUS 1610 - Basic Music II Credits: 3 hours
MUS 2600 - Basic Music III Credits: 3 hours
MUS 2610 - Basic Music IV Credits: 3 hours

Aural Comprehension (4 hours)
MUS 1620 - Aural Comprehension I Credits: 1 hour
MUS 1630 - Aural Comprehension II Credits: 1 hour
MUS 2590 - Aural Comprehension III Credits: 1 hour
MUS 2650 - Aural Comprehension IV Credits: 1 hour

History or Theory Elective (2 hours)
(see Electives below)

Music History and Literature (8 hours)
MUS 1700 - Music History I Credits: 2 hours
MUS 2700 - Music History II: Medieval/Renaissance Credits: 3 hours
MUS 2710 - Music History III: Nineteenth/Twentieth Century Credits: 3 hours

Performance Elective (8 hours)
(see Electives below)

Keyboard Fundamentals (2 hours)
MUS 1200 - Keyboard Fundamentals Credits: 1 hour
MUS 1210 - Keyboard Fundamentals Credits: 1 hour

Conducting (1 hour)
MUS 2150 - Conducting Credits: 1 hour

General Education Electives (37 hours)

Major Area of Concentration (13 to 41 hours)

Free Electives to make a minimum of 122 semester credit hours.

Music Clearance
(verification of completion of recital performance and attendance requirements).

Courses in Music Therapy (22 hours)
MUS 2810 - Introduction to Music Therapy Credits: 1 hour
MUS 2890 - Music Therapy Activities for Children Credits: 2 hours
MUS 2900 - Music Therapy Activities for Adults Credits: 2 hours
MUS 3800 - Psychology of Music Credits: 2 hours
MUS 3810 - Research in the Psychology of Music Credits: 2 hours
MUS 3830 - Observation and Measurement in Music Therapy Credits: 1 hour
MUS 4720 - Clinical Practicum in Music Therapy I Credits: 2 hours
MUS 4730 - Clinical Practicum in Music Therapy II Credits: 2 hours
MUS 4790 - Influence of Music on Behavior Credits: 3 hours
MUS 4800 - Music Therapy Methods and Materials Credits: 3 hours
MUS 4810 - Music Therapy Internship Credits: 2 hours

Keyboard Musicianship (4 hours)
All music therapy majors who have passed a piano competency exam may be excused from any Keyboard Musicianship requirements except MUS 3220.

MUS 2200 - Keyboard Musicianship Credits: 1 hour
MUS 2210 - Keyboard Musicianship Credits: 1 hour
MUS 3200 - Advanced Keyboard Musicianship Credits: 1 hour
MUS 3220 - Keyboard Harmonization Skills Credits: 1 hour
Fundamentals of Guitar (1 hour)
MUS 1260 - Fundamentals of Guitar Credits: 1 hour

Voice Class (1 hour)
MUS 1170 - Vocal Techniques for Music Educator Credits: 1 hour

Additional Courses (2 hours)
MUS 2790 - Instruments of the Band and Orchestra Credits: 1 hour
MUS 2800 - Instruments of the Music Classroom Credits: 1 hour

Professional Electives (5 hours)
Select from:

Performance Electives (selected from electives listed under Core Requirements)
MUS 1230 - Voice Class Credits: 1 hour
MUS 1280 - String Class-Cello, Double Bass Credits: 1 hour
MUS 1290 - String Class-Violin, Viola Credits: 1 hour
MUS 1300 - Percussion Class Credits: 1 hour
MUS 1330 - Clarinet Class Credits: 1 hour
MUS 1420 - Oboe/Bassoon Class Credits: 1 hour
MUS 1430 - Trumpet/Horn Class Credits: 1 hour
MUS 1440 - Trombone/Tuba Class Credits: 1 hour
MUS 1450 - Flute/Saxophone Class Credits: 1 hour
MUS 3000 - Applied Music Credits: 1 to 4 hours
MUS 3360 - General Music Methods Credits: 3 hours
MUS 5550 - Jazz Arranging Credits: 2 hours
MUS 5580 - Jazz Improvisation I Credits: 2 hours

Psychology (6 hours)
PSY 1000 - General Psychology Credits: 3 hours
PSY 2500 - Abnormal Psychology Credits: 3 hours

Special Education (3 hours)
SPED 5300 - Introduction to Special Education Credits: 3 hours

Notes:
The student must achieve a 3.0 grade point average in the therapy major in order to be recommended for MUS 4810. In completing the General Education requirements the therapy major must complete OT 2000 and SPPA 2000. The therapy major must complete at least one course in dance.

Music Performance: Instrumental Major
In order to be permitted to major in music performance the student must achieve a minimum grade point average of 3.25 in MUS 2000 and pass a performance qualifying examination (see “Electing a Major Area of Study” in the Bachelor of Music program).

Applied Music (4 hours) (in addition to Core requirements)
MUS 2000 - Applied Music Credits: 1 to 4 hours

Applied Music (10 hours) (in addition to Core requirements)
MUS 3000 - Applied Music Credits: 1 to 4 hours

Performance Electives (2 hours) (in addition to Core Requirements; see Electives above)
Chamber Music (2 hours)
MUS 2180 - Instrumental Chamber Music Credits: 1 hour

Composition (2 hours)
MUS 2620 - Composition Credits: 2 hours

Advanced History/Literature (2 hours) (in addition to Core Requirements)

Counterpoint (2 hours)
MUS 5600 - Counterpoint Credits: 2 hours

Music Electives (5 hours)

Senior Recital (0 hours) (required for Music Clearance)

Music Performance: Jazz Studies

Applied Music (10 hours) (in addition to Core Requirements)
MUS 3000 - Applied Music Credits: 1 to 4 hours

Jazz Ensembles (2 hours)
MUS 1190 - Gold Company Credits: 1 hour or
MUS 2120 - Jazz Orchestra Credits: 1 hour

Jazz Combo (2 hours)
MUS 2180 - Instrumental Chamber Music Credits: 1 hour

Jazz Composition (2 hours)
MUS 2640 - Jazz Composition Credits: 2 hours

Jazz Arranging (4 hours)
MUS 5550 - Jazz Arranging Credits: 2 hours
MUS 5560 - Advanced Jazz Arranging Credits: 2 hours

Jazz Improvisation (4 hours)
MUS 5580 - Jazz Improvisation I Credits: 2 hours
MUS 5590 - Jazz Improvisation II Credits: 2 hours

Jazz History and Literature (4 hours)
MUS 5830 - Jazz History and Literature Credits: 3 hours

Keyboard Musicianship (2 hours)
MUS 2200 - Keyboard Musicianship Credits: 1 hour
MUS 2210 - Keyboard Musicianship Credits: 1 hour

Professional Electives (2 hours)
choose from:
MUS 1000 - Applied Music Credits: 1 to 2 hours Piano
MUS 2620 - Composition Credits: 2 hours
MUS 2630 - Composition Credits: 2 hours
MUS 3300 - Choral Conducting and Literature Credits: 2 hours
MUS 3310 - Instrumental Conducting and Literature Credits: 2 hours
MUS 3860 - Technology in Music and Music Education Credits: 3 hours
MUS 5600 - Counterpoint Credits: 2 hours
MUS 5610 - Counterpoint Credits: 2 hours
MUS 5640 - Seminar in Electronic Music Composition Credits: 2 hours
MUS 5660 - Musical Acoustics Credits: 3 hours
MUS 5670 - Orchestration Credits: 2 hours
MUS 5680 - Orchestration Credits: 2 hours
MUS 5940 - Electronic Media Credits: 2 hours

Senior Recital
All Bachelor of Music-Jazz Studies candidates are required to present a senior recital.

Music Performance: Keyboard Major
In order to be permitted to major in music performance the student must achieve a minimum grade point average of 3.25 in MUS 2000 and pass a performance qualifying examination (see “Electing a Major Area of Study”).

Applied Music (4 hours) (in addition to Core requirements)
MUS 2000 - Applied Music Credits: 1 to 4 hours

Applied Music (10 hours) (in addition to Core requirements)
MUS 3000 - Applied Music Credits: 1 to 4 hours

Performance Electives (2 hours) (in addition to Core Requirements; see Electives core in the Bachelor of Music program)

Chamber Music (2 hours)
MUS 2180 - Instrumental Chamber Music Credits: 1 hour

Composition (2 hours)
MUS 2620 - Composition Credits: 2 hours

Advanced History/Literature (2 hours) (in addition to Core Requirements)

Counterpoint (2 hours)
MUS 5600 - Counterpoint Credits: 2 hours

Keyboard Literature (2 hours)
MUS 5800 - Solo Literature: (Topics) Credits: 2 hours

Keyboard Pedagogy (2 hours)
MUS 5900 - Studies in Pedagogy Credits: 1 to 4 hours

Music Electives (1 hour)

Senior Recital (0 hours) (required for Music Clearance)

Music Performance: Vocal Major
In order to be permitted to major in music performance the student must achieve a minimum grade point average of 3.25 in Applied MUS 2000 and pass a performance qualifying examination (see “Electing a Major Area of Study” in the Bachelor of Music program).

Applied Music (4 hours) (in addition to Core Requirements)
MUS 2000 - Applied Music Credits: 1 to 4 hours

Applied Music (10 hours) (in addition to Core Requirements)
MUS 3000 - Applied Music Credits: 1 to 4 hours
Performance Electives (2 hours) (in addition to Core Requirements; See Electives Core in the Bachelor of Music program)

Operative Workshop (2 hours)

Keyboard Musicianship (4 hours)
MUS 2200 - Keyboard Musicianship Credits: 1 hour
MUS 2210 - Keyboard Musicianship Credits: 1 hour
MUS 3200 - Advanced Keyboard Musicianship Credits: 1 hour
MUS 3210 - Keyboard Skills for Singers Credits: 1 hour

Foreign Languages (8 hours)

Vocal Pedagogy (2 hours)
MUS 5900 - Studies in Pedagogy Credits: 1 to 4 hours

Diction (2 hours)
Choose from:
MUS 2330 - Italian/English Diction Credits: 1 hour
MUS 2340 - French/German Diction Credits: 1 hour

Music electives (2 hours)

Senior Recital (0 hours) (required for Music Clearance)

Note:
In addition to the 8 hours of foreign languages above, the music performance-vocal major must include two semesters of one foreign language in completing General Education requirements. The language must be selected from the list of approved General Education Proficiency 4 courses.

Composition
The composition student must have previous composition experience before being admitted to a composition major. This experience may be acquired by transferring approved credit in composition from another institution or by successful completion of Composition 2620-2630. All Bachelor of Music: Composition candidates are required to present a Senior Recital consisting of thirty minutes of original compositions which are an outgrowth of the candidate's course work and which have been approved by the composition faculty.

Requirements
MUS 1000 - Applied Music Credits: 1 to 2 hours
MUS 2200 - Keyboard Musicianship Credits: 1 hour
MUS 2620 - Composition Credits: 2 hours
MUS 3620 - Seminar in Music Composition Credits: 4 hours
MUS 5600 - Counterpoint Credits: 2 hours
MUS 5640 - Seminar in Electronic Music Composition Credits: 2 hours
MUS 5670 - Orchestration Credits: 2 hours

Select Either:
MUS 1000 - Applied Music Credits: 1 to 2 hours or
MUS 2630 - Composition Credits: 2 hours

Select Either:
MUS 5610 - Counterpoint Credits: 2 hours or
MUS 5620 - Advanced Compositional Topics Credits: 2 hours or
MUS 5680 - Orchestration Credits: 2 hours
Recommendations
It is recommended that the student also consider electing:
ART 1200 - Introduction to Art Credits: 3 hours
ENGL 1500 - Literature and Other Arts Credits: 4 hours
THEA 1000 - Introduction to Theatre Credits: 3 hours

Bachelor of Arts in Music (124 hours)

1. General Education Electives (37 hours)

2. A major in music:

Music Convocation (6 semesters)
MUS 1010 - Music Convocation Credits: No Credit

Applied Music (8 hours) (Must pass sophomore hearing)
MUS 2000 - Applied Music Credits: 1 to 4 hours

Basic Music (12 hours)
MUS 1600 - Basic Music I Credits: 3 hours
MUS 1610 - Basic Music II Credits: 3 hours
MUS 2600 - Basic Music III Credits: 3 hours
MUS 2610 - Basic Music IV Credits: 3 hours

Aural Comprehension (4 hours)
MUS 1620 - Aural Comprehension I Credits: 1 hour
MUS 1630 - Aural Comprehension II Credits: 1 hour
MUS 2590 - Aural Comprehension III Credits: 1 hour
MUS 2650 - Aural Comprehension IV Credits: 1 hour

Keyboard Fundamentals (2 hours)
MUS 1200 - Keyboard Fundamentals Credits: 1 hour
MUS 1210 - Keyboard Fundamentals Credits: 1 hour

Music History/Literature (8 hours)
MUS 1700 - Music History I Credits: 2 hours
MUS 2700 - Music History II: Medieval/Renaissance Credits: 3 hours
MUS 2710 - Music History III: Nineteenth/Twentieth Century Credits: 3 hours

Performance Electives (major ensemble) (4 hours)

Music Electives (12 hours)

3. A Minor in Another Department in University (minimum) (15 hours)

(Note: In the event that the credit hours for the minor requirements established by the department which offers that minor are greater than 15, the students may make an appropriate adjustment in the hours allowed for free electives.)

4. Free Electives (22 hours)

Notes
To be awarded a Bachelor of Arts degree, the student, in completing requirements as outlined above, must have completed at least 70 hours of General Education, language and literature, science, and social science, including at least eight hours in one foreign language. If two or more years of high school preparation in one foreign language are presented for entrance, the requirements for foreign language may be waived.
Music Minor (24 hours)

The School of Music does not offer a minor leading to Elementary or Secondary Teaching Certification.

Minors must choose one of the following two groups:
Applied Music (2 hours)  Personal auditions required (pending space availability).
MUS 1000 - Applied Music Credits: 1 to 2 hours

Performance Electives (2 hours)
Personal auditions required (pending space availability).

Select From:
MUS 1070 - University Choruses Credits: 1 hour
MUS 1080 - Collegiate Singers Credits: 1 hour
MUS 1100 - Symphonic Band Credits: 1 hour
MUS 1110 - University Orchestra Credits: 1 hour
MUS 1120 - University Chorale Credits: 1 hour
MUS 1130 - Concert Band Credits: 1 hour

Or Select:
MUS 1500 - Music Appreciation: Live Music Credits: 4 hours

American Music (4 hours)
MUS 3500 - American Music Credits: 4 hours

Minors must take the following basic courses:
Fundamentals of Music (2 hours)
MUS 1590 - Fundamentals of Music Credits: 2 hours

Basic Music (3 hours)
MUS 1600 - Basic Music I Credits: 3 hours

Aural Comprehension (1 hour)
MUS 1620 - Aural Comprehension I Credits: 1 hour

Electives (10 to 14 hours)
Other electives as approved by the music advisor. Minors select from:

Keyboard Musicianship
MUS 1200 - Keyboard Fundamentals Credits: 1 hour
MUS 1210 - Keyboard Fundamentals Credits: 1 hour
MUS 2200 - Keyboard Musicianship Credits: 1 hour
MUS 2210 - Keyboard Musicianship Credits: 1 hour
MUS 3200 - Advanced Keyboard Musicianship Credits: 1 hour
MUS 3210 - Keyboard Skills for Singers Credits: 1 hour
MUS 3220 - Keyboard Harmonization Skills Credits: 1 hour

Voice Class
MUS 1220 - Voice Class Credits: 1 hour
MUS 1230 - Voice Class Credits: 1 hour

Music Appreciation
MUS 1500 - Music Appreciation: Live Music Credits: 4 hours
MUS 1510 - Music Appreciation: Jazz/Pop Credits: 4 hours
MUS 3500 - American Music Credits: 4 hours
MUS 3520 - Non-Western Music Credits: 4 hours
MUS 4500 - Music Appreciation: The Symphony Credits: 3 hours

Basic Music
MUS 1610 - Basic Music II Credits: 3 hours
MUS 2600 - Basic Music III Credits: 3 hours
MUS 2610 - Basic Music IV Credits: 3 hours

Aural Comprehension
MUS 1630 - Aural Comprehension II Credits: 1 hour
MUS 2590 - Aural Comprehension III Credits: 1 hour
MUS 2650 - Aural Comprehension IV Credits: 1 hour

Conducting
MUS 2150 - Conducting Credits: 1 hour
MUS 3300 - Choral Conducting and Literature Credits: 2 hours
MUS 3310 - Instrumental Conducting and Literature Credits: 2 hours

Composition
MUS 2620 - Composition Credits: 2 hours
MUS 2630 - Composition Credits: 2 hours
MUS 3620 - Seminar in Music Composition Credits: 4 hours
MUS 5640 - Seminar in Electronic Music Composition Credits: 2 hours

Music History and Literature
MUS 1700 - Music History I Credits: 2 hours
MUS 2700 - Music History II: Medieval/Renaissance Credits: 3 hours
MUS 2710 - Music History III: Nineteenth/Twentieth Century Credits: 3 hours

Jazz Studies
MUS 2640 - Jazz Composition Credits: 2 hours
MUS 5550 - Jazz Arranging Credits: 2 hours
MUS 5560 - Advanced Jazz Arranging Credits: 2 hours
MUS 5580 - Jazz Improvisation I Credits: 2 hours
MUS 5590 - Jazz Improvisation II Credits: 2 hours
MUS 5830 - Jazz History and Literature Credits: 3 hours

Applied Music
MUS 1000 - Applied Music Credits: 1 to 2 hours

Performance Electives
MUS 1070 - University Choruses Credits: 1 hour
MUS 1080 - Collegiate Singers Credits: 1 hour
MUS 1090 - Marching Band Credits: 1 hour
MUS 1100 - Symphonic Band Credits: 1 hour
MUS 1110 - University Orchestra Credits: 1 hour
MUS 1120 - University Chorale Credits: 1 hour
MUS 1130 - Concert Band Credits: 1 hour
MUS 1180 - Gold Company II Credits: 1 hour
MUS 1190 - Gold Company Credits: 1 hour
MUS 1900 - Accompanying Credits: 1 hour
MUS 2100 - Jazz Lab Band Credits: 1 hour
MUS 2110 - Studio Accompanying Credits: 1 hour
MUS 2120 - Jazz Orchestra Credits: 1 hour
MUS 2180 - Instrumental Chamber Music Credits: 1 hour
MUS 3170 - Opera Workshop Credits: 1 hour
MUS 5170 - Collegium Musicum Credits: 1 hour
Theatre
Joan Herrington, Chair
Jay Berkow
Cheryl Bruey
James Daniels
Micha Espinosa
Matthew A. Knewtson
Mark Liermann
Gwendolyn Nagle
Greg D. Roehrick
Von H. Washington
D. Terry Williams

The Department of Theatre offers programs leading to the Bachelor of Arts and the Bachelor of Fine Arts degrees. Students should refer to degree and General Education requirements within this catalog for specifics. The Department of Theatre concentrates on undergraduate programs that stress the interdependency of academic and production experiences, the importance of a broad theatre background, and the mastery of theatre fundamentals in preparation for the more advanced theatre training offered in graduate schools or professional theatre internship/apprentice programs.

Opportunities for participation in the production program begin with the freshman year. The department presents nine faculty-directed productions in the season, all in the Irving S. Gilmore Theatre Complex. Additional student-directed plays are presented in the Footlights I and II Series and in the directing classes. All regularly enrolled students in good academic standing (2.0 g.p.a. or above) are eligible to participate in these productions.

The Department of Theatre is fully accredited by the National Association of Schools of Theatre. The requirements for entrance and for graduation are in accordance with the published guidelines of NAST.

Admission as a Major
Admission to Western Michigan University is granted only by the Office of Admission and Orientation for undergraduate students. Application forms may be obtained by writing to the Office of Admissions and Orientation, 2240 Seibert Administration Building, or via the web at www.wmich.edu

Enrollment in a Theatre or Music Theatre curricula is contingent upon admission to the University and approval of the Department of Theatre. Department approval is obtained through the theatre audition/interview process. The student may proceed by making application to the University, at which time notification will be sent about the audition/interview program in the Department, or a request may be made for an opportunity to audition prior to making application to the University by obtaining an Audition/Interview Application from the Department of Theatre via the web at www.wmich.edu/theatre The student is urged to commence application procedures early in the senior year of high school, or in the final year at a community college.

Approval to become a Theatre or Music Theatre major is based upon the student's capabilities, as demonstrated by the audition or interview, upon academic abilities reflected in grade point average, various scholastic test scores as they are available, and upon letters of recommendation.

Approval to become a Theatre or Music Theatre major is based upon the student's capabilities, as demonstrated by the audition or interview, upon academic abilities reflected in grade point average, various scholastic test scores as they are available, and upon letters of recommendation.

Further information regarding admission to a theatre or music theatre curricula may be obtained by writing to the Department of Theatre via the web at www.wmich.edu/theatre The Department welcomes the opportunity to confer with prospective students, parents, and counselors regarding educational goals and plans.

Advising
Advisor: Sandy Duke
1104 Gilmore Theatre Complex:
(269) 387-3210

The theatre academic advisor will assist any student enrolled in the University with course selections in theatre. Appointments are made by calling 387-3220. Theatre majors and minors must confer yearly with the theatre advisor who will
help them plan their program. Music Theatre Performance Majors should meet with their advisor, Margaret Hamilton, School of Music, 387-4672.

Transfer Credit
It is department policy to accept no more than 18 hours of transferred credit toward a major and 9 hours toward a minor.

Students transferring into the Performance Program will be assessed at the time of their audition and will be placed into the program at the level of study deemed appropriate by the Performance faculty.

Programs
The Department of Theatre offers two majors - Theatre and Music Theatre Performance - and one minor - Theatre.

Technology Requirement
Every undergraduate student with a major in Theatre must demonstrate proficiency in computer usage through one of the following options:
1. Satisfactory completion of THEA 1140 Digital Media in the Arts.
2. Waiver from the instructor of record based on demonstrable competence in all topics/modules of THEA 1140. Such competence must be demonstrated to the instructor of record in one of the following ways:
   a. The presentation of the syllabus for a course covering those topics taken previously by the student and evidence of successful completion of said course.
   b. Demonstration of proficiency in the course topics.

Baccalaureate Writing Requirement
Theatre students should take THEA 3700 Theatre History I to complete the Baccalaureate Writing Requirement. Students who have chosen the Music Theatre Performance BFA degree program will satisfy the Baccalaureate Writing Requirement by successfully completing THEA 3720 Music Theatre History Script Analysis II.

A student must complete all the General Education requirements as outlined in this catalog.

Theatre Major (57 hours)
This program is designed for the student who wants to prepare for graduate study in theatre or advanced, specialized professional training. It offers a program combining a broad background in theatre with a concentration in Performance or a concentration in Design and Technical Production or a concentration in Theatre Studies.

Required Core Courses
THEA 1200 - Stagecraft I Credits: 3 hours
THEA 1410 - Introduction to Acting Credits: 3 hours
THEA 1420 - Acting I: Action and Personalization Credits: 3 hours
THEA 1700 - Script Analysis Credits: 3 hours
THEA 2320 - Scenic Design Credits: 3 hours
THEA 2900 - Theatre Practicum Credits: 1 to 8 hours Credits: 6 hours
THEA 3310 - Costume Design Credits: 3 hours
THEA 3320 - Lighting and Sound Design Credits: 3 hours
THEA 3510 - Directing I Credits: 3 hours
THEA 3700 - Theatre History I Credits: 3 hours
THEA 3710 - Theatre History II Credits: 3 hours
THEA 4700 - Development of Theater Art Credits: 3 hours

Required Courses for Performance Concentration (TPRJ)
THEA 2410 - Voice and Movement I Credits: 3 hours
THEA 2420 - Voice and Movement II Credits: 3 hours
THEA 2450 - Acting II: Character and Action Credits: 3 hours
THEA 2460 - Acting III: Character, Action, Language Credits: 3 hours
And two (2) of the following six (6) courses:
THEA 3440 - Acting IV: Period Styles of Acting Credits: 3 hours
THEA 3450 - Acting V: Contemporary Drama Credits: 3 hours
THEA 3470 - Voice and Movement Lab Credits: 3 hours
THEA 3520 - Directing II Credits: 3 hours
THEA 4410 - Acting Studio Credits: 3 hours
THEA 4430 - Acting for the Camera Credits: 3 hours

Required Courses for Design And Technical Production Concentration (TDTJ)
Electives (Art, Engineering, Consumer Resources, English, Theatre) Credits: 3 hours
THEA 1310 - Drafting and Color Media Credits: 3 hours
THEA 1320 - Period Styles of Design Credits: 3 hours
THEA 2200 - Stagecraft II Credits: 3 hours
THEA 4310 - Advanced Design Credits: 3 hours
THEA 4320 - Computer-Aided Theatre Design Credits: 3 hours

Required Courses for Theatre Studies Concentration (TSTJ)
In addition to the 39 hours of Required Core Courses, Theatre Studies students must select 18 hours from Theatre Department courses or related courses offered in other departments. The program of each individual student requires the approval of the Theatre Department Advisor and a designated faculty mentor.

A grade of “C” or better is required in all courses.

Electives Credits: 18 hours

Suggested Course Of Study For Performance Majors (TPRJ)

First Year-Fall
THEA 1200 - Stagecraft I Credits: 3 hours This course may be taken either semester.
THEA 1410 - Introduction to Acting Credits: 3 hours
THEA 1700 - Script Analysis Credits: 3 hours This course may be taken either semester.
THEA 2900 - Theatre Practicum Credits: 1 to 8 hours

First Year-Spring
THEA 1420 - Acting I: Action and Personalization Credits: 3 hours
THEA 2900 - Theatre Practicum Credits: 1 to 8 hours

Second Year-Fall
ENGL 2520 - Shakespeare Credits: 4 hours (General Education; prerequisite to THEA 3700) This course may be taken either semester.
THEA 2410 - Voice and Movement I Credits: 3 hours
THEA 2450 - Acting II: Character and Action Credits: 3 hours
THEA 2900 - Theatre Practicum Credits: 1 to 8 hours

Second Year-Spring
All Performance students following this course of study are reviewed by the Performance faculty. Satisfactory review is necessary for the student to elect upper-level courses. Performance students should take the three required design courses THEA 2320, 3310, and 3320 between second year spring semester and fourth year spring semester.
THEA 2420 - Voice and Movement II Credits: 3 hours
THEA 2460 - Acting III: Character, Action, Language Credits: 3 hours
THEA 2900 - Theatre Practicum Credits: 1 to 8 hours

Third Year-Fall
THEA 2900 - Theatre Practicum Credits: 1 to 8 hours
THEA 3510 - Directing I Credits: 3 hours This course may be taken either semester.
THEA 3700 - Theatre History I Credits: 3 hours

*Third Year-Spring*
THEA 2900 - Theatre Practicum Credits: 1 to 8 hours
THEA 3710 - Theatre History II Credits: 3 hours

Junior and Senior level performance students must choose two of the following:
THEA 3440 - Acting IV: Period Styles of Acting Credits: 3 hours
THEA 3450 - Acting V: Contemporary Drama Credits: 3 hours
THEA 3470 - Voice and Movement Lab Credits: 3 hours Repeatable for credit.
THEA 3520 - Directing II Credits: 3 hours
THEA 4410 - Acting Studio Credits: 3 hours
THEA 4430 - Acting for the Camera Credits: 3 hours

*Fourth Year-Fall/Spring*
THEA 4700 - Development of Theater Art Credits: 3 hours

**Suggested Course Of Study For Design And Technical Production Majors (TDTJ)**

*First Year-Fall*
THEA 1200 - Stagecraft I Credits: 3 hours Course may be taken fall or Spring semester.
THEA 1310 - Drafting and Color Media Credits: 3 hours
THEA 1410 - Introduction to Acting Credits: 3 hours
THEA 1700 - Script Analysis Credits: 3 hours Course may be taken fall or Spring semester.
THEA 2900 - Theatre Practicum Credits: 1 to 8 hours

*First Year-Spring*
THEA 1320 - Period Styles of Design Credits: 3 hours
THEA 1420 - Acting I: Action and Personalization Credits: 3 hours
THEA 2900 - Theatre Practicum Credits: 1 to 8 hours

*Second Year-Fall*
THEA 2900 - Theatre Practicum Credits: 1 to 8 hours
and
THEA 2320 - Scenic Design Credits: 3 hours or
THEA 3310 - Costume Design Credits: 3 hours or
THEA 3320 - Lighting and Sound Design Credits: 3 hours

*Second Year-Spring*
All students following this course of study are reviewed by the Design and Technical Production faculty and staff at the end of the second year. Satisfactory review is necessary for the student to elect upper-level courses.
THEA 2200 - Stagecraft II Credits: 3 hours and
THEA 2900 - Theatre Practicum Credits: 1 to 8 hours
THEA 2320 - Scenic Design Credits: 3 hours or
THEA 3310 - Costume Design Credits: 3 hours or
THEA 3320 - Lighting and Sound Design Credits: 3 hours

*Third Year-Fall*
THEA 2900 - Theatre Practicum Credits: 1 to 8 hours
and
THEA 2320 - Scenic Design Credits: 3 hours or
THEA 3310 - Costume Design Credits: 3 hours or
THEA 3320 - Lighting and Sound Design Credits: 3 hours
THEA 3700 - Theatre History I Credits: 3 hours
THEA 4310 - Advanced Design Credits: 3 hours or
THEA 4320 - Computer-Aided Theatre Design Credits: 3 hours (as offered)
**Third Year-Spring**
All students following this course of study are reviewed by the Design and Technical Production faculty and staff at the end of the third year to assess progress toward completion of the major and to discuss fourth-year projects and post-graduate planning.

Elective (See Electives list below) Course may be taken third or fourth year.
THEA 2900 - Theatre Practicum Credits: 1 to 8 hours
THEA 3510 - Directing I Credits: 3 hours Course may be taken third or fourth year.
THEA 3710 - Theatre History II Credits: 3 hours

**Fourth Year-Fall**
THEA 3510 - Directing I Credits: 3 hours This course may be taken third or fourth year.
THEA 4310 - Advanced Design Credits: 3 hours or
THEA 4320 - Computer-Aided Theatre Design Credits: 3 hours (as offered)
THEA 4700 - Development of Theater Art Credits: 3 hours

**Fourth Year-Spring**
Elective (See Electives list below) Course may be taken third or fourth year.

**Electives:**
Design and Technical Production students must elect three credit hours from the following options. The remainder of these courses are strongly recommended as electives to complement the TDTJ major:

- ART 1400 - Studio Experience - (2-D) Credits: 3 hours
- ART 2010 - Non-Art Major: Drawing Credits: 3 hours
- ART 2020 - Non-Art Major: Acrylic Painting Credits: 3 hours
- ART 2080 - Non-Art Major: Watercolor Credits: 3 hours
- ART 2200 - History of Art Credits: 3 hours
- ART 2210 - History of Art Credits: 3 hours
- FCS 1240 - Apparel Construction II Credits: 3 hours
- FCS 3260 - History of Fashion Credits: 3 hours
- IME 1420 - Engineering Graphics Credits: 3 hours
- IME 2460 - Introduction to Computer-Aided Design Credits: 3 hours
- THEA 3520 - Directing II Credits: 3 hours
- THEA 3900 - Professional Theatre Internship Credits: 2 to 6 hours
- THEA 4000 - Special Topics in Theatre Credits: 1 to 3 hours
- THEA 4900 - Individualized Study in Theatre Credits: Variable

**Music Theatre Performance (84 hours)**

**Admission**
Admission to the program is by prepared audition before the Dance, Music, and Theatre faculty. Additional information is available by contacting the curriculum advisor or via the web at www.wmich.edu/theatre Continuance in the program is based upon periodic reviews. Moreover, at the end of the sophomore year, each student must pass a performance jury in order to continue in the program; unanimous approval by each performance area is required. Music Theatre (MTFJ) majors must audition for all staff-directed musical comedy, opera, and operettas each year.

A student must audition and enroll in Level I technique classes in ballet and jazz, or be placed in Level I classes upon completion of remedial work. The student must also be able to enroll in MUS 1600 by passing a Music Qualification Exam. The student may be accepted for up to a one-year probationary period in the program to reach this proficiency level in dance and/or music.
**Required Courses In Dance (21 hours)**

- Technique classes at Level I or above Credits: 6 hours
- DANC 1040 - Beginning Tap Credits: 2 hours
- DANC 1100 - Ballet Technique I Credits: 2 hours
- DANC 1200 - Jazz Technique I Credits: 2 hours
- DANC 1250 - Special Studies in Introductory Dance Technique Credits: 1 to 6 hours Music Theatre Dance Styles
- DANC 4950 - Performance Workshop Credits: 2 hours (Prereq: 3950) MTFJ majors only
- DANC 4960 - Performance in Music Theatre Credits: 2 hours Credits: 6 hours (Prereq: MTFJ majors only)

**Required Courses In Music (23 hours)**

- MUS 1150 - Voice Technique I Credits: 2 hours
- MUS 1160 - Voice Technique II Credits: 2 hours
- MUS 1200 - Keyboard Fundamentals Credits: 1 hour
- MUS 1210 - Keyboard Fundamentals Credits: 1 hour (Prereq: MUS 1200)
- MUS 1600 - Basic Music I Credits: 3 hours (Prereq: MUS 1590)
- MUS 1620 - Aural Comprehension I Credits: 1 hour (Prereq: MUS 1590)
- MUS 1630 - Aural Comprehension II Credits: 1 hour (Prereq: 1620, "C" or better)
- MUS 1990 - Applied Music-Music Theatre (voice) Credits: 1 to 4 hours (4 semesters, 2 hours each) (Prereq: MUS 1200, MUS 1600)
- MUS 2200 - Keyboard Musicianship Credits: 1 hour (Prereq: MUS 1210, "C" or better)
- MUS 3950 - Performance Development and Technique Credits: 3 hours

**Required Courses In Theatre (32 hours)**

- THEA 1410 - Introduction to Acting Credits: 3 hours
- THEA 1420 - Acting I: Action and Personalization Credits: 3 hours
- THEA 2300 - Stage Makeup Credits: 3 hours
- THEA 2410 - Voice and Movement I Credits: 3 hours
- THEA 2450 - Acting II: Character and Action Credits: 3 hours
- THEA 2460 - Acting III: Character, Action, Language Credits: 3 hours
- THEA 2720 - Musical Theatre History and Script Analysis I Credits: 3 hours
- THEA 2900 - Theatre Practicum Credits: 1 to 8 hours Credits: 2 hours
- THEA 3440 - Acting IV: Period Styles of Acting Credits: 3 hours
- THEA 3510 - Directing I Credits: 3 hours (Prereq: Junior standing)
- THEA 3720 - Musical Theatre History and Script Analysis II Credits: 3 hours
- THEA 4000 - Special Topics in Theatre Credits: 1 to 3 hours Credits: 1 hour

**Electives (7 hours)**

Seven hours from courses in the Department of Dance, the School of Music, and the Department of Theatre, with the consent of the Director of Music Theatre Performance.

**Baccalaureate Writing Requirement**

Students who have chosen the Music Theatre Performance BFA degree program will satisfy the Baccalaureate Writing Requirement by successfully completing:

- THEA 3720 - Musical Theatre History and Script Analysis II Credits: 3 hours

**Additional Requirements**

A student must complete all the General Education requirements as outlined in this catalog. Within these specifications, it is recommended that the student take two semesters of the following foreign languages:

- FREN 1000 - Basic French I Credits: 4 hours
- FREN 1010 - Basic French II Credits: 4 hours or
- GER 1000 - Basic German I Credits: 4 hours
- GER 1010 - Basic German II Credits: 4 hours

Note: Evaluation of THEA 4960 credits: Two of the three evaluators must be either faculty/staff of Western Michigan University or full-time professional staff of the presenting theatre.
Theatre Minor (24 hours)
A grade of “C” or better is required in all courses.

Required Courses
THEA 1200 - Stagecraft I Credits: 3 hours
THEA 1410 - Introduction to Acting Credits: 3 hours
THEA 1420 - Acting I: Action and Personalization Credits: 3 hours
THEA 1700 - Script Analysis Credits: 3 hours
THEA 2900 - Theatre Practicum Credits: 1 to 8 hours Credits: 3 hours
THEA 3700 - Theatre History I Credits: 3 hours
THEA 3710 - Theatre History II Credits: 3 hours

And one (1) of the following:
THEA 2320 - Scenic Design Credits: 3 hours
THEA 3310 - Costume Design Credits: 3 hours
THEA 3320 - Lighting and Sound Design Credits: 3 hours
College of Health and Human Services

Earlie Washington
Interim Dean

Jeanine M. Bartholomew
Director of Academic and Student Services

The College of Health and Human Services provides education, research, and community assistance through its programs. Students receive training and education in direct service roles as well as in policy development, planning, and administration.

Students may earn the degrees of Bachelor of Science in Interdisciplinary Health Services; Bachelor of Science in Nursing; Bachelor of Arts or Science in Speech Pathology and Audiology; Bachelor of Social Work; Master of Science in Medicine in Physician Assistant; Master of Science in Nursing; Master of Arts in Rehabilitation Teaching; Master of Arts in Orientation and Mobility; Master of Arts in Speech Pathology and Audiology; Master of Science in Occupational Therapy; and Master of Social Work through their studies. Also two dual master's programs are offered: Rehabilitation Counseling/Teaching (administered jointly by the Department of Blindness and Low Vision Studies and the Department of Counselor Education and Counseling Psychology) and Teaching Children Who are Visually Impaired/Orientation and Mobility (administered jointly by the Department of Blindness and Low Vision Studies and the Department of Educational Studies). Additionally, the Doctor of Philosophy in Interdisciplinary Health Studies is offered, as is the Doctor of Philosophy in Evaluation.

The College also provides programs in Holistic Health Care at the undergraduate and graduate level, as well as Alcohol and Drug Abuse at the undergraduate and graduate levels.

Mission
Consistent with the University's mission of a student-centered research institution, the College of Health and Human Services is committed to educating exemplary professionals in health care, rehabilitation, and social services, and to conducting research, disseminating knowledge, and developing mutually enriching community partnerships. The College supports and develops innovative methods of education and of evidence-based professional practice in a manner that is interdisciplinary, holistic, and respectful of human diversity.

The vision of the College is to be the recognized leader in health and human services undergraduate and graduate professional education, interdisciplinary and best practices research, and responsive community service.

In achieving its vision and mission, the College of Health and Human Services values service that improves quality of life; compassion and cooperation as integral to professional competence; interdisciplinary, holistic, and collaborative education, research, and service; multidimensional scholarship and lifelong learning; environments that are healthful, intellectually stimulating, supportive, and respectful of differences; and partnerships with the community.

Academic Units:
Blindness and Low Vision Studies
Bronson School of Nursing
Occupational Therapy
Physician Assistant
Social Work
Speech Pathology and Audiology

Advising
Students admitted to Western Michigan University must also be admitted formally to the College's programs through the individual departments, schools, or units. Interested candidates should contact the departments or program directors for further information.

Financial Aid
Scholarships and other forms of financial assistance are available through most programs in the College. Please refer to the section on Financial Aid and Scholarships.
Blindness and Low Vision Studies
James Leja, Chair
David Guth
Richard Long
Paul Ponchillia
Susan Ponchillia
Annette Skellenger
Jennifer Wiebold

The Department of Blindness and Low Vision Studies offers graduate-level, professional education programs in orientation and mobility, rehabilitation teaching, rehabilitation counseling/teaching (administered jointly with the Department of Counselor Education and Counseling Psychology), Teaching Children Who are Visually Impaired/Orientation and Mobility (administered jointly with the Department of Educational Studies), and a baccalaureate-level, professional program in travel instruction. In addition, the department provides direct services to students on campus who have severe visual impairments and, in cooperation with the Michigan Commission for the Blind, provides training to visually impaired individuals within the community.

Travel Instruction (122 hours)
Admission to this major is temporarily suspended

Admission Requirements
The program will admit ten qualified students each year based on the following selection criteria:
1. Admission to WMU
2. Appropriate volunteer experience with persons who have disabilities
3. A minimum grade point average of 3.0 (on a 4.0 scale)
4. Completed program application supported by letters of recommendation
5. Personal or telephone interview

Program Requirements
This curriculum, leading to a Bachelor of Arts degree, will be 122 credit hours in length. Built into the Travel Instruction major will be the competencies necessary to prepare direct service instructors to assist persons with disabilities in meeting their travel needs. In addition to the major, students will be required to complete a 19-hour interdisciplinary minor.

The program consists of didactic courses, a 60-hour practicum, and a 600-hour internship.

Students apply to begin the professional program in the junior year.

Students who choose this major and interdisciplinary minor will satisfy the baccalaureate-level writing requirement by completing satisfactorily OT 4780.

Courses must be taken with approval of the advisor. All courses in the Travel Instruction major and interdisciplinary minor must be completed with a grade of "C" or better.

Travel Instruction (31 hours)
BLS 3000 - Application of Travel Instruction for Persons with Cognitive Impairments Credits: 2 hours
BLS 3020 - Ambulatory, Communication, and Information Aids for Travel Credits: 2 hours
BLS 3940 - Foundations of Travel Instruction Credits: 3 hours
BLS 3950 - Methods of Independent Travel for People with Disabilities Credits: 3 hours
BLS 3960 - Practicum in Independent Travel Credits: 2 hours
BLS 4010 - Small "N" Research Design Credits: 3 hours
BLS 4120 - Internship in Independent Travel Credits: 4 hours
BLS 5770 - Services to Individuals with Blindness or Other Disabilities Credits: 1 to 2 hours Credits: 2 hours
BLS 5860 - Job Development and Placement Credits: 3 hours
BLS 5880 - Psychosocial Aspects of Disability Credits: 2 hours
BLS 5890 - Medical and Functional Aspects of Disability Credits: 2 hours
Bronson School of Nursing

Marie F. Gates, Director
Mary Backus
Alberta Bee
Evelyn Clingerman
Patricia Fuehr
Diane B. Hamilton
Eva Jerome
Joni Jones
Wendy Kershner
Mary D. Lagerwey
Juanita Manning-Walsh
Susan Nelson
Bonnie E. Rencher
Judith Sadler
Kimberly Searing
Mary Ann Stark
Sally Sutkowi
Joyce Thompson
Sally Vliem
Kathleen Young

The Western Michigan University Bronson School of Nursing opened in 1994, the result of several years of planning and collaboration by University and community leaders. The school was founded based on the need for baccalaureate prepared nursing professionals as articulated by local and national nursing leaders.

The WMU Bronson School of Nursing offers a Bachelor of Science in Nursing (B.S.N.). The prelicensure track provides the nursing degree for individuals who are entering the nursing profession, while the Registered Nurse progression track offers an avenue to the degree for the licensed nurse who graduated from a diplomas or associate degree program in nursing.

The WMU Bronson School of Nursing curricula are designed to prepare nurse generalists who comprehend the discipline and the profession of nursing and who are competent to provide, coordinate, and evaluate patient care in the multiple social contexts in which health care is delivered. The graduate of the program will deliver nursing care to individuals, groups, and communities.

The Western Michigan University Bronson School of Nursing seeks to prepare thoughtful, professional nurses who possess the skills, knowledge, and values necessary to deliver quality health care in this century. The faculty believe that the long-standing social contract between nursing and society conveys an understanding that community needs direct nursing services, that nurses develop partnerships with clients and other health care providers to promote holistic health care, and that caring is intrinsic to nursing. The curriculum integrates knowledge from liberal arts, sciences, and the discipline of nursing. The program emphasizes the development of skills, knowledge, and competencies essential for the scope of clinical judgment that distinguishes the practice of a professional nurse. Concepts of patterning, holism, caring, service to vulnerable groups, and partnership are emphasized.
Accreditation
The Michigan Board of Nursing is the regulatory body that grants provisional and full approval of nursing education programs in the State of Michigan. Full approval of the WMU Bronson School of Nursing undergraduate program was granted in July 2002 following provisional status prior to that time.

The Western Michigan University Bronson School of Nursing undergraduate program is accredited through 2007 by the Commission on Collegiate Nursing Education (CCNE), One DuPont Circle, NW, Suite 530, Washington, D.C. 20036-1120, phone 1-202-887-6791. The CCNE is an autonomous accrediting agency. As a “specialized professional accrediting agency, CCNEI ensures the quality and integrity of baccalaureate and graduate nursing programs” (CCNE document). The next CCNE visit is due in 2007 when the MSN program will be reviewed for the first time.

The Bronson School of Nursing undergraduate program has also received endorsement from the American Holistic Nurses Certification Corporation, which is the credentialing body for holistic nursing. This endorsement enables graduates of the program to be exempt from prerequisites should they choose to sit for the National Certification Examination in Holistic Nursing.

Admission to Prenursing Curriculum
The WMU applications of high school students who indicate nursing as their field of interest and who satisfy the minimum admission considerations for the Prenursing Curriculum will be forwarded to the Bronson School of Nursing. A final selection will be made by the Bronson School of Nursing. These students will be admitted to the Prenursing Curriculum and will begin the program of studies in the fall semester of the freshman year.

Current WMU students, transfer students, and second degree students may be admitted to the Prenursing curriculum on a space available basis. Interested students should make an appointment with the Bronson School of Nursing student advisor for application information.

The Undergraduate Professional Program
This program, with two curriculum tracks, leads to the completion of a Bachelor of Science in Nursing (B.S.N.).

1. A Prelicensure Track is offered for individuals who do not hold a Registered Nurse license.
2. A second track, the RN Progression Track, has been specifically designed for Registered Nurses.

Nursing - Prelicensure Track (127 hours)

Admission Requirements
Prelicensure students must complete the following courses with a grade of “C” or above, achieve a minimum cumulative grade point average of 2.8 or above, and complete the formal application to be considered for admission to the Professional Nursing curriculum. Students will complete the application as part of the course requirements for NUR 1020.

Selection criteria for admission will include individual grades, writing skills, cumulative grade point average, completion and professional appearance of the application form, a scored essay, and availability of space in nursing courses.

Fine Arts (Area I General Education) Credits: 3 hours
BIOS 1910 - Introduction to Human Anatomy and Biology Credits: 4 hours
BIOS 2400 - Human Physiology Credits: 4 hours
CHEM 1510 - Chemistry for Health Professionals I Credits: 3 hours
CHEM 1520 - Chemistry for Health Professionals I Lab Credits: 1 hour
CHEM 1530 - Chemistry for Health Professionals II Credits: 3 hours
CHEM 1540 - Chemistry for Health Professionals II Lab Credits: 1 hour
ENGL 1050 - Thought and Writing Credits: 4 hours
NUR 1020 - Introduction to the Profession of Nursing Credits: 2 hours
OT 2250 - Growth, Development, and Aging Credits: 3 hours
PSY 1000 - General Psychology Credits: 3 hours
SOC 2000 - Principles of Sociology Credits: 3 hours
Professional Curriculum Requirements (127 credit hours)
The sequencing of the Professional Nursing curriculum is critical. Students must complete designated course requirements for each level in the nursing program before progressing to the next level. To remain in good standing within the Professional Nursing curriculum, students must achieve a grade of “C” or better in all nursing courses and maintain a cumulative grade point average of 2.0 or above. No nursing courses may be repeated without review and approval by the Bronson School of Nursing Student Affairs Committee. Further, students may only repeat such courses once following the initial enrollment.

Supporting Courses (58 hours)
BIOS 1910 - Introduction to Human Anatomy and Biology Credits: 4 hours
BIOS 2320 - Microbiology and Infectious Diseases Credits: 4 hours
BIOS 2400 - Human Physiology Credits: 4 hours
CHEM 1510 - Chemistry for Health Professionals I Credits: 3 hours
CHEM 1520 - Chemistry for Health Professionals I Lab Credits: 1 hour
CHEM 1530 - Chemistry for Health Professionals II Credits: 3 hours
CHEM 1540 - Chemistry for Health Professionals II Lab Credits: 1 hour
ENGL 1050 - Thought and Writing Credits: 4 hours
HSV 3350 - Pharmacology for Health Professionals Credits: 3 hours
OT 2250 - Growth, Development, and Aging Credits: 3 hours
PSY 1000 - General Psychology Credits: 3 hours
SOC 2000 - Principles of Sociology Credits: 3 hours
STAT 3660 - Introduction to Statistics Credits: 4 hours
General Education Area I (Fine Arts) Credits: 3 hours
General Education Area III (U.S. Cultures and Issues) Credits: 3 hours
General Education Area IV (Other Cultures and Civilizations) Credits: 3 hours
Electives Credits: 9 hours

Nursing (69 hours)
NUR 1020 - Introduction to the Profession of Nursing Credits: 2 hours
NUR 2200 - Foundations of Nursing and Critical Thinking Credits: 3 hours
NUR 2210 - Nursing Therapeutics Credits: 5 hours
NUR 2220 - Health Assessment Throughout the Lifespan Credits: 3 hours
NUR 2300 - Concepts of Health and Wellness in Nursing Practice Credits: 5 hours
NUR 2310 - Wellness Care of the Elder Credits: 3 hours
NUR 3200 - Wellness and Health Promotion of Families Credits: 5 hours
NUR 3210 - Care of Families with Alterations in Health Status Credits: 5 hours
NUR 3220 - Health Care Ethics Credits: 3 hours
NUR 3300 - Nursing Therapeutics II Credits: 2 hours
NUR 3310 - Care of Adults with Alterations in Health Status Credits: 6 hours
NUR 3320 - Nursing Research Credits: 3 hours
NUR 3330 - Informatics for Health Professionals Credits: 3 hours
NUR 4200 - Psych-Mental Health Nursing Credits: 5 hours
NUR 4210 - Nursing Care of Patients with Complex Conditions Credits: 6 hours
NUR 4310 - Population-based Nursing Credits: 6 hours
NUR 4320 - Nursing Leadership & Management Credits: 4 hours

Baccalaureate Level Writing Requirement
Students enrolled in the Prelicensure Track of the nursing curriculum should see their advisor to determine the course that will satisfy the Baccalaureate Level Writing Requirement.

Nursing - RN Progression Track

Admission Requirements
To be considered for the RN Progression Track, applicants must have achieved a 2.5 cumulative grade point average (on a four-point scale) from the associate degree or diploma program from which they graduated, hold a current Michigan
Registered Nurse license, submit an admission application to WMU along with a photocopy of the current Michigan
Registered Nurse license, and transcripts from all post-high school institutions attended.

Eligible Registered Nurse applicants will be admitted to a prenursing curriculum. Furthermore, prior to entering the nursing
sequence of courses, Registered Nurses must complete the following general education/support course work.

**Fine Arts (Area I General Education) 3 hours**

**Humanities (Area II General Education) 3 hours**

**Approved computer usage course 3 hours**

**SOC 2000 Principles of Sociology 3 hours**

**College-level writing (Proficiency 1) 3/4 hours**

While enrolled in the prerequisite course work, students must schedule an appointment with the nursing advisor. At this time,
academic progress in the program of study will be reviewed and the decision will be made for admission to the Professional
Nursing curriculum. Admission to the Professional Nursing curriculum is determined by the successful completion of all
prerequisite course work. Availability of space in nursing courses may affect the student's rate of completion of the nursing
sequence as the courses will be filled on a first-come, first-served basis.

At the beginning of the first nursing course, the student will be asked to present the following:

1. a current Michigan Registered Nurse license
2. proof of employment as a Registered Nurse for a minimum of six months
3. current cardiopulmonary resuscitation certification
4. immunization records

**Academic Credit Transferred from Associate Degree or Diploma Program**

Graduates of community college associate degree and diploma programs will be awarded credit on a course-by-course basis
in accordance with University policies for prior general education, science, and electives. Forty-eight hours of credit for prior
nursing study, clinical experience and successful NCLEX completion will be held in escrow until NUR 2040 has been
completed with a grade of "C" or better.

**Curriculum Requirements For Associate Degree Graduates And Diploma Graduates** (See the Notes Core below)

**Supporting Courses**

- NUR 2220 - Health Assessment Throughout the Lifespan Credits: 3 hours
- NUR 3330 - Informatics for Health Professionals Credits: 3 hours
- PHIL 3340 - Biomedical Ethics Credits: 4 hours
- SOC 3200 - Introduction to Social Psychology Credits: 3 hours or
- SOC 3900 - Marriage and Family Relations Credits: 3 hours or
- SOC 4790 - Female/Male Interaction Credits: 3 hours
- STAT 3660 - Introduction to Statistics Credits: 4 hours or
- Approved computer usage course Credits: 3 hours
- General Education Area I (Fine Arts) Credits: 3 hours
- General Education Area II (Humanities) Credits: 3 hours
- General Education Area III (U.S. Cultures and Issues) Credits: 3 hours
- General Education Area IV (Other Cultures) Credits: 3 hours

**Nursing (23 hours)**

- NUR 2040 - Nurses' Role in Primary Health Care (RN) Credits: 6 hours
- NUR 3080 - Nurses' Role in Facilitating Health and Self-Care (RN) Credits: 8 hours
- NUR 4120 - Nurses' Role in Prevention, Treatment, and Control of Health Problems (RN) Credits: 8 hours
- NUR 4300 - Special Topics in Nursing Credits: 1 hour

Notes: In addition to the courses listed above, diploma graduates must also complete the following course work:

- College-level writing course or elective Credits: 3/4 hours
- SOC 2000 - Principles of Sociology Credits: 3 hours
Baccalaureate Level Writing Requirement

Students enrolled in the Registered Nurse Progression Track of the nursing curriculum will satisfy this requirement through the completion of:

NUR 3080 - Nurses' Role in Facilitating Health and Self-Care (RN) Credits: 8 hours

Concentration or Academic Minor (minimum of 12 hours)

The faculty believe that it is important that students be offered the opportunity to explore personal areas of interest which complement their career in nursing. This may be achieved in one of two ways. The first option is an area of concentration. With the approval of a nursing faculty advisor, students will select four courses (12 credit hours) from a specific area of concentration. Nursing students may also choose to design an area of concentration. Nine of the credit hours must be selected from the 3000-5000 level of course work. The remaining three credits may be selected from the 2000-level. One-hundred-level courses may not be counted toward an area of concentration. Courses required in the curriculum or selected to meet general education or proficiency requirements cannot be counted toward an area of concentration. (E.G. SOC 2000: Principles of Sociology is required in the nursing curriculum. Students will not be allowed to count this course as part of the concentration.)

The second option for nursing students is an academic minor. Since minors are more credit-hour intensive than areas of concentration, students will be allowed to count required courses in the curriculum toward a minor. Examples of academic minors that students might pursue include women's studies, philosophy, biological sciences, and sociology.

Whether students elect to complete an area of concentration or a minor, it must be done with the approval of the nursing advisor.

Occupational Therapy

Cindee Quake-Rapp, Chair
Ben Atchison
Carla Chase
Richard Cooper
Diane Dirette
Kieran Fogarty
Debra L. Hazel
Maureen Mickus
David Orchanian
Jaclyn West-Frasier

Occupational Therapy

The Accreditation Council for Occupational Therapy Education (ACOTE) has elected to require a master's degree for the practice of occupational therapy. This change will take effect in 2007. In response to this change, the WMU Occupational Therapy Department has implemented a 4 + 1, or five-year, academic program of study leading to the completion of a Bachelor of Science in Interdisciplinary Health Services with a dedicated track in occupational therapy. Following a six-month internship, students will return to campus to complete a one-year Master of Science in Occupational Therapy.

Admission Requirements for Occupational Therapy Concentration in the Bachelor of Science in Interdisciplinary Health Services

Students interested in admission to the occupational therapy concentration are encouraged to contact the College of Health and Human Services advisor - (269)387-2656 - well in advance of applying to the concentration. The program admits students twice each year to the professional program.

Incoming Freshmen

- Minimum high school GPA of 2.8
- ACT/SAT scores as required by WMU
In addition to academic performance, students will be evaluated on the completion of narratives on the following topics: work and/or volunteer experiences; statement of leadership roles; and statement of cultural/ethnic diversity and competence.

Students admitted as freshmen to the professional occupational therapy concentration will be tracked through the prerequisite course work prior to beginning the courses in the concentration.

Application deadline for entering freshmen: February 15.

Current WMU And Transfer Students

- Minimum GPA of 2.8 from WMU and/or transfer institution (if the student has attended two or more institutions, the grades from all institutions will be averaged together)
- WMU OT department application
- Prerequisite courses must be complete with a grade of "C" or better. Current WMU and transfer students must have completed all prerequisite courses prior to beginning the professional occupational therapy concentration.
- In addition to academic performance, students will be evaluated on the completion of narratives on the following topics: work and/or volunteer experiences; statement of leadership roles; statement of cultural/ethnic diversity and competence.
- Application deadline for current WMU students: January 31 of each year for fall semester admission; September 1 of each year for spring semester admission.

Please note the following: 1) In the admission process, a formula is employed that assigns points to grades and to the completed essays. Admission to the program is based on the compilation of all points; 2) admission to the University does not guarantee admission to the professional occupational therapy curriculum. Official transcripts from all colleges and universities attended must be sent to the University Admissions Office in time to be processed prior to the department deadline; 3) occupational therapy is a profession that is regulated on national and state levels, and everyone who wishes to practice as an occupational therapist is required to pass the NBCOT Certification Exam after graduating from an accredited program. Individuals who have been convicted of a felony or who have been charged with a felony and convicted of a misdemeanor, while not prohibited from taking the NBCOT certification examination, may not be able to practice.

Prerequisites Required Prior To Beginning The Occupational Therapy Profession Concentration Course Work

- BIOS 2400 - Human Physiology Credits: 4 hours
- ENGL 1050 - Thought and Writing Credits: 4 hours
- OT 2000 - Human Functional Anatomy Credits: 3 hours
- OT 2010 - Human Functional Anatomy Lab Credits: 1 hour
- OT 2020 - Orientation to Occupational Therapy Credits: 3 hours
- OT 2250 - Growth, Development, and Aging Credits: 3 hours
- PSY 1000 - General Psychology Credits: 3 hours
- PSY 2500 - Abnormal Psychology Credits: 3 hours

The Bachelor of Science in Interdisciplinary Health Services Professional Core

All students admitted to the Occupational Therapy Program must also complete the professional core of the Bachelor of Science in Interdisciplinary Health Services.

- HOL 5360 - Counseling Skills for Health Professionals Credits: 3 hours
- HSV 4100 - Legal Issues in Health and Human Services Credits: 2 hours
- HSV 4200 - Health and Human Services Research and Statistics Credits: 3 hours
- HSV 4810 - The Health System and Its Environment Credits: 3 hours
- HSV 4850 - Major Issues in Health and Human Services Credits: 3 hours
- OT 4780 - U.S. Policy in Health and Human Services Credits: 3 hours
- OT 4800 - Health Services Practice Management Credits: 3 hours

One of the following:
- PHIL 2010 - Introduction to Ethics Credits: 4 hours
- PHIL 3340 - Biomedical Ethics Credits: 4 hours

One of the following:
- COM 3320 - Group Problem Solving Credits: 3 hours
PSY 3440 - Organizational Psychology Credits: 3 hours
SOC 2100 - Modern Social Problems Credits: 3 hours

One of the following:
COM 1700 - Interpersonal Communication Credits: 3 hours
COM 2000 - Introduction to Communication Theory Credits: 3 hours
COM 4740 - Intercultural Communication Credits: 3 hours
COM 4840 - Health Communication Credits: 3 hours
SOC 3140 - Ethnic Relations Credits: 3 hours

Baccalaureate Writing Requirement
Students who are admitted to the Occupational Therapy Concentration in the Bachelor of Science in Interdisciplinary Health Services will satisfy the Baccalaureate Writing Requirement by successfully completing:
OT 4780 - U.S. Policy in Health and Human Services Credits: 3 hours

The Occupational Therapy Concentration (60 hours)

Cross-Cultural Practice Course Credits: 3 hours
OT 3700 - Occupational Therapy Process Credits: 2 hours Credits: 2 hours
OT 3710 - Occupational Therapy Process Lab Credits: 2 hours
OT 3740 - Disabling Conditions Credits: 4 hours
OT 3750 - Applied Neurology and Kinesiology Credits: 4 hours Credits: 4 hours
OT 3760 - Neurology and Kinesiology Lab Credits: 2 hours
OT 3810 - Occupational Therapy Practice I (Birth to 18 Years) Credits: 6 hours
OT 3820 - Occupational Therapy Practice II (19 Years to Geriatrics) Credits: 6 hours
OT 4700 - Functioning of the Older Adult Credits: 3 hours
OT 4710 - Research in Health and Human Services Credits: 3 hours
OT 4720 - Occupational Analysis and Adaptation Credits: 3 hours
OT 4750 - Occupational Therapy Practicum I Credits: 4 hours Credits: 4 hours
OT 4780 - U.S. Policy in Health and Human Services Credits: 3 hours
OT 4790 - Occupational Therapy in Mental Health Credits: 3 hours
OT 4800 - Health Services Practice Management Credits: 3 hours
OT 4820 - Occupational Therapy Practicum II Credits: 4 hours
OT 5800 - Advanced Clinical Application of OT Clinical Reasoning Credits: 3 hours

Benchmarks For All Student Admitted To The Occupational Therapy Concentration

- Minimum cumulative grade point average of 2.8 for the freshman and sophomore years.
- Minimum cumulative grade point average of 3.0 for junior and senior years.
- Students will complete all required OT courses with a grade of "C" or better.
- Students may repeat only one required pre-professional course or departmental course, and that course only once, to attain a grade of "C" or better. Note that a withdrawal from a course is considered an enrollment.
- Students who fail to attain a grade of "C" or better in a professional course will be placed on departmental probation.
- Students who do not successfully complete departmental probation will not be permitted to continue in the program.
- A second unsuccessful enrollment will result in termination from the program.
- The student must manifest emotional and behavioral characteristics, which, in the judgment of the department faculty, will not jeopardize his/her professional competence.
- The student must achieve a score of 70% or above on Kasar's Professional Development Assessment (70% of items scored) or complete an approved remediation plan, from the following:

OT 2020 - Orientation to Occupational Therapy Credits: 3 hours
OT 3700 - Occupational Therapy Process Credits: 2 hours
OT 3810 - Occupational Therapy Practice I (Birth to 18 Years) Credits: 6 hours
OT 3820 - Occupational Therapy Practice II (19 Years to Geriatrics) Credits: 6 hours
OT 4750 - Occupational Therapy Practicum I Credits: 4 hours
OT 4820 - Occupational Therapy Practicum II Credits: 4 hours
**Physician Assistant**
Chair
Sherrill Busboom
William H. Fenn
Mark Gillette
Thomas Holmes
Karen Horneffer
C. Dennis Simpson
Eric Vangsnes

The Department of Physician Assistant offers a Master of Science in Medicine in Physician Assistant, an undergraduate minor and a graduate certificate program in Alcohol and Drug Abuse, and an undergraduate minor and a graduate certificate program in Holistic Health Care. Please see the Graduate Catalog for more information about the graduate programs and courses offered by the department.

While most of the department's courses are open to graduate students only, some courses are open to qualified undergraduates; see the program advisor for more information.

**School of Social Work**
Earlie M. Washington, Director
Barbara Barton
Donald Cooney
Richard Grinnell
James Henry
Peter Judd
Frederick MacDonald
Gary Mathews
Robin McKinney
John Nielsen
Linda Reeser
Yvonne Unrau
Karen VanDeusen
Ineke Way
Susan Weinger
Donna Weinreich
Robert Wertkin

The School of Social Work offers both undergraduate and graduate professional programs leading to a B.S.W. and M.S.W. respectively. Both programs are accredited by the Council on Social Work Education. Further information about the graduate program, designed to educate students for interpersonal practice and policy, planning, and administration positions in the field of social welfare, may be found in the Graduate Catalog.

**Social Work Major (122 hours)**

The Undergraduate Professional Program
Bachelor of Social Work
Minimum Hours Required for Graduation: 122 hours

The undergraduate professional program is designed to prepare students for beginning generalist social work practice and to provide preparation for graduate training in social work and related professions. Emphasis is placed on a conceptual framework of systems theory, the ecological model, and a strengths-based approach to problem solving. Generalist social
workers are taught to address a range of social issues, to work in a variety of practice settings, and to facilitate positive change that will enhance the social function of individuals, groups, families, organizations, and communities.

The B.S.W. program utilizes the development of knowledge and skills in the areas of human behavior in the social environment, social work practice, research, social policy, diversity, ethics, and values. A personalized instructional approach is used to engage students in a learning process that promotes critical thinking and self-reflection. Commitment to educating students to work towards the creation of a more just and humane society by advocating for services and resources for oppressed, vulnerable, and other at-risk populations is a main emphasis of the program.

Students enrolled in the undergraduate social work curriculum are required to complete a major consisting of 35 hours, a guided interdisciplinary minor of 22-24 hours, and 6 hours of research, totaling 63-65 hours. As part of the program, students complete a 400-hour internship in a human service agency.

Social Work majors can obtain specialty certificates offered by the College of Health and Human Services in conjunction with their social work degree. Students with other majors can obtain a 15-hour minor in social work. For further information about certificate programs and the social work minor, please consult with the College of Health and Human Services academic advisor.

Admission Requirements
Students interested in social work major will be admitted into the pre-social work curriculum at the time of admission to the University. This does not guarantee admission to the social work major. Students who have completed SWRK 2100 Social Work Services and Professional Roles and have a minimum of 45 credit hours, may apply to the Undergraduate Social Work Major. General information necessary for admission includes:

- Completion of the Social Work Undergraduate Application
- Submission of all academic transcripts
- Supplemental (personal) Statement

All applications are submitted to the Director of Admissions and Student Services of the School of Social Work. Deadlines for submitting applications are January 15, May 15, and October 1 of each year. Selection of students to be admitted to the major occurs after review of all application by the Admissions and Student Services Committee composed of social work faculty. This is a competitive admissions process with a specific number of students admitted each year. Specific criteria for selection candidates are based upon:

- Overall grade point average of 2.5 for consideration
- General and social work related employment
- Participation in community services, leadership activities, and volunteer experience
- Written communication skills, personal qualifications, and basic knowledge of the profession as evidenced in the supplemental statement

Field Education
The field practicum provides students with opportunities to learn and apply generalist knowledge and beginning level skills in working with individuals, families, groups, organizations, and communities. Students in the social work major complete two consecutive semesters of field education (SWRK 4100/4110) in a human service agency. Field education and the courses taken concurrently, SWRK 4010 and 4020, are open only to students formally admitted to the B.S.W. program.

Placement is made through the School of Social Work, following the application and interview process established and conducted by the Coordinator of Field Education. The timing of each student's field education is determined upon admission to the major during the program planning process. At least one semester prior to the scheduled start of field education, students will receive the Field Placement Application, which is due according to the time frame established for each field cohort by the Coordinator of Field Education. Failure to complete the application process according to the established deadline may result in delaying the start of field education.

Field education consists of three required components: A three-day communication laboratory, on-campus seminars, and 400 hours of work at the agency where the student is placed. Each student works with a field instructor at the agency and a faculty liaison at the University. Communication labs are conducted on campus by the faculty liaison and is intended to help orient students to their placement, to identify overall expectations for professional performance, and increase general understanding.
of the field education program. Extensive safety training is included during this time to ensure adequacy of students' knowledge base regarding safety issues. Student attend an integrated on-campus seminar as a part of the field experience. Seminars are facilitated by the faculty liaison and meet 12 hours in SWRK 4100 and 14 hours in SWRK 4110. The hours devoted to communication labs and to the seminars are not considered part of the total 400 on-site field hours. During the actual field hours at the agency, students work with a professional, their field instructor, to develop social work skills and gain hands-on experiences. The Council on Social Work Education guidelines require a minimum of 200 hours per semester at the agency. Field education is graded on a Credit/No Credit basis.

Social Work Curriculum Requirements

Baccalaureate Writing Requirement
Students who have chosen the Social Work major will satisfy the Baccalaureate Writing Requirement by successfully completing the following course or a comparable course approved by the college advisor.
OT 4780 - U.S. Policy in Health and Human Services Credits: 3 hours

General Education Requirements (37 hours)

Requirements for the Social Work Major (35 hours)
SWRK 2100 - Social Work Services and Professional Roles Credits: 3 hours
SWRK 3000 - Social Welfare as a Social Institution Credits: 3 hours
SWRK 3200 - Social Work Practice: Interviewing and Documentation Credits: 3 hours
SWRK 3330 - Introduction to Culture, Ethnicity, and Institutionalized Inequality in Social Work Practice Credits: 3 hours
SWRK 3500 - Human Behavior and the Social Environment Credits: 3 hours
SWRK 3510 - Social Work Concepts in Group, Community and Organizational Behavior Credits: 3 hours
SWRK 4000 - Social Work Practice: Engagement, Assessment, and Planning Credits: 3 hours
SWRK 4010 - Social Work Practice: Intervention and Evaluation Credits: 3 hours
SWRK 4020 - Social Work Practice: Policy Analysis and Organizational Context Credits: 3 hours
SWRK 4100 - Field Experience and Seminar I Credits: 4 hours Completed field applications are due at least 15 weeks prior to the semester in which field work is to be taken.
SWRK 4110 - Field Experience and Seminar II Credits: 4 hours Completed field applications are due at least 15 weeks prior to the semester in which field work is to be taken.
SWRK 4600 - Social Work with Communities Credits: 3 hours

Required Research Component (6 hours)
SOC 2830 - Methods of Data Analysis Credits: 3 hours
SWRK 3650 - Social Work Research Methods Credits: 3 hours

Required Guided Interdisciplinary Minor (21 hours)
Includes:
COM 1040 - Public Speaking Credits: 3 hours
ECON 2010 - Principles of Microeconomics Credits: 3 hours
OT 2000 - Human Functional Anatomy Credits: 3 hours
OT 4780 - U.S. Policy in Health and Human Services Credits: 3 hours
PSCI 2000 - National Government Credits: 3 hours
PSY 1000 - General Psychology Credits: 3 hours
SOC 2000 - Principles of Sociology Credits: 3 hours

Electives (24 to 26 hours)
Students are encouraged to elect additional courses in any area of their specific interest. Particularly recommended in preparation for social work practice are: anthropology, communications, economics, history, philosophy, political science, psychology, sociology, or women's studies. The following social work courses are also available as electives for undergraduate students.

SWRK 4130 - Social Policy and Service Delivery in Selected Problem Areas Credits: 3 hours
SWRK 4620 - Community Organization in Urban Areas Credits: 3 hours
SWRK 4640 - Problem Solving in Gerontology Credits: 3 hours
SWRK 4650 - Special Studies in Social Welfare Practice Credits: 3 hours Credits: 1 to 4 hours
SWRK 5970 - Teaching Apprenticeship in Selected Social Work Curriculum Areas Credits: 1 to 4 hours
SWRK 5980 - Readings in Social Work Credits: 1 to 4 hours

Grade Requirements
Any student who fails to meet the following criteria will be notified in writing by the School of Social Work undergraduate advisor that he/she is in jeopardy of being terminated from the social work major.
1. A student must receive a “C” or higher in each required social work course to remain in the major. A student may repeat one required social work course to raise his/her grade.
2. The student must maintain an overall average of 2.0 in the interdisciplinary minor. Transfer students note that courses transferring into the minor are accepted with no grade (so an “A” at a two-year college can't be used to balance a lower grade in a course at WMU).

The School may refuse to permit a student to continue in the curriculum if at any time it is deemed that the student is exhibiting a pattern of professionally incompetent or inappropriate behavior as determined by the standards of the National Association of Social Work Code of Ethics governing social workers and their professional relationships with those they serve, with their colleagues, with their employing agency, and with the community. Further details on this policy and procedure may be obtained from the School of Social Work undergraduate coordinator.

Social Work Minor (15 hours)

Requirements
SWRK 2100 - Social Work Services and Professional Roles Credits: 3 hours
SWRK 3000 - Social Welfare as a Social Institution Credits: 3 hours

Plus three of the following social work courses:
SWRK 3400
SWRK 3330 - Introduction to Culture, Ethnicity, and Institutionalized Inequality in Social Work Practice Credits: 3 hours
SWRK 3500 - Human Behavior and the Social Environment Credits: 3 hours
SWRK 3510 - Social Work Concepts in Group, Community and Organizational Behavior Credits: 3 hours
SWRK 4640 - Problem Solving in Gerontology Credits: 3 hours
Any 5000-level social work course.

Speech Pathology and Audiology
John M. Hanley, Chair
Jan Bedrosian
Teresa Crumpton
Elaine DeRoover
Gregory Flamme
Sandra Glista
James M. Hillenbrand
Kathryn Hillenbrand
Yvette Hyter
Bharti Katbamna
Gary D. Lawson
Nickola W. Nelson
Mary Peterson-Combs
Helen Sharp
Stephen Tasko
Adelia VanMeter
Heidi Vogley
Communication is the most complex aspect of human behavior. Impairments in the process of communication - speech, language, and hearing - leave myriad problems in their wake. Speech pathology and audiology is the area of professional specialization that has developed out of concern for persons with disorders of communication.

The basic educational mission of the Department of Speech Pathology and Audiology is to prepare professional personnel who will be maximally effective in the delivery of diagnostic, habilitative, rehabilitative, and preventive services to individuals handicapped by speech, language, and hearing impairments.

The undergraduate program is preprofessional in nature and is designed to prepare students for graduate professional education in speech and language pathology or audiology. Because the bachelor's degree does not qualify the recipient for employment, students must plan for enrollment in a graduate degree program in order to complete their professional preparation. Admission to a graduate program typically requires a grade point average of “B” or higher in the undergraduate major as well as in undergraduate course work (overall GPA). Completion of the undergraduate major in speech pathology and audiology does not guarantee a student's admission into WMU’s or any other school's graduate program. Information about this department's graduate degree program can be found in the WMU Graduate Catalog.

Honors in Speech Pathology and Audiology
An honors program for undergraduate students in speech pathology and audiology was established in 1983. Students who meet the basic academic requirements for the department's honors program will be invited to join the program, which includes successful completion of an approved graduate-level course and an honors thesis prior to graduation. Honors in Speech Pathology and Audiology will be conferred at the time of the student's graduation. Further information and specific requirements of the honors program are available through the departmental advisor.

Speech Pathology and Audiology Curriculum

Admission
Students who desire to major in speech pathology and audiology will be admitted into the Pre-Speech Pathology and Audiology curriculum at the time of admission to the University. This status, however, does not assure admission to the departmental major. The selection of students to be admitted to a speech pathology and audiology major occurs after review of all applicants by a departmental faculty committee.

Further information regarding requirements and procedures for admission to the departmental major may be obtained by contacting the department directly.

Transfer Students
It is recommended that transfer students enroll at Western at the beginning of the first semester of the sophomore year. Those who enroll at a later stage may find that an additional period of study will be required to complete the undergraduate curriculum.

Speech Pathology and Audiology Major (35 to 37 hours)
A major in speech pathology and audiology consists of a minimum of 35 to 37 hours in speech pathology and audiology plus additional course work specified by the department. These additional requirements include course work in general education, supporting courses outside the department, and an academic minor. Each student is responsible for obtaining information on degree requirements and for taking the steps necessary to meet those requirements.

Students interested in a major in speech pathology and audiology should contact the department office in the Speech and Hearing Center on the East Campus for an appointment with an undergraduate advisor. Because the sequencing of courses included in this major is critically important, students must seek academic advising from the department on an early and regular basis. Students who fail to do so may be dropped from enrollment in departmental courses.

Baccalaureate Writing Requirement
Students who have chosen the Speech Pathology and Audiology major will satisfy the Baccalaureate Writing Requirement by successfully completing:
SPPA 4590 - Special Studies in Communication Disorders Credits: 3 hours
Teacher Certification Track
Students who seek careers as teacher of the speech and language impaired in the public schools in Michigan (or in other states which require teacher certification for such employment) must (in addition to earning a master's degree in speech-language pathology) arrange to complete a professional education minor which is required for the Provisional Teaching Certificate. Two options for earning teaching certification are offered. The majority of students are encouraged to complete a minor in elementary education which leads to recommendation for the Elementary Provisional Teaching Certificate. Other students or post baccalaureate practicing Speech-Language Pathologists may earn Secondary Provisional Teaching Certification by completing a minimum 20-hour minor in an approved teaching area as well as required professional education course work. Specific requirements and approval for these minors are obtained from the Education Advising and Admissions Office, 2504 Sangren Hall. Students must obtain an approved minor slip signed by an approved education advisor. Practicing Speech-Language Pathologists are to seek advisement through the Teaching Certification Office, 2104 Sangren Hall.

Completion of the foregoing requirements, together with completion of the curricular requirements, and completion of a master's degree program in speech pathology and audiology (with major emphasis in speech pathology, and including a graduate level six credit hour school internship in speech-language pathology) will result in recommendation of the student for the appropriate level of Provisional Teaching Certification. Simultaneously, the master's degree recipient in this track is approved for employment in Michigan as a “Teacher of the Speech and Language Impaired” and typically also will have completed the academic and practicum experiences required for employment in other clinical settings as well. Although Michigan does not require Teacher Certification for audiologists employed in the public schools, other states may require such certification. A graduate emphasis in audiology does not satisfy Teacher Certification requirements.

Non-Teacher Certification Track
Students who seek careers in settings other than the schools (for example, in hospitals, community agencies, and rehabilitation centers) or who are preparing for doctoral study are not required to complete the requirements for teaching certification outlined above. Students in this case are required to complete an academic minor in an area such as social work, computer science, physics, psychology, gerontology or another related discipline. Assistance in selecting an appropriate minor is available through the departmental undergraduate advisor.

Completion of the curricular requirements, together with the completion of a master's degree program in speech pathology and audiology, typically satisfies all academic and practicum requirements of the American Speech-Language-Hearing Association for a Certificate of Clinical Competence in the emphasis area (speech and language pathology or audiology) pursued in graduate school.

Speech and Hearing Processes Minor

Program Requirements
The departmental minor in speech and hearing processes requires a minimum of fifteen hours of credit in speech pathology and audiology course work. In consultation with a departmental advisor, students may design a minor option in areas such as speech-language-hearing science, audiology, speech-language-hearing disorders, or other individually tailored sequences complementary to the student's educational and vocational objectives. The only undergraduate courses specifically excluded from consideration in a minor sequence are SPPA 4000 and SPPA 4010, both of which are clinical practicum registrations available only to departmental majors. Minor slips are required.

Interdisciplinary Programs

Interdisciplinary Health Services (122 hours)
This degree program educates students in the knowledge and skills required by all health and human service workers. The program will prepare students for careers in health and human service administration and provide preparation for candidacy in health and human service professional graduate degree and certificate programs. It will also provide health and human service professionals with registration, certification, or licensure credentialing with a baccalaureate completion program.
Once enrolled in the program, students will complete a 30-semester hour professional core curriculum which will educate them in the common competencies required by all health and human service workers. In addition, students will gain specialized knowledge through the selection of a minor or an approved concentration. Finally, as a capstone experience, students will have the opportunity to apply the knowledge and skills they have learned in a semester-long internship in a clinical or administrative setting, or through applied research, if the student is already clinically qualified.

**Admission**

Minimum of 30 academic credits and completion of the pre-professional requirement with a cumulative grade point average of 2.5 or minimum of 30 academic credits with a cumulative grade point average of 2.5 and current registration, certification, or licensure as a health or human services provider. Special note: The Occupational Therapy concentration requires a separate admissions process. Please refer to the Occupational Therapy section for additional information.

**Academic Advising**

The College of Health and Human Services provides advising to all students who wish to enroll in and who are admitted to the Bachelor of Science in Interdisciplinary Health Services program. Students should contact an advisor as early as possible. Advisors will assist students in program planning, in the selection of a pre-professional sequence and concentration, and in the choice of electives. Failure to meet with the advisor on a regular basis may result in difficulty in completing the program in a timely manner.

**Graduation Requirements**

Students must meet the University's graduation requirements. In addition, students must maintain a grade point average of 2.5, with no less that a "C" in any professional core or concentration course. Please refer to the Occupational Therapy section for information on specific graduation requirements. Students may repeat no more than once, one course in the professional core, with the exception of HSV 4700 which may not be repeated, and one course in a concentration. Specific program requirements follow. (Refer to the Occupational Therapy section for specific information regarding the Occupational Therapy program.)

**University General Education (37 hours)**

Students must successfully complete the University's General Education Proficiencies and Distribution requirements.

**Pre-Professional Requirement (14 hours at a minimum)**

Students are required to complete a pre-professional sequence. This sequence will be tailored to the student's interests. Currently registered, certified, or licensed health and human service providers may be granted academic credit for previous course work completed at an academically or professionally accredited program or institution. These credits will be evaluated on a course-by-course basis and applied to the pre-professional requirements. All students must also complete the following two courses in addition to a pre-professional sequence:

- HSV 1000 - Health and Human Services Career Seminar Credits: 2 hours Credits: 1 hour
- MDSC 2010 - Medical Terminology Credits: 1 hour

**Professional Core (30 hours)**

Students must complete all the courses in the Professional Core

- HOL 5360 - Counseling Skills for Health Professionals Credits: 3 hours
- HSV 4100 - Legal Issues in Health and Human Services Credits: 2 hours
- HSV 4200 - Health and Human Services Research and Statistics Credits: 3 hours
- HSV 4810 - The Health System and Its Environment Credits: 3 hours
- HSV 4850 - Major Issues in Health and Human Services Credits: 3 hours
- OT 4780 - U.S. Policy in Health and Human Services Credits: 3 hours
- OT 4800 - Health Services Practice Management Credits: 3 hours

One of the following:
- PHIL 2010 - Introduction to Ethics Credits: 4 hours
- PHIL 3340 - Biomedical Ethics Credits: 4 hours
One of the following:
COM 3320 - Group Problem Solving Credits: 3 hours
PSY 3440 - Organizational Psychology Credits: 3 hours
SOC 2100 - Modern Social Problems Credits: 3 hours

One of the following:
COM 1700 - Interpersonal Communication Credits: 3 hours
COM 2000 - Introduction to Communication Theory Credits: 3 hours
COM 4740 - Intercultural Communication Credits: 3 hours
COM 4840 - Health Communication Credits: 3 hours
SOC 3140 - Ethnic Relations Credits: 3 hours

Baccalaureate Writing Requirement
Students who have chosen the Bachelor of Science in Interdisciplinary Health Services will satisfy the Baccalaureate Writing Requirement by successfully completing:
OT 4780 - U.S. Policy in Health and Human Services Credits: 3 hours

Concentrations/Academic Minors (14 hours at a minimum)
The Professional Core will be complemented by advanced study in an area of concentration of academic minor. Some concentrations and minors will prepare students for candidacy in professional graduate programs. Others will enable students to enter administrative positions in a variety of public and private agency and institutional settings and prepare them for candidacy in a graduate certificate program.

Students who elect a concentration will do so in consultation with the Program Director or the advisor. A concentration will be designed to fit the student's individual learning objectives. It must consist of a minimum of 14 semester hours, at least 9 of which must be from 3000-, 4000-, or 5000-level course work. All concentrations must be pre-approved by an advisor.

Internship (6 hours)
The capstone experience is a required internship of a minimum of 240 clock hours in the U.S. or abroad, designed to provide students with the opportunity to integrate and apply the knowledge and abilities learned and to hone skills in readiness for employment or graduate study. The requirements of the internship are:
1. Completion of all course work in the Professional Core prior to enrollment in the internship, HSV 4900 Internship (6 hours).
2. Contact must be made with the Program Director one semester prior to the semester in which the student wishes to begin the internship.
3. Prior to the internship, the student must choose a faculty mentor to advise the student regarding the internship, the paper, and the presentation requirements.
4. Selection, from a list of approved sites, of an internship location.
5. Preparation of a reflective paper documenting the student's professional growth through the internship experience.
6. Presentation of the reflective paper at a seminar session.

Students who are registered, certified, or licensed health care providers may pursue a clinical experience providing it is in a situation outside their usual employment, or they may substitute a research project and an approved elective (3 hours) for this internship. The requirements of the research project, which will be completed during enrollment in HSV 4600 Independent Research (3 hours), are:
1. The student must select a research committee consisting of a faculty mentor knowledgeable in the field of inquiry and a reader who will act as a resource person and may work outside the University.
2. The research project must be approved by the Program Director at the beginning of the senior year.
3. The research must be documented in a paper written in the professional or academic style appropriate to the discipline and presented during a seminar session.

Health and Liability Insurance
Students engaged in an internship must give evidence of having health insurance at the time of course enrollment. Liability insurance coverage will be provided by the University through a fee assessed at the time of enrollment in the following course.
HSV 4900 - Health and Human Services Internship Credits: 1 to 6 hours
Western Michigan University's Specialty Program in Alcohol and Drug Abuse (SPADA) provides professional education for all those who are interested in the substance abuse field. Multidisciplinary in nature, SPADA provides a balanced orientation to theory and practice, considers a breadth of contemporary issues, and emphasizes a variety of methods for dealing with the problems of substance abuse.

SPADA offers a graduate certificate in alcohol and drug abuse which can be earned as an independent certificate or can be used to supplement graduate education in related fields such as biological sciences, counseling psychology, occupational therapy, psychology, public administration, social work, and sociology, as well as other related disciplines. Specifically, the graduate certificate may be earned in one of three ways: as a post-baccalaureate certificate, in conjunction with a graduate degree, or to complement an earned graduate degree.

Graduates of SPADA are prepared to serve the profession in ways that address the personal, social and economic costs of the use and abuse of psychoactive substances.

Further details regarding this graduate program are available in The Graduate College Catalog.

**Substance Abuse Services Minor**
The minor in Substance Abuse Services is meant to supplement formal training in other fields such as education, psychology, sociology, social work, occupational therapy, and others.

**Program Requirements**

The six courses which comprise the 18-hour minor are:
- ADA 3200 - Legal and Illegal Drugs Credits: 3 hours
- ADA 3250 - Substance Abuse Diagnosis and Treatment Planning Credits: 3 hours
- ADA 3260 - Substance Abuse Treatment Processes Credits: 3 hours
- ADA 3270 - Individual, Group, and Family Treatment Credits: 3 hours
- CECP 4830 - Treating Diverse Clients in Employee Assistance Programs Credits: 3 hours
- SWRK 4200 - Ethical Issues in Substance Abuse Services Credits: 3 hours

**Holistic Health Care Minor (hours 18)**

Advisor: Karen Horneffer
2422, College of Health and Human Services

The minor in Holistic Health Care is meant to meet the needs of students who are interested in learning about the principles and practices of holistic health as a complement to their major field of study. Through the required sequence of courses for the minor, students are exposed to the connection between an individual's health and our global health.

The minor meets the needs of two student populations: 1) Undergraduate students majoring in a health care field desiring specialized study in the areas of holistic health that are central to understand in order to be an effective professional in the current health field; 2) undergraduate students majoring in a non-health field interested in considering the application of holistic theories to their field of study.

**Prerequisite**
HOL 1000 - Choices in Living Credits: 3 hours

**Required Courses**
HOL 2000 - Choices in Global Living Credits: 3 hours
HOL 4400 - Issues and Ethics in Holistic Health Credits: 3 hours
HOL 4700 - Relationship-Centered Skills Credits: 3 hours

Elective Courses
One course at minimum must be a HOL course
HOL 4000 - Field Placement in Holism and the Community Credits: 3 hours
HOL 3000 - Exploring Practices in Integrative Health Care Credits: 3 hours
HOL 3300 - Holism and the Environment Credits: 3 hours
HOL 3960 - Learning, Work, and Lifestyles: Holistic Perspectives Credits: 3 hours
Elective(s) chosen with advisor approval
The Carl And Winifred Lee Honors College
Larry tenHarmsel
Dean
Keith Hearit
Associate Dean

The mission of the Carl and Winifred Lee Honors College is to design and foster curricular and co-curricular programs for the academically talented student. These programs allow students to pursue their major areas of study and to join with other bright students in Honors courses, internships, research projects, community work, and social activities. Faculty who teach through the college are recognized by the University as individuals who are fine teacher/scholars and who enjoy working with students.

The Lee Honors College strives to create an environment for critical thinking and active learning. Bringing together students in small classes allows for a variety of educational approaches which depart from the traditional lecture/note taking format. Teachers are encouraged to broaden the arenas for learning without compromising educational rigor. A variety of programs and activities is available to members of the Lee Honors College. Independent study, special Honors seminars, inter-university enrollment at local colleges, and undergraduate internships in the community may be arranged by Honors students. The Undergraduate Research and Creative Activities Award, administered by the college, provides financial support for a variety of supervised undergraduate projects.

Student involvement is an important aspect of Honors education. Students become involved with the college not only through courses but through the Honors Student Association and Honors housing. The college sponsors trips, speakers, a newsletter, and other cultural and social activities. Through these activities students enhance their affiliation with the University and prepare themselves for leadership positions in their professional lives.

A special focus for the Lee Honors College is community involvement and volunteerism. The Office of Student Volunteer Services housed in the college provides all University students with information and referral services to over 150 local agencies and to state, national, and international volunteer opportunities. Student Volunteer Services also sponsors campus-wide service events such as the College Volunteer Opportunities Fair, Trick-or-Treat For Food Shelf, and Adopt-an-Agency.

The Lee Honors College is a member of the National Collegiate Honors Council and the Mid-East Honors Association. It is a founding member of the Michigan Honors Association. Honors students and administrators of the college have held office in these organizations and regularly participate on regional and national Honors committees, making presentations to other Honors colleagues.

The Lee Honors College serves as the campus office for the WMU chapter of the national freshman honorary Alpha Lambda Delta and the Honors Student Association. These organizations sponsor academic and social events throughout the school year.

The Academic Program of Study
The Carl and Winifred Lee Honors College admits students in the first two years of their university education, including incoming freshmen, transfer students, and on-campus students. Students are admitted to the college based on high school and university grade point averages, American College Test (ACT) scores, co-curricular activities, an essay and academic recommendations. Students may request an application by calling or writing the Dean of the Lee Honors College.

The purpose of the Lee Honors College academic program of study is to deepen and enrich a student's undergraduate experience in a way that coordinates with other University requirements. At the freshman-sophomore level, it consists of courses that earn General Education or major credit and which are clustered around a theme in order to allow students to explore relationships among various disciplines. In consultation with an Honors advisor, students enroll in two course clusters consisting of three courses each. At the junior and senior levels, students take two interdisciplinary seminars which examine critical issues within the fields housed in a particular college. A senior capstone project, the Honors College thesis, requires students to prepare and present a paper or performance typical of professional work in their major field.
Upon successfully completing this academic program of study, students graduate from the Lee Honors College and the major college, with special Honors in a specific discipline. They are recognized as graduates of the Lee Honors College at graduation ceremonies. This honor is also noted on the transcript and diploma.

For further information on specific aspects of the Lee Honors College, call or write to the: Dean of the Carl and Winifred Lee Honors College, Western Michigan University, Kalamazoo, MI 49008; telephone: 269-387-3230; email: Lee_Hnrs_Col@wmich.edu

**Baccalaureate Writing Requirement**

Students who have been accepted into the Lee Honors College may satisfy the Baccalaureate Writing Requirement by successfully completing HNRS 4990 Honors College Thesis.

**Lee Honors College Courses (HNRS)**

Each semester a variety of honors courses, course clusters, and seminars is offered. Many of these are applicable to General Education requirements and other curriculum requirements. Others are variable topic/variable credit courses, enabling the Lee Honors College to offer a wide range of additional seminar and experiential learning opportunities. All courses are described in the Lee Honors College course booklet, which is printed each semester. All Honors courses are so indicated on the transcript.
Extended University Programs

Darrell Johnson
Dean

Extended University Programs extends the University's educational resources throughout Michigan and beyond by partnering with academic departments to deliver undergraduate and graduate degree and certificate programs and non-credit conferences and workshops. These programs are delivered through branch campuses and other locations in a time, place, and format oriented toward the needs of the adult, part-time learner. Seven branch campuses (Battle Creek, Grand Rapids, Lansing, Muskegon, South Haven, Southwest, and Traverse City), one regional site (Holland), and the Office of Lifelong Learning and Education comprise the University's extension organization.

The mission of Extended University Programs (EUP) is to provide access to higher education for a greater constituency than could otherwise attend a central campus. In doing so we:

- facilitate student learning in multiple settings
- provide a strong link between campus units and students
- deliver high quality graduate, undergraduate and noncredit programs
- develop and maintain community partnerships, serving as an effective entrepreneur on behalf of the University
- collaborate with and support faculty in course development, program delivery, outreach and scholarship

Office of Lifelong Learning and Education (OLLE)
A division of WMU-Extended University Programs, the Office of Lifelong Learning and Education (OLLE) is dedicated to providing an increased selection and availability of educational opportunities to individuals pursuing personal and professional goals. OLLE is committed to providing a level of service that reflects WMU's high standard of educational quality and excellence.

OLLE has four areas of concentration
1. Continuing Educational Opportunities: OLLE offers high-quality certificate programs, credit and non-credit workshops, professional seminars, and Continuing Education Units approved by the State of Michigan (SB CEUs) and is WMU's official CEU provider.
2. Degree Completion: OLLE offers academic advising to a selected group of adult learners returning to the university to complete their baccalaureate degree (General University Studies).
3. Academic Program Development and Outreach: OLLE assists Academic Departments and area businesses in developing new academic programs designed to meet untapped educational demands and community needs.
4. Conference Services: OLLE provides conference development, planning, and management services

For more information, call (269) 387-4174 or click on www.eup.wmich.edu/olle

Branch Campuses
Extended University Programs' administrative offices are located in 1260 Ellsworth Hall on Western's main campus in Kalamazoo. Telephone: (269) 387-4200. Branch campuses and sites follow:

Battle Creek
Ms. Sharon Russell, Director
Kendall Center
50 W. Jackson
Battle Creek, MI 49017-3505
(269) 965-5380 or (269) 387-6293
www.bc.wmich.edu

Grand Rapids
Dr. James Schultz, Director
The Graduate Center - Beltline
2333 East Beltline, S.E.
Grand Rapids, MI 49546-5936
(616) 771-9470
www.gr.wmich.edu

and

The Graduate Center - Downtown
200 Ionia Avenue, S.W.
Grand Rapids, MI 49503
(616) 771-4100

Holland Regional Site at Hope College
Ms. Deborah Newson, Director
100 E. 8th St.
Holland, MI 49423
(231) 777-0500
www.ho.wmich.edu

Lansing
Ms. Sharon Russell, Director
Verndale Office Park
6105 W. Saint Joseph Hwy., Suite 205
Lansing, MI 48917
(517) 327-1480 or (269) 387-6291
www.lg.wmich.edu

Muskegon
Ms. Deborah N. Newson, Director
Stevenson Center for Higher Education
221 S. Quarterline Road
Muskegon, MI 49442-1742
(231) 777-0500 or (269) 387-6292
www.mu.wmich.edu

South Haven
Mr. Leonard Seawood, Director
125 Veterans Boulevard
South Haven, MI 49090
(269) 637-7506
www.sh.wmich.edu

Southwest
Mr. Leonard Seawood, Director
2785 E. Napier Avenue
Benton Harbor, MI 49022
(269) 934-1500
www.sw.wmich.edu

Traverse City at NMC University Center
Ms. Mary Swartz, Director
2200 Dendrinos Dr., Suite 200-B
Traverse City, MI 49684
(231) 995-1846
www.tc.wmich.edu

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General University Studies

The General University Studies Curriculum programs are designed for students who have a transferable associate's degree or junior status (56 hours), who are in good academic standing. Exceptions will be considered under special circumstances. The admission process is continuous. Applications may be submitted at any time during the calendar year. The University's terms begin in September (Fall), January (Spring), May (Summer I) and June (Summer II). To be admitted to this program, students should complete the admission steps at least two months prior to the start of classes.

Program Areas

Occupational Education Studies
Geraldine Schma, Advisor

This Bachelor of Science program is designed for those who wish to become a certified teacher in a technical/occupational subject area. The program leads to a state of Michigan Secondary Provisional Certificate with a vocational endorsement. The program appeals to individuals desiring to teach technical/occupational subjects in comprehensive high schools, trade academies, area career and technical centers. The Office of Teacher Certification within the College of Education processes all recommendations for certification and advises students seeking additional teaching endorsements.

Admission Requirements

In addition to the regular University admission requirements, applicants to this program must also meet the following prerequisites required for all degree candidates recommended for teaching certification by the College of Education at the time of application:

1. Complete ED 250 Human Development or an approved course with a grade of “C” or better;
2. possess a cumulative grade point average of 2.5 or higher; and,
3. achieve passing scores of the Michigan Test for Teacher Certification (MTTC)-Basic Skills Section.

When admission has been granted, the Office of Admissions and Orientation will prepare a credit evaluation which will enable the advisor to prepare a program outline prior to the first registration.

Program Requirements For Occupational Education Studies

1. Complete a teachable major:
   A minimum of 30 hours in a teachable technical/occupational program of study, which is approved by the Michigan Department of Education for the OES program and completed at one of the collaborating Michigan community colleges. If an approved program of study was not followed at a Michigan community college, the passing scores of the Michigan Occupational Competency Assessment Center (MOCAC) must be submitted.

2. Complete a teachable minor:
   A minimum of 20 hours in a teaching minor sequence for Secondary Education Curriculum approved in consultation with a university advisor.

3. Complete work experience:
   A minimum of 4,000 hours of recent and relevant work experience required in the teachable major.

4. Complete the following 21 hours of Professional Education Courses:
   CTE 3050 - Career and Employability Skills Credits: 3 hours
   CTE 3480 - Student Assessment and Management Credits: 3 hours
   CTE 5100 - Special Populations in Career and Technical Education Credits: 3 hours
   CTE 5120 - Principles of Career and Technical Education Credits: 3 hours
   CTE 5130 - Teaching Methods in Career and Technical Education Credits: 3 hours
   CTE 5420 - Curriculum Development in CTE Credits: 3 hours
   ED 3050 - K-12 Content Area Literacy Credits: 3 hours

5. Complete the following 12 hours internship and seminar courses:
   CTE Seminar in Education Credits: 2 hours
Student Integrated Curriculum
Geraldine Schma, Advisor

The Student Integrated Curriculum (SIC) is designed for those students in their senior year who seek to change from a specific degree to a general degree. The program appeals to those who late in their academic studies determine that they want to pursue a different career path but wish to use their previous studies to apply to a general degree. The degree also appeals to those who left the University and are already in a profession but wish to enhance themselves by completing their degree. A degree of Bachelor of Science or Bachelor of Arts will be awarded based on the topical areas applied. For more information, see the program advisor.

Student Planned Curriculum
Geraldine Schma, Advisor

The Student Planned Curriculum (STC) provides students the opportunity to pursue educational goals which cannot readily be accommodated in other University curricula. The usual major/minor requirements are suspended within this program. Instead the individual student, working with an assigned advisor, selects coursework related to the student's academic and educational goals. Thus, the student enjoys considerable freedom and flexibility in designing such a program. Aside from the University's General Education and Intellectual Skills requirements, the major consists entirely of elective courses which must be sufficient in number to meet general degree requirements. Students completing this major are eligible to receive either the B.A. or B.S. degree depending upon the particular configuration of course work selected.

The primary uses of the STC fall into three categories: 1) as a preparation for graduate or professional study; 2) as a way to pursue employment possibilities in areas where no conventional curricula exist; and 3) as a convenient way to obtain a broad interdisciplinary undergraduate education without particular concern for career possibilities. Non-traditional students are often especially attracted to it for this latter reason.

Any undergraduate student in good academic standing, with 75 or fewer semester hours earned, is eligible to enter the STC providing they meet program requirements. Those applying for admission into the curriculum are expected to complete a written statement outlining educational goals as well as the proposed course of study.

Once the student has outlined a proposed course of study, the student is required to review the course selections with a faculty member of advisor in the department(s) offering a majority of the proposed courses. The department members will advise the student regarding the course selections. Once a department has provided guidance, the STC advisor oversees the ongoing student progress.
The Graduate College

Lewis Pyenson
Dean

The Graduate College offers a wide variety of programs leading to the master's, specialist, and doctoral degrees.

The Master of Arts is awarded in numerous programs in the following general categories within the College of Education: Career and Technical Education; Counseling Psychology; Counselor Education; Education and Professional Development; Educational Leadership; Educational Technology; Evaluation, Measurement, and Research; Family and Consumer Sciences; Human Resources Development; Marriage and Family Therapy; Physical Education; Socio-Cultural Foundations and Educational Thought; Special Education; and Teaching Children Who Are Visually Impaired.

A number of other programs at Western also lead to the Master of Arts: Anthropology, Applied Economics, Art, Art Education, Communication, Comparative Religion, English, Geography, History, Mathematics, Mathematics Education, Medieval Studies, Orientation and Mobility, Philosophy, Physics, Political Science, Psychology, Rehabilitation Teaching, Science Education, Sociology, Spanish, Speech Pathology and Audiology, Teaching of Geography, and Teaching of Music.

The University also offers the Master of Science in Accountancy, Applied Mathematics, Biological Sciences, Biostatistics, Chemistry, Computational Mathematics, Computer Science, Construction Management, Earth Science, Engineering (Computer, Electrical, Industrial, and Mechanical), Engineering Management, Geology, Manufacturing Engineering, Materials Science and Engineering, Medicine, Molecular Biotechnology, Nursing, Occupational Therapy, Operations Research, Paper and Imaging Science and Engineering, and Statistics, as well as the Master of Business Administration, Master of Development Administration, Master of Fine Arts (in Art and in Creative Writing and in Performing Arts Administration), Master of Music, Master of Public Administration, and Master of Social Work. In addition, dual Master of Arts programs (leading to two master's degrees) are available in Counselor Education/Rehabilitation Teaching and in Special Education/Orientation and Mobility.

The Specialist in Education is offered in Educational Leadership.

The Doctor of Philosophy is offered in Applied Economics; Biological Sciences; Chemistry; Computer Science; Counseling Psychology; Counselor Education; Educational Leadership; Electrical and Computer Engineering; English; Evaluation; Evaluation, Measurement, and Research; Geology; History; Industrial Engineering; Interdisciplinary Health Studies; Mathematics; Mathematics Education; Mechanical Engineering; Paper and Imaging Science and Engineering; Physics; Political Science; Psychology; Public Administration; Science Education; Sociology; Spanish; and Statistics.

The Doctor of Education is offered in Special Education, and the Doctor of Audiology is also offered.

Please refer to The Graduate Catalog for further information on these programs, as well as on admission and graduation requirements. Or visit The Graduate College website http://www.wmich.edu/grad

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Course Descriptions
(Alphabetical by Course Prefix)
Aeronautical Engineering

AAE 2500 Materials Science First course in the science of engineering materials. Relationships between microscopic structure and the mechanical properties of metals, polymers, and ceramics. Effects of environment on material properties. This course is cross-listed with ME 2500. Prerequisites: CHEM 1100 and 1110, MATH 1220 or 1700. 3 hours

AAE 2610 Introduction to Aeronautical Engineering Introduction to aircraft systems, including airframe construction and design, propulsion systems, fluid power systems, and auxiliary systems, such as cabin environment, ice and rain control, fire warning and control, and fuel systems. Prerequisite: MATH 1220 or 1700 may be taken concurrently. 3 hours

AAE 3610 Flight Vehicle Aerodynamics A study of incompressible aerodynamics of flight vehicles with emphasis on the effects of aerodynamics on vehicle design. Computer applications to the solution of the problems of flight vehicle aerodynamics. Prerequisites: MATH 2720, (AAE 2610 or ME 3560), PHYS 2050; PHYS 2060. 4 hours

AAE 3710 Fundamentals of Aerodynamics A study of dynamics of inviscid, viscous, incompressible and compressible flow for airfoils and bodies. Thin airfoil theory and finite wing. Subsonic and supersonic flow regimes. Introduction to computational aerodynamics. Prerequisites: AAE 3610; MATH 3740; ME 2580. 4 hours

AAE 4500 Flight Vehicle Performance A study of flight vehicle performance with an emphasis on the effect of aerodynamics on vehicle design. Computer applications to the solution of the problems of flight vehicle performance. Prerequisite: AAE 3710. 3 hours

AAE 4590 Flight Test Engineering and Design Analysis and design of in-flight experiments, excluding expansion of the aircraft's flight envelope. Includes microprocessor based data acquisition system and electronic sensor interfacing. Laboratory projects emphasize the pre-test, flight and post-flight phases of flight testing with an emphasis on safety of flight issues. Prerequisites: AAE 4500 and AAE 4600. 3 hours

AAE 4600 Aircraft Stability and Control Analysis and synthesis of aircraft stability and control. Design of the aircraft control surfaces for different configurations to provide the required stability and control power. Man-machine interaction and effect on control surface sizing. Prerequisite: AAE 3710. 3 hours

AAE 4630 Aircraft Structural Design Structural design of aircraft emphasizing structural integrity under imposed static and dynamic loads. Design considerations include weight, cost, and mission constraints. Prerequisite: ME 3650. 4 hours

AAE 4660 Aeronautical Propulsion Systems Thermodynamics and fluid dynamics of aeronautical rotating turbomachines, including axial turbines, compressors, mixed flow, and centrifugal machines. Analytical and computational methods will be used to design and determine performance of aircraft propulsion systems. Prerequisites: ME 2320; and (ME 3560 or AAE 3710). 4 hours

AAE 4690 Aircraft Design Conceptual and preliminary design of aircraft emphasizing performance, stability and control, and total vehicle efficiency. Prerequisites: AAE 4500 and AAE 4600. 3 hours

AAE 4950 Topics in Aeronautical Engineering A specialized course dealing with a particular area of aeronautical engineering not included in other course offerings. May be repeated for credit with a different topic for up to a total of six credits. Prerequisite: Departmental consent. 1 to 6 hours

AAE 4990 Independent Study An independent study assignment available only by special arrangement with an instructor and approved by the department curriculum committee. A written report will be required and filed with the department on completion. May be repeated for up to a total of six hours. Prerequisite: Departmental consent. 1 to 6 hours

Accountancy

ACTY 2100 Principles of Accounting I This course introduces basic business concepts and the use of accounting information in business to plan for, record, and evaluate the performance of operating activities. The course integrates the use of accounting information for both financial (external) reporting and managerial (internal) decision-making purposes. 3 hours
ACTY 2110  Principles of Accounting II  This course examines the use of accounting information in planning and decision-making in business organizations. It includes the use of accounting information in planning for long-term financing and investing activities within an organization. The course also covers how a company's profitability from various activities, its cash flows, and its overall financial status are evaluated.  Prerequisite: Minimum grade of "C" in ACTY 2100.  3 hours

ACTY 3100  Financial Accounting I  This course examines the underlying concepts of financial accounting. It reviews the accounting cycle, related accounting records, and the financial statements. Accounting principles and reporting requirements for current assets, plant and equipment, intangibles, and other assets are also studied. Prerequisite: Minimum grade of "C" in ACTY 2110.  3 hours

ACTY 3110  Financial Accounting II  This course is a continuation of Accounting 3100. Accounting principles and reporting requirements for liabilities, long-term investments, and stockholders' equity are studied. Other topics included are accounting for pensions, income taxes, leases, accounting changes, and the Statement of Cash Flows. Prerequisite: Minimum grade of "C" in ACTY 3100.  3 hours

ACTY 3130  Accounting Information Systems  This is an introductory survey course in accounting information systems. It includes consideration of issues such as transaction processing and transaction processing cycles, the use and effects of computers and other relevant technology on accounting, database and file systems, internal accounting and administrative controls, and information technology audits. The course emphasizes use of common business software, which may include spreadsheets, flowcharting software, communications, general ledger, and database management systems. Prerequisite: Minimum grade of "C" in ACTY 3100.  3 hours

ACTY 3220  Managerial Accounting - Concepts and Practices  A study of the accounting methodology and concepts that have been developed to serve managers in decision-making for planning and control. Includes budgeting, standard costing variance analysis, incremental analysis, cost and profit analysis, relevant costing, and product costing concepts and practices. Prerequisite: ACTY 2110.  3 hours

ACTY 3240  Introductory Tax Accounting  A study of the federal tax laws that apply to business entities. The course focuses on concepts of income, deductions, and credits that apply to all reporting entities and emphasizes tax planning as well as tax compliance. Prerequisite: ACTY 2110.  3 hours

ACTY 4100  Internship in Accounting  Under the direction of a faculty coordinator, students obtain full-time, accounting-related employment. Participation is limited to available internships and competitive selection by the faculty coordinator and prospective employers. Students are required to write a final report. Each employer will provide an evaluation of the student. A student must be enrolled in ACTY 4100 while meeting the requirements of the course. This course must be taken on a credit/no credit basis and does not count toward the accounting major.  Prerequisite: Written consent of the faculty coordinator.  1 to 4 hours

ACTY 4110  Advanced Accounting  The study of entities and special transactions not covered in Financial Accounting I and II. Particular emphasis is given to partnership equity accounting, governmental accounting, business combinations, reporting by parent-subsidiary consolidated entities (including foreign subsidiaries), and accounting for foreign currency transactions.  Prerequisite: Minimum grade of "C" in ACTY 3110.  3 hours

ACTY 4130  Advanced Accounting Systems  This course examines the types of accounting systems used by business enterprises. It includes in-depth examinations of database accounting systems, including the analysis of information, database design and implementation, and the creation of applications. Prerequisite: Minimum grade of "C" in ACTY 3130.  3 hours

ACTY 4140  Governmental and Nonprofit Accounting  A comprehensive study of the recording of transactions by governmental units and the financial statements required by generally accepted accounting principles for governmental units. Governmental units are the basic unit of study; however, colleges and universities, healthcare entities, and other not-for-profit organizations are given brief coverage to illustrate accounting and financial reporting for all not-for-profit entities.  Prerequisite: ACTY 2110.  3 hours

ACTY 4160  Auditing  A study of auditing of business and non-business organizations. Topics include audit risk, audit procedures during the planning and performance phase of an audit, internal control concepts, ethics and the legal
environment, statistical audit tools, types of audit reports, auditing standards, and the relationship of internal auditing to financial statement auditing. Prerequisites: ACTY 311; minimum grade of C" in ACTY 3130. 3 hours

ACTY 4220 Cost Accounting - Theory and Practice A study of the use of cost accounting information within a planning and control framework. Topics include the information needs of managers, costing of products and services, cost allocations among departments of an enterprise, activity-based costing, the theory of constraints, cost of quality, budgeting, income effects of absorption and variable costing, transfer pricing, and performance measurement. Prerequisite: Minimum grade of "C" in ACTY 3220. 3 hours

ACTY 4240 Advanced Tax Accounting A study of the federal tax laws that govern the transactions during a corporation's life cycle. The tax effects of organizing, operating, making distributions, reorganizing, and liquidating corporations are analyzed. The differences in the taxation of corporations, partnerships, and limited liability companies also are addressed. Prerequisite: Minimum grade of "C" in ACTY 3240. Open to Upperclass and Graduate Students 3 hours

ACTY 5980 Readings in Accounting Directed individual study of topics not covered in other departmental courses. Prerequisite: Written consent of instructor. Open to Upperclass and Graduate Students 1 to 4 hours

Alcohol and Drug Abuse

ADA 2250 Drug Use: Personal and Social Impact This course is designed to increase understanding of substance abuse, alcohol and other drug use through the public health disease model with an emphasis on psychological, physiological and social consequences of use and abuse. An overview of prevention, case finding and treatment strategies are provided. 3 hours

ADA 3200 Legal and Illega1 Drugs To increase understanding of substance abuse; alcohol and other drug use is examined through the public health disease model with an emphasis on psychological, physiological, and social consequences of use and abuse. An overview of prevention, case-finding, and treatment strategies is provided. Open only to substance abuse minors. 3 hours

ADA 3250 Substance Abuse Diagnosis and Treatment Planning This course addresses the diagnostic categories for abuse and dependency across the spectrum of drugs of abuse. Emphasis is placed on individual-specific diagnosis and individual-specific treatment plans. Open only to substance abuse minors. 3 hours

ADA 3260 Substance Abuse Treatment Processes This course focuses on the continuum of care for substance abusers. Modalities of prevention, casefinding, detoxification, inpatient treatment, residential treatment, therapeutic communities, day care, intensive outpatient treatment, outpatient treatment, and aftercare are presented both in theory and practice areas. Open only to substance abuse minors. 3 hours

ADA 3270 Individual, Group, and Family Treatment This course provides an overview of individual, group, and family treatment modalities. Concepts, intervention, strategies, and specific methods of current treatment models are presented through lecture, assigned reading, handouts, and film. Included also are three sessions on demonstrating and practice of micro-counseling skills. Treatment focus is the employed adult whose job performance is affected by mental health and/or substance abuse problems. 3 hours

ADA 5200 Family and Addiction This course provides students with knowledge on the effects of substance abuse on the family. Included is theory and practice regarding dysfunctional relationships, children of substance abusers, and resulting disorders. 3 hours

ADA 5250 Women and Substance Abuse Treatment This course provides knowledge on gender specific treatment of substance abusers. This includes physiological aspects of women, as well as cultural aspects and methods to enhance the treatment of women substance abusers. 3 hours

ADA 5300 Clinical Theory in Substance Abuse Services This course covers selected theories which form the foundation for Substance Abuse Services practice in specific areas. Students are expected to master the content as a basis for building foundation knowledge for applied practice. The specific topics are announced with each semester offering. 1 to 4 hours
ADA 5350 Drug Testing This course explores the theory and practice of drug testing and its applications in both clinical practice and employment settings. The spectrum of testing ranges from field dexterity to gas chromatography. Federal requirements are reviewed for application in both clinic and work settings. 3 hours

ADA 5370 Constructive Confrontation and Referral in Substance Abuse Services This course provides students with knowledge of intervention strategies for active substance abusers. Emphasis is placed on strategic constructive confrontation techniques and effective referral processes. 3 hours

ADA 5400 Current Issues in Alcohol and Drug Abuse This course, taught in seminar, reviews basic and applied research advances in prevention and treatment of substance abuse. Emphasis is on bridging research advances to practice areas. The focus of the course is research published in the previous year. 1 hour

ADA 5410 Group Home Treatment This course reviews custodial, milieu, and function aspects of group home treatment. Theories and practices are presented with emphasis on long-term treatment outcomes. 1 to 6 hours

ADA 5450 Alcohol, Drugs and Aging The problems of alcohol, medication, and legal and illegal drug use, misuse and abuse among older persons will be discussed. Prevention, intervention, and treatment will be considered. This course is cross-listed with GRN 5450. 3 hours

ADA 5600 Clinical Practice in Selected Substance Abuse Services Areas This course covers variable topics in clinical substance abuse services practice. It is a skills development course which helps students to become proficient in specific techniques and procedures related to client service. The specific areas are announced with each semester. 1 to 4 hours

ADA 5650 Alcohol, Drug Abuse, and Violence This course provides the student with knowledge of the multiple relationships of substance abuse and violence. Specific foci are the relationships of substance abuse and domestic violence, child abuse, and other assaultive behaviors. 3 hours

ADA 5670 Legal Offenders and Substance Abuse This course provides the student with knowledge on the theories associating substance abuse with criminal and civil offenses. Specific focus is the treatment strategies and techniques related to the offending population and long-term outcomes of decreased recidivism. 3 hours

ADA 5700 Field Education: Substance Abuse A clinical, prevention, research, or administrative field experience meeting practice requirements in certification of substance abuse services. The field experience involves direct supervision by faculty and clinical supervisors. Prerequisite: Consent of instructor. Graded on a Credit/No Credit basis. 1 to 6 hours

ADA 5800 Substance Abuse Prevention This course explores the multiple theories and techniques used in the prevention of substance abuse. The history and evolution of prevention is presented, as well as cognitive, affective, and behavioral strategies. 3 hours

ADA 5850 Student Assistance Programs This course provides students with knowledge of the theories and practices of student assistance programs. The course focuses on objective indicators of student involvement with drugs, intervention strategies, referrals, and follow-up. 3 hours

ADA 5900 Applied Alcohol and Drug Dependence Recovery Techniques This course provides the student with knowledge of self-help groups and formal relapse prevention strategies. Application of relapse prevention strategies is integrated into multiple aspects of the continuum of care. 3 hours

ADA 5980 Readings in Substance Abuse Services Individualized, independent study and reading under guidance of a faculty member. Initiative for planning topic for investigation and seeking the faculty member comes from the student with consultation of the advisor. Prerequisite: Consent of instructor and program advisor 1 to 4 hours

Africana Studies
AFS 2000 Introduction and Foundations to Africana Studies Provides an overview of the origins of black people, the philosophical underpinnings of the discipline, the evolution of the field of Africana Studies, its theoretical and practical applications, and the holistic method of studying African peoples and their social evolution. Historically oriented, the course
is designed to be interpretive rather than chronological. The course covers the African civilization in the western hemisphere, including the United States, folklore, mythology, customs, rise of Black nationalism, role of black consciousness, and present day alternatives. 3 hours

AFS 2100 Comparative Approaches to Forms of Black Consciousness This course focuses on the history of Black consciousness in the African Diaspora from the seventeenth to twentieth century. It is concerned with forms of Black expression and social action as they are manifested in specific historical, cultural, and political contexts using comparative approaches. Some of the themes include Africa in African American thought and culture, naming and identity, feminism and gender, movement and migration, and the rhetoric of freedom in Black ideology. 3 hours

AFS 2140 Black Religion and Liberation This course is designed to introduce students to the social, political, and theological sources that inform Black Theology. In doing so, the course emphasizes the role of Old Testament motifs in the social construction of black theology. Students will address the writings and interpretations of prominent black theologians and activists on the subject of liberation, faith and blackness. A primary component of this course centers on how race, class, and faith impact an individual, the community, and a nation's understanding of God and divine redemption. In essence the course is an introduction to what liberation theologians term the "God of the Oppressed." Students will have an opportunity to critically analyze, for example, the image of the Black Jesus and the Black Virgin Mary. 3 hours

AFS 2230 African American Literature/Criticism and Culture This course is designed both to introduce students to key issues, themes, and methods in African American literature/criticism and culture as well as to pique interest in an effort to encourage further study of the discipline. It surveys texts by African American authors and examines the relationship between the literature, criticism, and theories serving to explain it. Prerequisite: One of the following: AFS 2000 or ENGL 1100, 1110, 2220. 4 hours

AFS 2240 Africana Autobiography This course will examine autobiographies and autobiographical novels from different parts of Africa and the United States. Some of the texts in the course will refer to a remote period of the African and African-American experience, while others will refer to the current developments in Africa and the United States. Through these texts, an attempt will be made to understand and assess the African and African-American experience, past and present. Prerequisite: ENGL 1050. 3 hours

AFS 2250 African Storytellers as Traditional Historians To understand Africa's past from the perspectives of the African storytellers, we must understand their art and their ability to cross boundaries between the present and the past, as well as understand how they fuse fact and fiction at the boundaries of myth and history, where transformations occur. This is the area where fact and fiction become endowed with meaning. What makes the narration of past artistically engaging and emotionally evocative is the metaphorical center, "the poem in the story." Drawing on the art of storytelling, this course will examine Africa's past through myths, epics, and local African stories. 3 hours

AFS 2350 Black Majorities in the Caribbean and Latin America This course will review basic (social history) literature from the Caribbean, Central and South America to determine impact of Black majorities a) on the societies, b) on construction of collective identities, c) on memories that mobilize them, and d) on processes of making community despite displacement. These questions will be applied to a representative territory from each language group in the Americas to discuss unequal power relations that can then be compared with US/Canada. 3 hours

AFS 2800 Topics and Themes in Africana Studies This course builds upon the African diaspora experiences through selected topics and themes that address complex social and historical issues such as gender, politics, economics, slavery, civil/human rights, affirmative action, sexual identity/orientation, lynching, genocide, gentrification, cultural mutilation, and modes of cultural production. The course will interrogate theories of ethnicity, diversity, multiculturalism, colonialism/post-colonialism, modernism/post-modernism, structuralism/post-structuralism in tandem with the proposed topic(s) and theme(s) being examined. The course is repeatable under a different topic. 3 hours

AFS 3000 Black Experience: From the African Beginnings to 1865 This course will examine the myriad patterns of adaptation and adjustments made by the enslaved Africans and free people of color to the continuing oppressive character of American Society prior to 1865. Slave narratives and abolitionists tracts written by freed people reveal much about the African-Americans' interpretation of their presence in the New World. The Black presence created a commonality of experience, the characteristics of which became and remain a distinctive American co-culture. It aims to examine how the
Black presence altered the idea of race and how this alteration became a function of the institutional forms that Black Americans have shaped to survive in a hostile environment.

AFS 3010 Black Experience: From 1866 to the Present
The Black Experience 1866 to the present will concentrate on the plight of the newly freed African-American. The development of the family in post bellum years, the Euro-American reaction to the change in status, the rise of pseudo scientific racist thought, the long-term psychological effects of slavery on both the victims and the victimizers, the search and the rise of Black Messianic leaders, the migration from the rural-agricultural South to the urban-industrialized North, the emergence of Black Nationalism-Civil Rights Movement and the non-Black backlash. AFS 3000 is highly recommended.

AFS 3070 Poetics and Politics of Gender in Islam
This seminar course takes a historical and a literary approach to the politics of gender in the Islamic traditions of Africa and of the Middle East. Prerequisite(s): English 1050 or AFS 2250, or consent of instructor.

AFS 3100 The Black Woman: Historical Perspective and Contemporary Status
This course is an examination of the historical perspective and contemporary status of the Black woman and her story, paying critical attention to her image as reflected in her role in the American society. The course emphasizes the problems, issues, and concerns of the Black woman. Students will participate in securing visiting Black female speakers and documenting their story as Black women.

AFS 3130 Radical Activism and the Black Community
This course is designed to introduce students to the role and influence of black religious leadership in movements of liberation. This course addresses issues of race, gender and violence within the cultural realities of black ministers, by blending the disciplines of history and theology. A key focus of the course is on the role and influence of the "black sermon" as a vehicle for change and protest against abusive power structures. The course is comparative in that the lives and activities of African American ministers like Dr. Martin Luther King, Jr. And Minister Malcolm X are contrasted with that of South African ministers such as Bishop Desmond Tutu and Re. Allan Boseak. Prerequisite: AFS 2000 or 2130.

AFS 3140 The Black Community
An investigation of the social forms and structures within the Black community from the unique Black perspective. The course will focus on the sociological, political, economic, psychological, and physical aspects of community building by a subordinated group.

AFS 3150 The Underground Railroad in the Midwest
During the mid to late 19th century, Calhoun County, Michigan was an active human rights center. This area was one stop on the Central Michigan route of the Underground Railroad. Slaves would begin their journey in one of the upper southern states, and go from stop to stop, ultimately reaching "their Canaan lands." There was a large group who participated in this pursuit of freedom for the enslaved Africans. They were considered subversive fanatics by slaveholders and righteous reformers by other. The aim of this class is the examination of the Underground Railroad system and the people involved. Of particular interest will be the role played by Michiganders in this freedom movement.

AFS 3200 Ecology and the Black Community
This course is the study of the relationships of local Black residents within their social and physical environments. The course focuses on the individual's status in the community through an evaluation of the social, political, economic and physical aspects of the environment as influenced by the social order of American society and its philosophy. Students are expected to complete a research study of a special ecological issue and to document the contributions of African Americans to Western Michigan University through the Annual W.E.B DuBois Conference.

AFS 3220 West Africa in Colonial America
This course will cover the cultural, social, and political background in West Africa of African-Americans. It will also treat African origins of aspects of American culture. It will provide students with the opportunity to explore the cultural, material, and social contributions of West Africans and later African Americans to the development of America from 1607 to the end of the American Revolutionary War in 1783. The course will therefore be a foundation for other courses covering African Americans, especially their experiences in America.

AFS 3250 Ethnohistory of Sub-Saharan East Africa
This is a seminar course in the ethnohistory of Sub-Saharan East Africa, from the point of view of the African storytellers as well as that of the western historians. The main focus of the course will be in Upper Nile River in Sudan, and Lake Rudolf, the region known as "the cradle of humankind," in northern Kenya, the Omo river and its delta in southern Ethiopia, the Karamoja Plateau in northern Uganda.
AFS 3300 History and Significance of Black Pop Culture-1906 to Present. This course will focus on the continuum to Black Pop Culture in the twentieth century, its developmental stages and its emergence as the nucleus of Pop Culture in "mainstream" America. Students will survey Black theatre, art, music, and literature in twentieth-century America and study the institutions, persons, sites, and traditions that it inspired. 3 hours

AFS 3350 Research Procedures in Africana Studies. This course will consider the current comparative and transcontinental research on emerging issues in the field of Africana Studies. The course participants will have opportunities to consider debates in the literature from representative sites in Africa, the Caribbean, and the Americas. We will also look at the pioneer researchers in the field, and their innovative procedures/techniques. The students will become familiar with the research procedures needed to conduct literature reviews, interviews, direct observations, participate in community problem solving, and work with personal and official documents. The result should help the students prepare research papers and theses. Prerequisite: AFS 2000 or permission of the instructor. 3 hours

AFS 3400 African and African-American Cinema. African filmmakers capture Africa's past and present experiences and imagine themselves in the future. The course examines African cultures and peoples through films, within the light of film theory and culture studies, and it addresses a wide variety of topics such as tradition and modernity, globalization, economic development, colonial and post-colonial identities, power and resistance, and gender issues. Prerequisites: ENGL 105 and one of the following: AFS 2000, COM 2410, ENGL 2100. 3 hours

AFS 3500 Blacks in Michigan. A survey of the significance of Blacks in the making of Michigan history. We will trace the movement of Blacks into Michigan, investigate patterns of settlement, reactions to the émigrés, and the development of the Black families and church as principal forces in the Black community. We will study the political, social, and economic implications of being Black in Michigan, both in urban and rural areas from 1790 to the present. The student will be introduced to the varieties of historical sources available for such study. 3 hours

AFS 3600 Black Woman-Black Man Relationships. This course is a study of the dynamics of the Black male/Black female relationships in a variety of contemporary settings. Students are expected to assist in the conduct and documentation of the proceedings of the annual Black Male-Female Panel Discussion of social issues of special interest to the Black community, including family dynamics, male-female relationships and strategies for the improvement of those relationships. 3 hours

AFS 3700 Black Historical Movements/Moments. This spring travel-course is designed to examine Black historical movements/moments related to the African diaspora (African American, African, and Caribbean). Students will have the opportunity to interface with historical locations, sites, and documents relevant to the era of study. Topics will vary each spring offered and may be repeated under different topics with the approval of advisor/professor from AFS. Prerequisite: One of the following: AFS 2230, 3010, 3300; or ENGL 2230, 3080, 3210; or HIST 2110, 2120, 3140, 3280. 4 hours

AFS 3800 Special Topics in Africana Literature and Culture. This seminar is designed both to examine critical issues central to the African diaspora and to produce quality research through investigating African, African American, and diaspora literature, history, philosophy, and culture from an African-centered or Afrocentric perspective. This course may be repeated once under different topics with approval of the advisor. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisite: Students should have completed one of the following: AFS 2230, 3100, 3300, ENGL 2230, 3080, or 3140. 4 hours

AFS 3880 Introduction to African Civilization. Overview of major aspects of African history and civilization from earliest times to the present. Emphasis upon elements which contribute to the uniqueness of the African experience. The course is cross-listed with HIST 3880. 3 hours

AFS 4000 Blacks in the Arts. An examination of the creative dimension of the Black Experience as found in music, art, literature, religion, and dance. This course will also explore the influence of science and technology on the arts and identify the universal elements in these areas. 3 hours

AFS 4050 Folk Histories of Africa/Middle East. This seminar course introduces folklore as history in Africa and in the Middle East. Comparative approach to folklore is the subject of the course, as it relates to African and Middle Eastern legends, and traditional histories. Prerequisite: English 1050 or AFS 2250, or consent of instructor. 3 hours
AFS 4100 Bridging the African Diaspora in the New Millennium: An Interdisciplinary Approach  
The African presence in Asia, Europe, and the Americas is not a recent phenomenon. The dynamic, continuous, and complex phenomenon of the African Diaspora also reveals the voluntary and involuntary dispersion of Africans throughout history, the emergence of a cultural identity based on origin and social condition, and the physical or psychological return to the African homeland.  3 hours

AFS 4650 Internship in Africana Studies  
Students will participate in an internship/practicum where their knowledge will be put directly into practice. They will be led through this experience with a seminar led by an approved faculty member from the AFS core faculty and, where appropriate, a person from the student's disciplinary major department. Prerequisite: Completion of a minimum of 15 credit hours in the AFS major. Call number obtained from AFS administrative assistant.  3 to 6 hours

AFS 4860 Africa and the Slave Trade  
This course will examine Africa and the Atlantic Slave Trade from the 15th to the 19th centuries. Course is cross-listed with HIST 4860.  3 hours

AFS 4980 Directed Independent Study  
A program of independent study, directed by an approved AFS faculty member, that allows the student to pursue readings relating to the Black Experience not dealt with in other courses. The initiative for describing the project, planning the method(s) of investigation, determining the appropriate results, and securing the cooperation of a faculty member to advise the work must come from the student. Applications are available in the AFS office and must be approved by the director.  1 to 6 hours

Asian and Middle Eastern Languages
AMEL 5000 Special Topics in World Languages  
This topic to be announced in the Schedule of Course Offerings. The content of the course will vary from semester to semester. Students may repeat the course for credit as long as the subject matter is different.  3 hours

American Studies
AMS 2000 Introduction to American Studies  
This course introduces students to the interdisciplinary study of American culture and history, focusing on the theme of the place of the individual in the community. Students will gain an understanding of the social forces that have shaped men's and women's experiences in American culture such as region, gender, ethnicity, and race. The course explores American culture in such areas as religion, politics, sport, literature, labor, popular culture, and social reform.  3 hours

AMS 3000 Topics in America Studies  
This course looks closely at a region in America, considering ways scholars work across traditional disciplinary boundaries to construct a coherent understanding of what is meant by culture. The region studied will vary but students will take up similar questions about the history and culture, including native and immigrant populations, rural and urban spaces, diversity in its many forms, as well as regional uniformity and sense of identity in juxtaposition to notions of the nation as a whole.  3 hours

AMS 3900 Internship  
After completing at least 18 hours of course work in the AMS program, a student may choose to work outside the University on a regional or national project, such as an archaeological field school, or work as an intern for the Maritime Museum, a political party, or a social service agency. The program director will help to make arrangements and will evaluate the student's performance. Prerequisite: 18 hours of AMS course work.  3 to 6 hours

AMS 4900 American Studies in a Global Context  
This final seminar for the American Studies major and minor is designed to broaden students' conception of American Studies by challenging them to place their knowledge of the culture of the United States within a global context. Students will be asked to compare some element from American culture to similar elements in other cultures from around the globe. In this way, students will come to better appreciate what is unique and what is universal in American culture. Prerequisites: At least 20 hours of work in the American Studies major or minor, including AMS 2000 and AMS 3000.  3 hours

AMS 5000 Seminar in American Studies  
This course provides group study of special topics in American Studies. Topics will vary with the training and scholarship of the professor or professors involved. Prerequisites: At least 12 hours of
courses approved in the American Studies Program, including AMS 2000 and AMS 3000, or graduate-student status in any participating department.  3 hours

AMS 5900 Interdisciplinary Theory and Methods  This course will allow students to understand the development of American Studies from the early history and literature syntheses to the symbol and myth school to the social and cultural studies approaches that have drawn their techniques from anthropologists and other social and natural scientists.  Prerequisites: At least 18 hours of courses approved in the American Studies Program, including AMS 2000 and AMS 3000, or graduate-student status in any participating department.  3 hours

AMS 5980 Independent Study  An individual project is available to advanced students by special permission from the director of American Studies.  Prerequisites: At least 18 hours of courses approved in the American Studies Program, including AMS 2000 and AMS 3000, or graduate-student status in any participating department.  1 to 3 hours

**Anthropology**

ANTH 1100 Lost Worlds and Archaeology  An introduction to the archaeological record relating to the development of culture from its stone age origins through the development of village agriculture and the beginnings of urban life.  3 hours

ANTH 1200 Peoples of the World  A survey of the rich variety and range of non-Western peoples throughout the world, with emphasis on the role of culture in shaping human thought and behavior.  3 hours

ANTH 1500 Race, Biology, and Culture  This course is an introduction to the anthropological study of human biological variation in modern populations. We will examine from a biocultural perspective how human populations adapt to life in difficult environments (e.g., tropics, high altitude, arctic) and in so doing, we will explore the biological and social meanings of human racial variation.  3 hours

ANTH 2100 Introduction to Archaeology  The science of archaeology is explored in terms of the methods and concepts used to discover and interpret past human behavior. Select portions of the Old and New World prehistoric cultural sequences provide the frame of reference.  3 hours

ANTH 2400 Principles of Cultural Anthropology  An introduction to the basic concepts, theoretical approaches, and methodological strategies employed in the study of traditional and contemporary sociocultural systems throughout the world. Attention given to research techniques and the insights derived from detailed case studies and cross-cultural comparisons.  3 hours

ANTH 2500 Introduction to Biological Anthropology  A survey of physical anthropology; evolutionary theory; hominid and primate evolution; the living primates, human osteology, human genetics and population variation.  4 hours

ANTH 3000 Ancient America  This course examines the archaeological sequence (or a segment thereof) in the Americas prior to European contact. The aim is to explore contemporary thinking regarding the subsistence practices, settlement patterns, economy, sociopolitical organization, and ideology of ancient Americans. The geographic focus may vary from the culture area to a broader continental survey depending on the interests of the students and the instructor.  Prerequisite: ANTH 1100 or 2100.  3 hours

ANTH 3010 Anthropology through Film  Anthropology through Film is designed to introduce students to the concepts, methods, and practices of cultural anthropology through the viewing and analysis of ethnographic films and the reading of select ethnographic writings. A principal course objective is to learn how to analyze what the filmmaker has done well and what is lacking in the ethnographer's portrayal of other cultures. Consequently, more general issues of representing other cultures will be considered in relation to the themes of power, the legacy of colonialism, and the world economic system.  3 hours

ANTH 3030 Historical Archaeology  Investigates the role of the material world in the colonial encounter and the development of capitalism. The course will integrate theoretical, methodological and substantive issues with an emphasis, though not exclusive focus, on North America.  Prerequisite: ANTH 2100 or consent of instructor.  3 hours

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ANTH 3060  Archaeology of Civilization  The course discusses the forces leading to the rise of the state and the emergence of centers of civilization. It investigates state emergence cross-culturally, examining shared characteristics and innovative pathways, social accomplishments and social costs, New World and Old World, far-flung and more recent past. Prerequisite: ANTH 2100 or consent of instructor.  3 hours

ANTH 3090  Archaeology of Inequality and Resistance  The course examines the dynamics of historical and archaeologically known forms of control and domination based upon status, class, gender, and ethnicity. The course focuses on the social relation of oppressor and oppressed, the ideologies of control and the forms of social resistance. Prerequisite: ANTH 2100 or consent of instructor.  3 hours

ANTH 3100  Environmental Archaeology  An examination of the objectives and methodologies of environmental archaeology in seeking to identify and explain the interrelationships between human communities and their biophysical environments. Prerequisite: ANTH 2100 or consent of instructor.  3 hours

ANTH 3120  Medicine and Culture  This course takes an Anthropological approach to the study of illness and healing and provides a broad introduction to the field of medical anthropology. Included in this course are discussions of the various anthropological approaches to understanding illness and disease, with a particular focus on the ways in which culture impacts on how illness is understood and experienced both cross-culturally and in the United States. Special areas of interest may include ethnomedicine, the intersection of biomedicine and other healing systems, the impacts of inequality on health and health care, and the study of biomedicine as a cultural system. Prerequisite: ANTH 1200 or 2400, or consent of instructor.  3 hours

ANTH 3390  Cultures of Latin America  This course offers an introduction to contemporary life in Latin America from an ethnographic perspective. Readings and class discussions will highlight the intersections of colonialism, nationalism and globalization among selected groups in different areas in the region. By locating contemporary societies within broader contexts this class aims to replace cultural stereotypes with anthropological analysis.  3 hours

ANTH 3400  Cultures of Asia  This course will provide an introduction to contemporary cultures and societies of Asia. Emphasis will be placed on topics such as education, family, workplaces, gender, popular culture, and identity. By locating contemporary institutions and idioms within a historical context, this class aims to replace cultural stereotypes with anthropological analysis.  3 hours

ANTH 3410  Cultures of Africa  This course offers an introduction to the study of contemporary life in sub-Saharan Africa. Students will engage with issues relating to colonialism, post-colonialism, and globalization as they explore several regions and ethnic groups in depth. A special emphasis will be placed on recognizing and dispelling long-held myths and negative stereotypes about Africa.  3 hours

ANTH 3420  Cultures of Middle East  A problem oriented approach to the study of peoples and cultures of the Middle East, dealing with rural, urban, peasant, and elite groups. Topics such as social structure, religion, and culture change may be included.  3 hours

ANTH 3430  Cultures of Europe  Students are introduced to the anthropology of Europe through a critical reading of selected ethnographies and essays. The importance of nationalism, self-identity and borders in contemporary European politics and social life will be emphasized. Students will also be exposed to literature on subaltern populations such as peasants and small-scale farmers and the political, economic and cultural dynamics to which they are subject.  3 hours

ANTH 3440  The First Americans  Examines indigenous or native cultures of North America from the initial peopling of the continent by immigrants from Asia during the Terminal Pleistocene (Ice Ages) into the period of European exploration and colonization. Selected topics illustrating the ingenuity and diversity of human responses to both changing landscapes and social circumstances over time and in space will be presented.  3 hours

ANTH 3450  Topics in Anthropology  An intensive study of selected topics or emerging fields in anthropology. Topics will vary and be announced each semester. May be repeated for credit with different topics.  3 hours

ANTH 3470  Ethnicity/Multiculturalism  A study of the diverse perspectives of the many different ethnic groups in the United States. In the course we will analyze the social tensions, group dynamics, and consequences resulting from the
cultural and ethnic diversity existing here. Some of the discussion will focus on the medical, legal, social, and political institutions that exist in a multicultural environment. Prerequisite: ANTH 1200 or 1400 or 2400. 3 hours

ANTH 3490 Power and Conflict This course takes an anthropological approach to the study of power, dominance, control, and conflict in various forms and in a number of different contemporary sociocultural contexts. Prerequisite: ANTH 2400 or consent of instructor. 3 hours

ANTH 3500 Primate Evolution An introduction to the functional and evolutionary biology of the primates. An emphasis will be placed on the morphological adaptations characterizing primates throughout their nearly 60 million year evolutionary history. Prerequisite: ANTH 2500 or permission of the instructor. 3 hours

ANTH 3510 Human Osteology A study of the human skeleton. Emphasis will be on morphological and metrical variation, odontology, palaeopathology, and reconstruction of the individual and the population. Prerequisite: ANTH 2500 or consent of instructor. 4 hours

ANTH 3520 Faunal Analysis A hands-on undergraduate methodology course in the identification, analysis, and interpretation of animal bone found in archaeological contexts. Topics will include: taphonomy, quantitative estimation techniques, the relevance of animal behavior to hunting, predator-prey relationships, food transport behavior, subsistence and seasonality, reconstructing the palaeoenvironment, and the meaning of mortality patterns. The course will include both a lecture and a lab component. Prerequisite: Either ANTH 2100 or ANTH 2500, or permission of the instructor. 4 hours

ANTH 3530 Bioarchaeology This course is an issues oriented undergraduate methodology course concerned with the analysis of human remains recovered from archaeological contexts. Topics of discussion include: mortuary practices, age categories and cohorts, assessing growth and development rates, indicators of population health, palaeodemography, palaeopathology, trauma and warfare, occupational indicators, trace elements, and problem solving with metric and/or non-metric variation. The focus of the course will be on extracting information from a human skeletal population in order to reconstruct features such as status differences and the reasons for population increase/decline. Prerequisites: ANTH 2100 and ANTH 2500, or permission of the instructor. ANTH 3510 is also recommended. 3 hours

ANTH 3540 Growth and Development Descriptive, analytical, and evolutionary approaches to the study of the physical growth and development of humans. Postnatal growth, endocrinology of growth, dental and skeletal development, and human diversity will all be explored from an anthropological and an evolutionary perspective. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. 3 hours

ANTH 3550 Anthropology and Marxism This course will provide a critical analysis and historical overview of the Marxist tradition. Special attention will be given to comparing the various Marxist schools as well as outlining the neo-Marxist project and its importance for anthropology in particular and social sciences and humanities in general. Prerequisite: ANTH 2400 or permission of instructor. 3 hours

ANTH 3560 Food and Culture Are we what we eat or how we eat? How do we determine what is food and is not food? This course will examine food cross-culturally and explore the different ways in which human beings produce, distribute, consume and think about food. Special consideration will be given to issues such as the origins of food surpluses and famines, the emergence of global food commodity chains, and the rise of the organic industry. 3 hours

ANTH 3570 The Ends of Life and the Origins of Death This course begins from the premise that no society has reduced the margins of human life - its beginnings and endings - to simple facts of nature. Thus, this course examines the different ways in which human societies have defined "life" and "death," how they have structured social relations around the establishment of opposition or communion between the living and the dead and the ritualized practices establishing definitive belonging in the categories of those who are alive, those who are dead, and those who have never lived. 3 hours

ANTH 3600 Sex, Gender, Culture Sexual differences around the world are culturally elaborated into gender-specific behaviors, normed relations between gender-coded people and objects, and various ideologies supporting the differences. In this course, biological and cross-cultural data will be used to explore the foundation of this process and the social, cultural, and psychological consequences of gender coding on men and women in different cultural settings. 3 hours
ANTH 3800  Highlighting Anthropology  Topics of special interest to people outside anthropology will be emphasized using the workshop or short course format. Examples include: Ancient Americans; Archaeology and You; Forensic Anthropology; Michigan at the Dawn of History. 1 to 3 credit hours. Credit cannot be counted toward the major or minor in anthropology. (May be repeated for credit with a change in topic).  1 to 3 hours

ANTH 4000  Midwest Prehistory  A survey of developments in the midcontinent from the arrival of human populations during the Ice Ages to the point of European contact. Emphasis will be on changing adaptive requirements of the environment over time as reflected in subsistence-settlement behavior, interaction through exchange, and societal complexity. Prerequisite: ANTH 2100 or consent of instructor.  3 hours

ANTH 4040  Early Technologies  This course deals with the analysis and interpretation of early technologies and technological organization and their relationship to social, political, and economic dimensions of cultural systems. Prerequisite: ANTH 2100 or consent of instructor.  3 hours

ANTH 4050  Archaeology of the Great Lake State  Current interpretations of Native American lifeways in the western Great Lakes from the Paleo-Indian through Early Historic periods will be reviewed, with special attention to the State of Michigan. Cultural patterns observed by explorers, traders, and missionaries entering this region in the 17th century provide the frame of reference for an examination of changing strategies for survival reflected especially in the distribution of sites (communities) across the landscape and the nature of activities undertaken from them during the past 10,000 years. Prerequisite: ANTH 2100 or consent of instructor.  3 hours

ANTH 4390  Issues in South American Ethnography  Employing ethnographies about South America, this course is designed to acquaint students with various methodological, theoretical, and topical orientations in ethnographies of the region. Specific issues to be considered may include the cultures of indigenous peoples, religious practices and conversions, the lives of women in indigenous and cosmopolitan settings, ethnicity and race, and the effects of "modernization" on families, children, and health. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisite: ANTH 2400.  3 hours

ANTH 4400  Ethnography  Examines various methods, problems, and issues in ethnographic research and writing, as well as the interaction between ethnographic practice and the development of anthropological theory. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisite: ANTH 2400 or consent of instructor.  3 hours

ANTH 4500  Primate Behavior and Ecology  An advanced survey of the primates. Topics include: primate characteristics; taxonomy, constraints of body size on locomotion and diet; and primate social behavior in an ecological context. The behavioral ecology of individual species will be explored through readings, films, and when possible, direct behavior observation at a zoo. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisite: ANTH 2500 or consent of instructor.  3 hours

ANTH 4600  Money, Consumption, and Cannibals  What do vampires, the devil, and cannibals have to do with money or commodities? This course explores the diverse ways in which individual societies have dealt with money and commodities. How money finds its way into practices ranging from weddings to spirit possession will be examined as well as how money and goods are gendered in different societies. The course also explores the ways in which money and goods, and often the whiteness associated with their introduction, can have literally monstrous connotations. Prerequisite: ANTH 2400.  3 hours

ANTH 4650  Alcohol and Culture  Alcohol is the most widely used drug, and drinking is often a highly ritualised social event. The goal of this seminar is to explore the role alcohol has played historically in politics, society, and the economy from a comparative cross-cultural perspective. Using a wide range of historical, archaeological, and ethnographic evidence, we will identify common themes in the social uses of alcohol and interpret the symbolic meanings societies attach to drinking. Moreover, alcohol is a prism through which to view broader cultural issues, especially class, race, gender, power, and sociability. In the early sessions, students will be introduced to the relatively new field of alcohol studies. Students will also be given some instructions in basic historical and anthropological methods. Throughout the course there will be in-depth discussion of the assigned reading, and each student will eventually discuss his or her research with the class.  3 hours
ANTH 4720 Slavery and Resistance This course explores the development of black slavery in the Americas from its African and European antecedents down through its eradication the nineteenth century. Attention will be given to the Caribbean, and to mainland North and South America, although some areas may receive more emphasis than others. We will adopt a cross-cultural and interdisciplinary perspective toward slavery. Anthropological, historical, archaeological, cliometric, Marxist, and other approaches to slave studies are examined in order to assess competing materialist and idealist viewpoints. The goal is to identify common themes and characteristics of slavery in different historical and cross-cultural contexts.

3 hours

ANTH 4800 Garbage: Humans and their Refuge What happens when you flush the toilet? Why does that question make Americans squeamish? This course examines the various ways that human societies have categorized polluting substances and the various technologies and symbolic practices they have used to place materials outside the boundaries of acceptable sociality.

3 hours

ANTH 4900 Archaeological Field School Archaeological investigation of specific problems relating to the prehistory or history of a particular area (e.g. southwest Michigan, Lower Mississippi Valley). Participants will receive instruction in collecting and evaluating background information, creating a research design and implementing archaeological field-work (i.e., logistics, site location survey, mapping, recovering objects from archaeological contexts), and processing and curating data for analysis and interpretation in the laboratory. May be repeated with permission of instructor, but does not count toward the anthropology major or minor twice. Prerequisite: ANTH 2100 or consent of instructor.

6 hours

ANTH 4980 Independent Readings in Anthropology Students may contact a faculty member to undertake independent readings on a specific topic of interest. The student should have some familiarity with the topic in advance. The purpose of the course is to allow the student to gain a greater depth of knowledge in a topic not offered in a formal course. Prerequisites: Junior or senior standing and a declared major or minor in anthropology.

1 to 3 hours

ANTH 4990 Independent Research in Anthropology Students may contact a faculty member to conduct research under the guidance of the faculty member. Before the initiation of the research a literature search and a written proposal must be prepared. At the conclusion of the research project, a written report will be submitted to the guiding faculty member. Prerequisites: Junior or senior standing and a declared major or minor in anthropology.

1 to 3 hours

ANTH 5000 Topics in Archaeology A consideration of the prehistory of a particular geographic area (e.g. the southwestern United States, the Circumpolar) or of selected theoretical problems (e.g. artifact typology, prehistoric ecology). The topic to be studied will be announced each semester. (May be repeated for credit). Prerequisite: ANTH 1100 or 2100. The prerequisites to 5000-level courses are: Junior status and 12 hours of course work in anthropology, including the specified prerequisite for each class.

3 hours

ANTH 5010 The Rise of Civilization The archaeological sequence in one or more of the nuclear centers of prehistoric civilization will be considered in some detail. The course may focus intensively upon one area (e.g. the Near East or Meso-America), or it may give equal emphasis to two or more areas in a comparative framework. Prerequisites: Junior standing, 12 hours of anthropology and ANTH 2100 or consent of instructor. The prerequisites to 5000-level courses are: Junior status and 12 hours of course work in anthropology, including the specified prerequisite for each class.

3 hours

ANTH 5020 The Origins of Agriculture An intensive study of the human transition from hunting-gathering to cultivation during the post-Pleistocene period. Topics to be treated include: both archaeological and botanical models to explain these processes; the comparison of agricultural systems in various parts of the world; the geographic distribution and biosystematics of selected cultivars; and the cultural systems which have arisen from the economic foundations of plant domestication. Prerequisites: Junior standing, 12 hours of anthropology, and ANTH 1100 or 2100. The prerequisites to 5000-level courses are: Junior status and 12 hours of course work in anthropology, including the specified prerequisite for each class.

3 hours

ANTH 5050 Social Archaeology Investigates the mechanisms of social, political, and economic integration within human social groups by analyzing and interpreting the material world. Focus will vary between communal and complex social forms. Prerequisites: Junior standing, 12 hours of anthropology, and ANTH 2100 or consent of instructor. The prerequisites to 5000-level courses are: Junior status and 12 hours of course work in anthropology, including the specified prerequisite for each class.

3 hours
ANTH 5060  The Archaeology of Gender  Gender constructs, a critical organizing principle for human interaction, are becoming an important focus for archaeological investigation. This course will explore the multiple ways archaeologists have attempted to use gender relations as a means to gain insights into individual societies. We will follow gender as an archaeological concept historically and conceptually. Participants will explore the attempts and successes of a gendered understanding of the archaeological record. Prerequisites: ANTH 2100, junior standing, and 12 hours in anthropology. The prerequisites to 5000-level courses are: Junior status and 12 hours of course work in anthropology, including the specified prerequisite for each class.  3 hours

ANTH 5070  Gender Theories  This course examines the dialogue between anthropologists, feminists theorists and post-structuralists over the course of the 20th century. Beginning with path-breaking works by Margaret Mead and Simone de Beauvoir the course teases out the role that ethnographic scholarship has played in some of the major intellectual debates of the late 20th century, including subjectivity/objectivity and sex/gender.  The prerequisites to 5000-level courses are: Junior status and 12 hours of course work in anthropology, including the specified prerequisite for each class.  3 hours

ANTH 5100  Human Biology  An advanced course in the method and theory involved in the study of the biology of Homo sapiens. Aspects of Human Biology that will be studied from a biocultural perspective include growth and development, infectious disease, nutrition, adaptation to stressful environments, genetics, and demography. Prerequisites: Junior/senior status and 12 hours of Anthropology, including ANTH 2500 or consent of instructor. The prerequisites to 5000-level courses are: Junior status and 12 hours of course work in anthropology, including the specified prerequisite for each class.  3 hours

ANTH 5200  Anthropological Theory  Students are introduced to anthropological theory as a means of raising questions that are significant to the social sciences in general. The importance of theory to ethnographic research and a critical understanding of the social world will be emphasized. The course will also focus on the historical and political roots of anthropology through comparing select theorists from the early British, French, and American schools. Special attention will be given to current theoretical controversies that continue to define the political and ethical concerns of working with human subjects.  Prerequisites: Junior/senior status and 12 hours of Anthropology, including ANTH 2400 or social science equivalent. The prerequisites to 5000-level courses are: Junior status and 12 hours of course work in anthropology, including the specified prerequisite for each class.  3 hours

ANTH 5210  Nationalism, Invented Tradition, and Self-Identity  This course introduces students to the theoretical debates concerning nationalism by evaluating the works of authors such as Anderson, Hobsbawm, and Gellner and by examining select case studies of nationalism in a number of world areas. Emphasis will be on nationalism as a cultural as well as political process so its relation to invented tradition and self-identity will be highlighted.  Prerequisites: ANTH 2400, graduate standing or consent of instructor. The prerequisites to 5000-level courses are: Junior status and 12 hours of course work in anthropology, including the specified prerequisite for each class.  3 hours

ANTH 5220  Poverty, Power, and Privilege  This course critically explores anthropological approaches to understanding poverty as well as racial, class, and sexual inequalities. The course emphasizes inequalities within the contemporary United States, but situates those dynamics within an analysis of global processes and conditions. Particular emphasis is placed on analyzing ways that everyday practices, neoliberal social policies, economic restructuring, resistance efforts, and institutional practices play in producing, challenging, and maintaining structural violence. Feminist, post-structuralist, Marxist, cultural studies, and hegemony studies approaches are covered. Both ethnographic case studies and theoretical analysis are explored to inform collaborative required applied community based anthropological research on power, race, and class relations within the Kalamazoo region.  Prerequisites: Junior/senior status and 12 hours of Anthropology. The prerequisites to 5000-level courses are: Junior status and 12 hours of course work in anthropology, including the specified prerequisite for each class.  3 hours

ANTH 5250  Spirits and Medicine  This course explores how healing is linked to belief and in turn how beliefs about well-being, illness, and treatment are culturally prefigured. Students will examine healing practices in the United States and cross-culturally as they related to belief and consciousness, including western medicine and alternatives, spirit possession and trance, and methods of divination.  Prerequisites: Junior status, 12 hours of anthropology, and ANTH 2400 or consent of instructor.  The prerequisites to 5000-level courses are: Junior status and 12 hours of course work in anthropology, including the specified prerequisite for each class.  3 hours
ANTH 5300 Research Methods An in depth consideration of the research methods and tools of the modern anthropologist. An emphasis on methods and techniques of data collection, statistical analysis, and graphic presentation of a wide variety of anthropological data. Prerequisites: Junior/senior status and 12 hours of Anthropology. The prerequisites to 5000-level courses are: Junior status and 12 hours of course work in anthropology, including the specified prerequisite for each class. 3 hours

ANTH 5310 Medical Anthropology This course starts with the premise that illness is as much a cultural as it is a biological phenomena and explores the ways in which different societies, including our own, perceive and manage illness and disease. The primary focus of the course is to understand the intersection of cultural, social, and political variables in the experience of illness and the practices associated with healing. Specific topics include: ethnomedicine, spiritual healing, primary health care in the developing world, the symbolism of modern medicine, the political economy of health care and AIDS, and inequality. Prerequisites: Junior status, 12 hours of anthropology, and ANTH 2400 or consent of instructor. The prerequisites to 5000-level courses are: Junior status and 12 hours of course work in anthropology, including the specified prerequisite for each class. 3 hours

ANTH 5350 Ethnohistory and Archaeology of the Caribbean The Caribbean is a region of some 30 million people living in the islands stretching from the Bahamas to Trinidad, as well as the continental enclaves of Belize, Surinam, Guyana, and French Guiana. Despite its great cultural, racial, and linguistic diversity, the Caribbean exhibits certain broad social and economic similarities born of its history of slavery and colonialism. Using a wide range of archaeological, documentary, and ethnographic sources, this course seeks to identify common themes in the cultural history of the Caribbean. We will explore the way Indian, European, African, and Asian cultures merged in the Caribbean to create distinct Creole societies. We will examine culture contact between Europeans and the native peoples of the Caribbean and look at the social and economic impact of sugar production on the region. Most importantly, we will investigate the rise and fall of Caribbean slavery. In the early session, students will be introduced to the Caribbean region. Students will also be given some rudimentary instruction in ethnohistorical methods, emphasizing archaeological contributions to the ethnohistorical approach. Prerequisites: Junior/senior status and 12 hours of Anthropology. The prerequisites to 5000-level courses are: Junior status and 12 hours of course work in anthropology, including the specified prerequisite for each class. 3 hours

ANTH 5310 Ethnohistory and Archaeology of the Caribbean The Caribbean is a region of some 30 million people living in the islands stretching from the Bahamas to Trinidad, as well as the continental enclaves of Belize, Surinam, Guyana, and French Guiana. Despite its great cultural, racial, and linguistic diversity, the Caribbean exhibits certain broad social and economic similarities born of its history of slavery and colonialism. Using a wide range of archaeological, documentary, and ethnographic sources, this course seeks to identify common themes in the cultural history of the Caribbean. We will explore the way Indian, European, African, and Asian cultures merged in the Caribbean to create distinct Creole societies. We will examine culture contact between Europeans and the native peoples of the Caribbean and look at the social and economic impact of sugar production on the region. Most importantly, we will investigate the rise and fall of Caribbean slavery. In the early session, students will be introduced to the Caribbean region. Students will also be given some rudimentary instruction in ethnohistorical methods, emphasizing archaeological contributions to the ethnohistorical approach. Prerequisites: Junior/senior status and 12 hours of Anthropology, and ANTH 2400 or consent of instructor. The prerequisites to 5000-level courses are: Junior status and 12 hours of course work in anthropology, including the specified prerequisite for each class. 3 hours

ANTH 5400 Ethnographic Research Methods An exploration of the complexity of ethnographic research methods through a practice oriented approach to training in ethnographic approaches. Students learn a range of qualitative research methods as well as the political, ethical, methodological, and theoretical dilemmas of anthropological fieldwork and writing through supervised fieldwork projects as well as classroom assignments. Prerequisites: Junior/senior status, 12 hours of Anthropology, and ANTH 2400 or consent of instructor. The prerequisites to 5000-level courses are: Junior status and 12 hours of course work in anthropology, including the specified prerequisite for each class. 3 hours

ANTH 5450 Topics in Sociocultural Anthropology An intensive study of the cultures of an area of the world or selected problems. Topics will be announced each semester. (May be repeated for credit.) Prerequisites: Junior standing, 12 hours of anthropology, and ANTH 2400 or consent of instructor. The prerequisites to 5000-level courses are: Junior status and 12 hours of course work in anthropology, including the specified prerequisite for each class. 3 hours

ANTH 5500 Human Evolution This course is designed to provide students with an intensive examination of the human fossil record from the initial divergence of the hominid lineage to the origin of modern homo sapiens. Emphasized in this course will be paleontological theory, issues relating to species definition and recognition, functional anatomical complexes, adaptive processes, and human morphological variation. Prerequisite: ANTH 2500, junior standing, and 12 hours anthropology. The prerequisites to 5000-level courses are: Junior status and 12 hours of course work in anthropology, including the specified prerequisite for each class. 3 hours

ANTH 5510 Evolution of Human Culture This course is designed to provide a platform for discussion of hominin and early modern human culture. Questions for discussion include: Do non-human primates have culture? Is reproductive behavior related to the development of human culture? How can early hominin behavior be modeled? What constitutes modern human behavior in the archaeological record? The course will focus on three problem areas in Old World Prehistory: 1) Chimpanzee material culture and early hominid Oldowan assemblages; 2) the Middle Palaeolithic and the origin of modern humans; and 3) the Upper Palaeolithic and the cultural revolution. Prerequisites: Junior/senior status and 12 hours of Anthropology, including ANTH 2100 or ANTH 2500 or permission of instructor. The prerequisites to 5000-level courses are: Junior status and 12 hours of course work in anthropology, including the specified prerequisite for each class. 3 hours
ANTH 5520 Forensic Anthropology  The study of biological anthropology as it applies to the legal system. Primary emphasis will be on skeletal and dental identification, facial reconstruction, and analysis of time since death. Courtroom procedures and responsibilities of the expert witness in the legal system will be covered. Prerequisites: Junior standing, 12 hours of anthropology, and ANTH 2500 or consent of instructor. The prerequisites to 5000-level courses are: Junior status and 12 hours of course work in anthropology, including the specified prerequisite for each class. 3 hours

ANTH 5550 Topics in Biological Anthropology  A consideration of the biological relationships of specific population groups or general problems in human biology (e.g. human genetics, human growth and constitution, paleoanthropology, dental anthropology). Topic will be announced each semester. May be repeated for credit. Prerequisites: Junior standing, 12 hours of anthropology, and ANTH 2500 or consent of instructor. The prerequisites to 5000-level courses are: Junior status and 12 hours of course work in anthropology, including the specified prerequisite for each class. 3 hours

ANTH 5830 Anthropology and History  The course evaluates the relationship between anthropology and history through reading selected works in each discipline. Theoretical and methodological similarities and differences will be addressed as well as how each discipline writes about the "other." Special attention will be given to the rhetorical devices employed to make ethnographic and historical accounts convincing and the potential to critical scholarship that the ongoing exchange between the two disciplines offers. Prerequisites: ANTH 2400, graduate standing or consent of instructor. The prerequisites to 5000-level courses are: Junior status and 12 hours of course work in anthropology, including the specified prerequisite for each class. 3 hours

Arabic

ARAB 1000 Basic Arabic I  Fundamentals of modern Arabic with emphasis on listening and speaking skills. 4 hours
ARAB 1010 Basic Arabic II  Continuation of ARAB 1000. Prerequisite: ARAB 1000. 4 hours
ARAB 2000 Intermediate Arabic I  The development of written and spoken expression in modern Arabic with an emphasis on grammar review. Prerequisite: ARAB 1010. 4 hours
ARAB 2010 Intermediate Arabic II  Continuation of ARAB 2000. Prerequisite: ARAB 2000. 4 hours
ARAB 2750 Life and Culture of the Arabs  This course introduces specific elements of life and culture in the Arab World, past and present. Those elements include history, religions, geography, languages, arts, politics, and literatures. The course will be offered in English with no prerequisites and will be open for the general student body. The course seeks to create a link between the Arabic language and the culture that provides its natural context. The aim is to provide students with an informed and balanced view of some of the pressing aspects of Arab life and culture, and to do so in such a way as to demonstrate the uniqueness and yet diversity of Arabic sub-cultures on the one hand, and the universality of the Arab culture(s) on the other. 3 hours
ARAB 3000 Advanced Standard Arabic I  Emphasis on increasing the student’s command of Modern Standard Arabic with focus on media and expository writing. Prerequisite: ARAB 2010 or instructor’s permission. 4 hours
ARAB 3010 Advanced Standard Arabic II  Continuation of Arabic 3000 with achievement of advanced-level communicative competence in Modern Standard Arabic with focus on literature and research writing. Prerequisite: ARAB 3000 or instructor’s permission. 4 hours
ARAB 4770 Arabic Foreign Study  Student participation in a departmentally approved program of study abroad. Repeatable for credit up to 32 credit hours. Prerequisite: Prior permission of departmental advisor and chairperson. 1 to 16 hours
ARAB 5020 Arabic for Graduate Study  Arabic instruction for graduate students enrolled in a degree program who need knowledge of Arabic for their field of study. Students will sit in appropriate level course for their learning. May be repeated for credit. May not be taken by undergraduate students in any field. Prerequisites: Approval of department of student's graduate program and approval of Department of Foreign Languages. 3 to 4 hours
ARAB 5200 Topics in Arabic Linguistics and Language Science  The advanced study of a language or a group of languages from a scientific point of view, such as the function and status of languages in society, the comparative history of
different language families or the manipulation of language for pragmatic needs across cultures. May be offered as ARAB/CHIN/FREN/GER/ GREK/ITAL/JPNS/LAT/RUSS 5200. Prerequisites: Completion of 4 courses in area of specialization. 3 hours

ARAB 5500 Independent Study in Arabic Directed individual study of a specific topic in Arabic literature or linguistics. Repeatable for credit. Prerequisite: ARAB 1010 and instructor's permission. 1 to 3 hours

Art
ART 1040 Object Drawing This course focuses on drawing as a vehicle for thinking, seeing and communicating. Work includes drawing from direct observation. Students learn to analyze drawings and improve compositional skills, drawing techniques and methods. The properties of line, value, texture, shape and space are dealt with as elemental to the drawing process. An ability to render and draw expressively, in a variety of materials, is stressed. Prerequisite: ART and ART Education majors and minors only. 3 hours

ART 1050 Drawing Studio This course focuses on the drawing experience as a vehicle for art-making, as a process and to convey ideas. Different types of image-making processes are studied, along with their potentials for meaning. Students learn to invent from observation and imagination, and to assemble disparate information in various types of space. There is also an introduction to historical and contemporary drawing practice from many traditions. Prerequisite: ART and ART Education majors and minors only. 3 hours

ART 1070 Form and Surface This course places emphasis on the development of creative thinking as a vehicle to achieve both communication of content and visual expression. A focus is placed on two-dimensional problem solving, conceptualization and implementation through exposure to a variety of materials, processes, and methodologies. Prerequisite: ART and ART Education majors and minors only. 3 hours

ART 1080 Form and Space This course places emphasis on the development of creative thinking as a vehicle to achieve both communication of content and visual expression. A focus is placed on three-dimensional problem solving, conceptualization and implementation through exposure to a variety of materials, processes and methodologies. Prerequisite: ART and ART Education majors and minors only. 3 hours

ART 1140 Digital Media in the Arts This course will introduce students in Art to the audio, graphics, video and other digital tools used by professionals in the arts. All instruction will be delivered on-line, and students must have a WMU email account before the first class of the semester. Course assignments will be comprised primarily of projects created in the various open computer labs within the College of Fine Arts. The course will be graded on a Credit/No Credit basis. Open only to majors in the School of Art. This course will fulfill the College of Fine Art's computer literacy graduation requirement. Prerequisite: Open only to Art majors. 3 hours

ART 1200 Introduction to Art A topical introduction to the visual arts: painting, architecture, sculpture and the crafts. Discussions and slide presentations on such themes as the meaning of modern art, art as cultural and sociological expression, as symbol, as play and as form. This course will enable the non-art student to develop an art vocabulary and gain insights into our human quest for creative expression. This course meets Area I, Fine Arts, General Education requirement. 3 hours

ART 1300 Studio Experience - (3-D) A course designed for the non-art student as an enriching experience in three-dimensional media to include clay, wood, metal, and other sculptural material. This course may not be elected by majors or minors in art or art education. It is designed primarily for the general university student who wishes to have some experience in art. This course meets Area I, Fine Arts, General Education requirement. 3 hours

ART 1400 Studio Experience - (2-D) A course designed for the non-art student as an enriching experience in two-dimensional media to include painting, drawing and other graphic media. May not be elected by majors or minors in art or art education. This course meets Area I, Fine Arts, General Education requirement. 3 hours

ART 1480 Direct Encounter with the Arts A course that uses a direct approach to introduce students to their cultural world by guiding them through first-hand experiences in a number of areas: cinema, photography, theatre, sculpture, music, poetry, dance and architecture. Classroom discussions are held following the student's participation in the various art
events scheduled each semester, with students expected to write journals and response papers about the major events of the course. There will be a course charge in lieu of textbooks. Cross-listed with DANCE 1480, MUS 1480, THEA 1480. May be taken only once from College of Fine Arts Departments. This course meets Area I, Fine Arts, General Education requirement.

4 hours

ART 1500 Art Education Workshop A studio course structured to provide the classroom teacher with the opportunity to explore, experiment and develop concepts related to art, creativity, and perception. Such concepts are explored and developed through the use of a variety of art materials and techniques. Prerequisite: For the Elementary Education Minor only. May not be taken by Art majors or minors. 3 hours

ART 2000 The Creative Process Through Art Individual involvement in the creative process related to human growth and development by means of exploration with many art media. This course waives the ART 1500 requirement for the Elementary Education majors. 3 hours

ART 2010 Non-Art Major: Drawing This course is a non-professional enrichment experience in basic drawing. The course objectives are 1) to learn basic drawing techniques and their relationships to various media such as graphite, charcoal, and conte crayon, 2) to learn proper usage of papers and drawing tools, and 3) to develop personal expression through drawing. Not applicable to art majors or minors. 3 hours

ART 2020 Non-Art Major: Acrylic Painting This course is a non-professional enrichment experience in basic acrylic painting. The course objectives are 1) to develop a basic understanding of color and composition, 2) to learn the fundamental techniques of application for acrylic paint, and 3) to develop a personal expressive use of the medium. Not applicable to art majors or minors. 3 hours

ART 2030 Non-Art Major: Printmaking This course is a non-professional enrichment experience in basic Printmaking. The course objective is to learn the fundamental techniques of etching, lithography, and block printing. Studio time will be provided for students to work on a project in each of these media. A class fee will be charged to cover the cost of materials and supplies. Not applicable to art majors or minors. 3 hours

ART 2050 Non-Art Major: Sculpture This course is a non-professional enrichment experience in Basic Sculpture. The course objectives are 1) to learn basic techniques of clay modeling and plaster casting, and 2) to develop personal expression in these media. A class fee will be charged for materials and supplies. Not applicable to art majors or minors. 3 hours

ART 2060 Non-Art Major: Ceramics This course is a non-professional enrichment experience in basic Ceramics. The course objectives are 1) to learn the fundamentals of Ceramic construction, including coil building, and limits of clay as a material. A class fee will be charged for clay and glaze supplies. Not applicable to art majors or minors. 3 hours

ART 2070 Non-Art Major: Jewelry This course is a non-professional enrichment experience in basic Jewelry. The course objectives are 1) to learn the proper use of metal-making tools and equipment, 2) to learn the basic techniques of making hand-wrought jewelry, and 3) to develop an awareness of the technical and creative range of metal as a medium for body decoration. A class fee will be charged for materials and supplies. Not applicable to art majors or minors. 3 hours

ART 2080 Non-Art Major: Watercolor This course is a non-professional enrichment experience in basic Watercolor. The course objectives are 1) to learn the proper use of watercolor brushes and tools, 2) to learn basic techniques for manipulating watercolor, and 3) to understand presentation models for finished watercolor paintings. A class fee will be charged for materials and information handouts. Not applicable to art majors or minors. 3 hours

ART 2100 Life Drawing The study of the essential aspects of life drawing (such as gesture, contour, proportions, anatomy, structure, and articulation) and their synthesis into a coherent drawing attitude. Prerequisites: ART 1040, ART 1050, ART 1070, ART 1080. 3 hours

ART 2200 History of Art An historical survey of art from prehistoric ages to the Renaissance. This course meets Area I, Fine Arts, General Education requirement. 3 hours
ART 2210  History of Art  An historical survey of art from the Renaissance through the contemporary period. This
course meets Area I, Fine Arts, General Education requirement.  3 hours

ART 2220  Art of Africa, Oceania, and the Americas  A survey of the diversity of media forms and context within
which Africans, Pacific Islanders and Native Americans make and use art, including contemporary expressions. Art will be
discussed in relation to wider cultural contexts, historical and political ideas, and aesthetic approaches.  3 hours

ART 2230  Introduction to Asian Art History  This course will investigate the history of Asian art from the prehistoric
to the modern periods, including arts of the cultures of China, Japan, Korea, East Asia and India. Art will be discussed in
relation to wider cultural contexts, historical and political ideas, and aesthetic approaches.  3 hours

ART 2300  Ceramics  A course devoted to a survey of pottery processes, including handbuilding, technical
information and a limited experience with the potter's wheel.  Prerequisites:  ART 1040, ART 1050, ART 1070, ART 1080.
3 hours

ART 2310  Sculpture  A fundamental course in sculpture exploring the theories and concepts of three-
dimensional art forms in space. Mechanical, structural and compositional principles will be studied. An overview of
historical sculptural forms will be presented. Prerequisites:  ART 1040, ART 1050, ART 1070, ART 1080.  3 hours

ART 2380  Jewelry and Metalsmithing  A survey of jewelry projects with instruction in design and metal craft.
Copper, brass, and sterling are the principal materials. Basic stone setting and casting procedures are usually included.
Students generally fashion several jewelry pieces in this class. Prerequisites:  ART 1040, ART 1050, ART 1070, ART 1080.
3 hours

ART 2400  Painting I  A fundamental course in oil painting to assist the student in realizing visual observations,
compositional sensitivities, and personal expression through basic painting techniques. Seeing color, mixing color, and
making specific color decisions are the vehicles for studying basic painting methods and space. An overview of historical
painting styles will be presented.  Prerequisites:  ART 1040, ART 1050, ART 1070, ART 1080.  3 hours

ART 2410  Intaglio and Relief  A fundamental exposure to the techniques of Intaglio and Relief printing and an
introduction to print aesthetics.  Prerequisites:  ART 1040, ART 1050, ART 1070, ART 1080.  3 hours

ART 2420  Watercolor Painting  A survey of the application, techniques, and limitations of the watercolor
painting medium. Prerequisites:  ART 1040, ART 1050, ART 1070, ART 1080.  3 hours

ART 2430  Lithography  A basic introduction to Lithography through aluminum plate techniques. Fundamental
discussion of stone lithography and aesthetic possibilities of the medium.  Prerequisites:  ART 1040, ART 1050, ART
1070, ART 1080.  3 hours

ART 2440  Hand Papermaking  An introduction to the basic techniques of hand papermaking as an art form.
Prerequisite:  BA and BFA art majors and minors only.  3 hours

ART 2450  Graphic Design-Non BFA in Graphic Design  An introduction to problem-solving for visual
communication through typographic images. The fundamentals of calligraphy, typography, and typographic design are
investigated in experimental and practical projects. Incorporates research in the communicative potential of color and
structure.  Prerequisites:  ART 1040, ART 1050, ART 1070, ART 1080.  3 hours

ART 2460  Screenprint  Introduction to screenprint fundamentals, techniques and procedures, exploring at length
the expressive potentials of the medium-to include basic color printing procedures.  Prerequisites:  ART 1040, ART
1050, ART 1070, ART 1080.  3 hours

ART 2480  Photography I  Introductory course covering the function of the camera, exposure meter, lenses, b/w
films, processing and printing. Emphasis is placed upon perceptive imagery and development of technical proficiency.
Prerequisites:  ART 1040, ART 1050, ART 1070, ART 1080.  3 hours
ART 2500  Color for Graphic Design  Studies in color theory emphasizing issues and problem solving related to graphic design. This includes investigations in additive and subtractive color theories as applied to reflective and transmitted media, as well as color systems used in graphic reproduction. Prerequisites: ART 1040, ART 1050, ART 1070, ART 1080, and ART 2200; acceptance into BFA in graphic design by portfolio review.  3 hours

ART 2510  Typography I  Studies in the design of letterforms and typographic structure. Emphasis is on developing an understanding of typographic form through drawing and compositional exercises and discussion of perceptual, historical, and technological influences. Computer technology will be investigated. Prerequisites: ART 2500, ART 2600.  3 hours

ART 2520  Art Education Workshop (Majors)  A studio course involving projects, media, and materials, handled on an aesthetic level but appropriate for the creative and maturational ability of the K-12 art student. Prerequisites: ART 2310 or 2380 and 2400. Acceptance into Art Education major is required.  3 hours

ART 2560  Computer Imaging  A course that offers the studio art major the basic skills of computer imaging. Students investigate the power of digital manipulation to transform the aesthetic and conceptual values of media as it passes through the digital domain. Students learn about the acquisition, manipulation, and output of 2D media, in addition to basic animation and interactivity through a variety of software. Prerequisites: ART 1040, ART 1050, ART 1070, ART 1080. 3 hours

ART 2600  Graphic Design I: Visual Aesthetics  Theoretical visual studies in graphic design involving point, line and shape, dealing with formal values and composition. Emphasis on problem solving, skill development, perceptual acuity and an understanding of visual aesthetics. Prerequisites: ART 1040, ART 1050, ART 1070, ART 1080, and (ART 2200 or 2210); acceptance into BFA with a major in graphic design by portfolio review.  3 hours

ART 2610  Graphic Design II: Graphic Form  A continuation of Graphic Design I. Studies in space, form and composition involving an integration and application of formal values and problem solving. Visual systems of pictorial and symbolic form are explored through organic and geometric drawing exercises. Computer technology will be investigated. Prerequisites: ART 2500, ART 2600.  3 hours

ART 3050  Inter-Related Arts Processes: Art, Dance, and Music  Art, dance, and music will be dealt with as the expressive means at the core of the creative and educative process. The student will be exposed to the craftsmanship of each art form, the experiences of synthesizing art forms so that each form contributes to the aesthetic value of the final product.  3 hours

ART 3100  Intermediate Drawing  Drawing as the study of form and as a conclusive aesthetic statement. Model available during approximately one-half of the class meetings. Prerequisite: ART 2100.  3 hours

ART 3210  Topics in Art History: Variable Topics  Investigation of changing topics in art history in class or seminar sessions at an undergraduate level. Course topics are variable. Prerequisites: Art 2200 or 2210 for all School of Art majors. Repeatable for credit under a different topic.  3 hours

ART 3250  Writing About Art  Development of the ability to think, verbalize, and write about art and design. Instruction will address technical issues of writing (syntax, compositional structure, editing format, etc.) and critical evaluation of artistic issues (analysis of the visual experience, research and development of a thesis). Each student will write a series of essays which will form the basis for class discussions. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisite: Junior or senior level Art major only.  3 hours

ART 3270  Writing About Art History  Development of the ability to think, verbalize, and write about art history, art criticism and aesthetics. Instructor will stress research techniques, critical thinking; correct grammar; syntax and spelling; and professional presentation. Writing exercises will include, but are not limited to, a research paper, book review, and a conference abstract and paper. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisites: ART 2200, ART 2210, and Art History major.  3 hours

ART 3300  Ceramics  Continuation of ART 2300 with opportunity for concentration in the medium. Some experimentation in glazing. Prerequisite: ART 2300.  3 hours
ART 3310  Sculpture  Development of individual sculptural direction in all media. Advanced welding, molding and casting techniques are among the media explored. Prerequisite: ART 2310 or consent of instructor. 3 hours

ART 3380  Jewelry and Metalsmithing  Intermediate level metalsmithing work. Continued skill development in jewelry design, stone setting, and solder fabrication. Basic lapidary work usually included. Prerequisite: ART 2380. 3 hours

ART 3400  Painting II  Continuation of ART 2400. Prerequisite: ART 2400. 3 hours

ART 3410  Intaglio and Relief  An intermediate course continuing the investigation of basic and advanced Intaglio and Relief techniques with the introduction of color printing. The artist-student should begin to discover and adapt media and/or techniques (or synthesis of media and/or techniques) appropriate to individual aesthetic intentions. Prerequisite: ART 2410. 3 hours

ART 3420  Watercolor  Advanced problems in watercolor techniques to include composition. Prerequisite: ART 2420. 3 hours

ART 3430  Lithography  An intermediate investigation of Lithography based on basic skills with the introduction of color printing and other advanced techniques. The artist-student should begin to discover methods and techniques adaptable and appropriate to his aesthetic intent. Prerequisite: ART 2430. 3 hours

ART 3440  Hand Papermaking  The techniques of producing paper to be used as support for various media. Prerequisite: ART 2440. 3 hours

ART 3460  Screenprint II  An intermediate course continuing the investigation of basic and advanced screenprint stencil techniques with the introduction of photo-stencil methods. The artist/students should begin to discover and apply methods of technique appropriate to their aesthetic intent. Prerequisite: ART 2460. 3 hours

ART 3480  Photography II  A course that provides an exploration of the technical and conceptual application of color in photography. Studies in the theories of subtractive and additive color. Instruction on both traditional color printing practice and non-traditional means of color image generation and digital technologies will be included. Emphasis is placed upon the function of color to develop individual imagery. Prerequisite: ART 2480. 3 hours

ART 3500  Typography II  Exploring compositional relationships involving the single word, line, column, page arrangement and structural systems. Semantic and syntactic issues will be investigated in projects and exercises. Computer technology will be investigated. Prerequisites: ART 2610, ART 2510. 3 hours

ART 3510  Typography III  Dealing with systems, sequence and series as complex typographic problems. Application of theoretical, pragmatic and technical issues to problems common in publication and institutional communication. Computer technology will be investigated. Prerequisites: ART 3500, ART 3600. 3 hours

ART 3520  Preparation for Art Teaching (Elementary)  A teaching laboratory course designed to familiarize prospective elementary art teachers with teaching philosophies, methods and creative teaching procedures using varied media, and materials. Emphasis is placed upon qualitative art programming in the elementary school. Prerequisite: ART 2520. 3 hours

ART 3560  Web Design  A course that provides the advanced student the opportunity to explore artistic production through the network environment. The class will focus on art made expressly to be experienced on the World Wide Web and will investigate the role of the artist working in this on-line environment. Critical issues relating to new media will be discussed. Personal expression and content development will be emphasized along with techniques for webpage construction. Prerequisite: ART 2560. 3 hours

ART 3600  Graphic Design III: Visual Systems  The study of grids and other systems in graphic design and their application to communication problems. Functions as a transitional phase from theoretical issues to applied problems. Computer technology will be investigated. Prerequisites: ART 2510, ART 2610. 3 hours
ART 3610 Graphic Design IV: Design Applications  Continuation of Graphic Design III as a transitional phase from the theoretical to the applied design problem. The evolution of design process is explored and developed. Involves the visual study of grids and systems and their applications. Computer technology will be investigated.  Prerequisites: ART 3500, ART 3600.  3 hours

ART 3630 Native American Art  An exploration of the variety and vitality of the arts of American Indian people of North America living north of the Rio Grande from prehistoric times to the present, placing these arts within the framework of the historical and cultural contexts in which they are made.  3 hours

ART 3640 African Art  An exploration of the variety and vitality of the arts of American Indian people of North America living north of the Rio Grande from prehistoric times to the present, placing these arts within the framework of the historical and cultural contexts in which they are made.  3 hours

ART 3650 Chinese Art  Historical investigation of the major traditions of Chinese painting. Emphasis will be given to the analysis of style, subject matter, techniques, and aesthetics as well as the social, political, and cultural contexts.  3 hours

ART 3660 Japanese Art  Historical investigation of the major traditions of Japanese painting. Emphasis will be given to the analysis of style, subject matter, techniques, and aesthetics as well as the social, political, and cultural contexts.  3 hours

ART 3670 Arts of India  Exploration of the visual culture of India, from the Indus Valley Civilization until the advent of the British Raj in India in the seventeenth century. Fundamental to this course will be the meaning and symbolic content of the works of art, specifically in relation to the major religious traditions of India, namely Hinduism, Buddhism, and Islam.  3 hours

ART 3710 Special Topics  Topics offered could be any of the following: package design, exhibit design, sign/symbol design, interactive electronic media, photographics, type as image, applied color, visual translation, and any additional topic of interest. Prerequisites: ART 3500, ART 3600.  3 hours

ART 3810 Greek and Roman Art  Discussion of Greek and Roman art from 3000 BCE to 400 CE. Material covered will include Cycladic, Minoan, and Mycenaean, as well as the many stylistic divisions of the Greek and Roman periods. Prerequisite: Art 2200.  3 hours

ART 3830 Medieval Art  Presentation of art and architecture from the decline of the Roman Empire through the Gothic Period. Special attention will be paid to the intersection between Medieval religious traditions and the visual arts. Prerequisite: ART 2200.  3 hours

ART 3850 Renaissance Art  Presentation of Renaissance art from the thirteenth through the sixteenth centuries, including the pre-Renaissance, Renaissance, and Mannerist styles. Special attention will be paid to the intersection between contemporary religious and political traditions and the visual arts. The class will focus on the Italian tradition, but will include examples from the Northern Renaissance. Prerequisite: ART 2210.  3 hours

ART 3860 Baroque Art  Presentation of European and colonial art of the late sixteenth, seventeenth, and early eighteenth centuries. The social and political context of the art will be examined in addition to traditional methods of art criticism, formal analysis, and connoisseurship. Prerequisite: ART 2210.  3 hours

ART 3880 Nineteenth Century European and American Art  Major developments, such as Neo-Classicism, Romanticism, Realism, Impressionism, and Post-Impressionism are examined in Europe and America. Recent approaches to the study of nineteenth-century art will be examined. Prerequisite: ART 2210.  3 hours

ART 3890 European and American Art 1900—1945  Emphasis is placed upon the roots of contemporary trends and the contributions of individuals to new modes of presentation in Europe and America. Major developments, including Fauvism, Cubism, Expressionism, and Surrealism are discussed using both traditional and current methods of analysis. Prerequisite: ART 2210.  3 hours
ART 3900 Twentieth-Century Art: 1945 to Present  Major trends in art since World War II are discussed. Emphasis is placed upon contemporary methods of art theory and criticism. Prerequisite: ART 2210. 3 hours

ART 3910 Women in Art  Historical survey of selected women painters, sculptors, architects, designers, and craftspersons. Investigation of the individual and group artistic contributions of these women in the context of their historical setting. Particular emphasis will be placed on women artists' roles in society and the arts community as they evolved in the last century. Prerequisite: ART 2200 or 2210. 3 hours

ART 3920 Twentieth Century Design History  Major trends in design in the past 100 years, beginning with the Arts and Crafts movement through post modernism. Major developments include Art Nouveau, Art Deco and the Bauhaus. Art forms include architecture, interior design, graphics, illustration and crafts. Prerequisite: ART 2210. 3 hours

ART 4350 Art of the Book  Discussion of the art of book illustration from medieval to modern times. The class will examine various approaches to layout and design, as well as different theories of illustration and narration. Prerequisites: ART 2200 and 2210. 3 hours

ART 4360 Contemporary/Alternative Art  Examination of how painting and sculpture in the 20th century began to give way to new forms of artistic expression. Media to be considered will include recent video, computer, performance, and installation art. The works will be approached in relationship to earlier 20th-century sources such as Dada, Surrealism, and Fluxus. Prerequisite: ART 2210. 3 hours

ART 4370 History of Photography  Survey of photography from its early years to the present with emphasis on its aesthetic, historical, technical, and social contexts. Prerequisite: ART 2210. 3 hours

ART 4480 Photography III  A course that provides an introduction to the view camera, studio lighting, and advanced techniques in black and white, and color photography. Technical assignments will focus on the mastery of this equipment and the integration of advanced skills into creative work. Prerequisite: ART 3480. 3 hours

ART 4520 Preparation for Art Teaching (Secondary)  This course is designed to provide the art education student with the professional knowledge, skills, and practice for teaching in middle and high schools. It focuses on developing teaching strategies that include writing outcome statements, developing appropriate curriculum and activity materials, developing assessment techniques, and developing classroom management techniques and professional classroom methods. The course deals with teaching and understanding techniques for Discipline Based Art Education. Practicum field work is required as part of this course. Prerequisites: ART 2520, 3520, and Art Education major status. 3 hours

ART 4560 Introduction to Time-Based Media  A course that provides an introduction to multimedia authoring software that combines image, text, animation, video, sound, or user interactivity. The class will focus on the effective presentation of ideas and the development of well-crafted and effective user interfaces. Prerequisite: ART 3560. 3 hours

ART 4600 Graphic Design V: Advanced Problems  Applied design problems of an advanced complex nature emphasizing design methodology and research. Input from the community and outside sources will be a focus for the problem solving process. The problems will deal with a series of related parts and involve conventional and new media. The emphasis will be on analysis as it applies to the theoretical and applied project. This will include the experiences of design teams. Computer technology will be utilized. May be taken in conjunction with ART 5800 Intern I. Prerequisites: ART 3510, ART 3610. 3 hours

ART 4610 Graphic Design VI: Senior Projects  Individual Senior Thesis projects. Involves topic research and design solutions to complex problems as a culmination of studies in graphic design. Emphasis will be on research, design process, methodology and innovation. Computer technology will be utilized. Prerequisite: ART 4600. 4 hours

ART 4660 Buddhist Art  This course is an examination of the major Buddhist traditions in Asia, focusing on the visual arts of India, Nepal, Tibet, and Japan. Particular attention will be given to Buddhist iconography from an historical viewpoint, emphasizing the relationship of the arts and religious practices. The course will also explore the mutual exchanges and influences exerted by Buddhism throughout Asia as well as the distinctive religious expressions within each region. Prerequisite: Art 2230 or Art 3650 or Art 3660 or Art 3670. 3 hours
ART 4710  Special Topics in Photography and Intermedia  An advanced seminar class which focuses on contemporary critical discourses in photography and intermedia. Critical readings are partnered with studio projects. Course topic varies from semester to semester. Prerequisite: ART 3480.  3 hours

ART 4900  Graduation Presentation and Seminar-Painting  Investigation and evaluation of contemporary topics and trends in painting. Students will be exposed to how painters express their ideas through visiting artist programs, exhibitions, workshops and seminars encouraging students to select and develop their own research topic. Preparation and presentation of graduating exhibition in painting to include slide documentation and oral examination or written thesis. Evaluation by a departmental reviewing committee. Prerequisites: Senior standing and BFA candidacy.  3 hours

ART 4910  Graduation Presentation and Seminar-Sculpture  Investigation and evaluation of contemporary topics and trends in sculpture. Students will be exposed to how sculptors express their ideas through visiting artist programs, exhibitions, workshops and seminars encouraging students to select and develop their own research topic. Preparation and presentation of graduating exhibition in sculpture to include slide documentation and oral examination or written thesis. Evaluation by a departmental reviewing committee. Prerequisites: Senior standing and BFA candidacy.  3 hours

ART 4900  Graduation Presentation and Seminar-Graphic Design  Investigation and evaluation of contemporary topics and trends in graphic design. Students will be exposed to how graphic designers express their ideas through visiting artist programs, exhibitions, workshops and seminars encouraging students to select and develop their own research topic. Preparation and presentation of graduating exhibition in graphic design to include slide documentation and oral examination or written thesis. Evaluation by a departmental reviewing committee. Prerequisites: Senior standing and BFA candidacy.  3 hours

ART 4930  Graduation Presentation in Photography and Intermedia  Investigation and evaluation of contemporary topics and trends in photography and intermedia. Students will be exposed to how photographers and intermedia artists express their ideas through visiting artist programs, exhibitions, workshops and seminars encouraging students to select and develop their own research topic. Preparation and presentation of graduating exhibition in photography and intermedia to include slide documentation and oral examination or written thesis. Evaluation by a departmental reviewing committee. Prerequisites: Senior standing and BFA candidacy.  3 hours

ART 4940  Graduation Presentation and Seminar-Printmaking  Investigation and evaluation of contemporary topics and trends in printmaking. Students will be exposed to how printmakers express their ideas through visiting artist programs, exhibitions, workshops and seminars encouraging students to select and develop their own research topic. Preparation and presentation of graduating exhibition in printmaking to include slide documentation and oral examination or written thesis. Evaluation by a departmental reviewing committee. Prerequisites: Senior standing and BFA candidacy.  3 hours

ART 4950  Graduation Presentation and Seminar-Jewelry/Metalsmithing  Investigation and evaluation of contemporary topics and trends in jewelry/metalsmithing. Students will be exposed to how jewelers express their ideas through visiting artist programs, exhibitions, workshops and seminars encouraging students to select and develop their own research topic. Preparation and presentation of graduating exhibition in jewelry/metalsmithing to include slide documentation and oral examination or written thesis. Evaluation by a departmental reviewing committee. Prerequisites: Senior standing and BFA candidacy.  3 hours

ART 4960  Graduation Presentation and Seminar-Ceramics  Investigation and evaluation of contemporary topics and trends in ceramics. Students will be exposed to how ceramists express their ideas through visiting artist programs, exhibitions, workshops and seminars encouraging students to select and develop their own research topic. Preparation and presentation of graduating exhibition in ceramics to include slide documentation and oral examination or written thesis. Evaluation by a departmental reviewing committee. Prerequisites: Senior standing and BFA candidacy.  3 hours

ART 4990  Senior Thesis  Capstone course required for Art History majors in which the student revises a research paper written in an upper division course in order to produce a paper of publication quality. Art History majors only; registration requires approval by supervising faculty member.  1 hour

ART 5000  Independent Studies  An opportunity for qualified undergraduates to elect an area of special interest and pursue it in depth. Prerequisite: Permission of department. Repeatable for credit. Open to Upperclass and Graduate Students 1 to 6 hours
ART 5100 Drawing Workshop Continuation of ART 3100. Prerequisite: ART 3100. Repeatable for credit. Open to Upperclass and Graduate Students 1 to 6 hours

ART 5200 Independent Study in Art History Problems in Art History from ancient times to the present, selected by the individual student in consultation with the instructor. Prerequisites: ART 2200, ART 2210, and an ART 5000-level course in the area of interest; permission of department. Repeatable for credit. Open to Upperclass and Graduate Students 2 to 3 hours

ART 5210 Topics in Art History: Variable Topics Investigation of changing topics in art history in class or seminar sessions by advanced students. Course title varies from term to term. Repeatable for credit under a different title. Prerequisites: Art History major or minor with junior status of higher; MFA candidates and other undergraduate and graduate students with permission of instructor. Open to Upperclass and Graduate Students 3 hours

ART 5220 Topics in Medieval and Renaissance Art Investigation of changing topics in Medieval and Renaissance art history in seminar sessions. Advanced theory and methods are stressed. Research papers are required. Course has variable topics. Prerequisites: Art History major or minor with junior status or higher; MFA candidates and other undergraduate and graduate students with permission of instructor. Open to Upperclass and Graduate Students 3 hours

ART 5230 Topics in Modern Art Investigation of changing topics in modern art in seminar sessions. Advanced theory and methods are stressed. Research papers are required. Course has variable topics. Prerequisites: Art History major or minor with junior status or higher; MFA candidates and other undergraduate and graduate students with permission of instructor. Open to Upperclass and Graduate Students 3 hours

ART 5240 Topics in Native American and African Art Investigation of changing topics in Native American and African art in seminar sessions. Advanced theory and methods are stressed. Research papers are required. Course has variable topics. Prerequisites: Student must be an Art History major or minor with junior status higher; MFA candidates and other undergraduate and graduate students with permission of instructor. Open to Upperclass and Graduate Students 3 hours

ART 5250 Topics in Asian Art Investigation of changing topics in Asian art in seminar sessions. Advanced theory and methods are stressed. Research papers are required. Course has variable topics. Prerequisites: Art History majors or minors with junior status or higher; MFA candidates and other undergraduate and graduate students with permission of instructor. Open to Upperclass and Graduate Students 3 hours

ART 5270 Art History Methods Intensive study of the methods, literature, and research techniques used in art historical inquiry and writing. Prerequisite: Art History major or minor with junior status or higher; MFA candidates and other undergraduate and graduate students with permission of instructor. Open to Upperclass and Graduate Students 3 hours

ART 5290 Art History Internship Designed to provide Art History majors with professional knowledge and skills in the following areas: gallery, museum, archival, visual resources library work, arts advocacy, and arts administration. Students are supervised by an Art History faculty member and a supervisor in the organization where the student is placed. Art History majors and minors only; registration requires approval by supervising faculty member. Open to Upperclass and Graduate Students 1 hour

ART 5300 Ceramics Workshop Advanced work in ceramics on an independent basis. Prerequisite: ART 3300. Repeatable for credit. Open to Upperclass and Graduate Students 1 to 6 hours

ART 5310 Sculpture Workshop Continuation of ART 331. The advanced student explores the expressive possibilities of his or her own individual sculptural direction, with bronze and aluminum casting related techniques. Prerequisite: ART 3310. Repeatable for credit. Open to Upperclass and Graduate Students 1 to 6 hours

ART 5350 Multi-Media Workshop Various forms of art that deviate from conventional media, such as light, kinetic, and performance art. The student is expected to have a solid background in one of the traditional art forms, such as ceramics, painting, sculpture, printmaking, drawing, graphic design or metals. Permission of instructor is required. Repeatable for credit. Open to Upperclass and Graduate Students 1 to 6 hours
ART 5380  Jewelry and Metalsmithing Workshop    Advanced work in jewelry design and metalsmithing. Students collaborate with the instructor to plan a suitable and particular direction for study. Prerequisite: ART 3380. Repeatable for credit. Open to Upperclass and Graduate Students 1 to 6 hours

ART 5400  Painting Workshop      Continuation of ART 3400. Prerequisite: ART 3400. Repeatable for credit. Open to Upperclass and Graduate Students 1 to 6 hours

ART 5410  Printmaking Workshop     An advanced workshop for experienced printmaking students; all printmaking media available; emphasis on development of personal concepts and refinement of methods appropriate to individual needs through research. Prerequisite: ART 3410 or 3430 or 3460. Repeatable for credit. Open to Upperclass and Graduate Students 1 to 6 hours

ART 5420  Watercolor Workshop       Continuation of advanced watercolor techniques with emphasis on experimentation. Prerequisite: ART 3420. Repeatable for credit. Open to Upperclass and Graduate Students 1 to 6 hours

ART 5480  Photography Workshop        Professional development through research in advanced projects. Course is repeatable for credit. Prerequisite: ART 4480. Open to Upperclass and Graduate Students 1 to 4 hours

ART 5520  Preparation for Art Teaching    A course dealing with: the current social problems and issues which affect teaching and learning in the visual arts at all levels of the public school; the creative person, product, process, and press (environment); phenomena of perceptual learning; the actual construction of an operant art curriculum for the elementary, middle, and high school programs. Prerequisites: ART 4520 and art education major status. Open to Upperclass and Graduate Students 3 hours

ART 5530  Independent Studies in Art Education     An arranged elective course in which the student investigates and researches a problem, a project, or trends in art education. (Not to be taken in place of required art education courses.) Prerequisites: ART 2520, ART 3520, ART 4520, ART 5520 and permission of the art education area coordinator. This course is open to graduate and non-degree level students. Open to Upperclass and Graduate Students 1 to 6 hours

ART 5560  Video        A course that provides an advanced studio experience for students interested in working with computer tools and ideas that have affected the growth of new visual media. The class begins with the introduction to single camera video production strategies, concepts, and non-linear video editing. This course is repeatable for credit. Prerequisite: ART 4560. Open to Upperclass and Graduate Students 1 to 4 hours

ART 5600  Arts Education for the Elementary Teacher      A studio course for the elementary classroom teacher to provide experiences in qualitative elementary art and integrated arts programming in the elementary public school. Repeatable for credit. Open to Upperclass and Graduate Students 3 hours

ART 5700  Intern I   Design practicum in Design Center. Involves an introduction to problem-solving for clients from the community and university. Focus is on the design process from concept to completion and involves client contact, budget preparation, electronic pre-press production and interface with printers and the printing industry. Prerequisites: ART 3510, ART 3610. Open to Upperclass and Graduate Students 3 hours

ART 5710  Intern II  Design practicum in Design Center. Involves problem solving for clients from the community and university. Focus is on the design process from concept to completion and involves design team experience, client contact, budget preparation, electronic pre-press production and interface with printers and printing industry. Credits are variable due to the fact that larger, more intense projects are sometimes given and the credits are determined by the depth of the project. Prerequisites: ART 4600, ART 5800. Open to Upperclass and Graduate Students 3 to 6 hours

ART 5900  Drawing and Painting Studio     An instructor-directed graduate level course of study that helps the student develop a personal pictorial language, explore a variety of aesthetic concepts, investigate different processes while working with both traditional and non-traditional materials/media, and become familiar with contemporary art theories in drawing and painting. The primary focus of this course of study is on the making of original works of art and integrating new understandings into one's own pedagogy. Prerequisite: Admission to Master of Arts in Art Education program. Open to Upperclass and Graduate Students 2 hours
ART 5920 Photography Studio  An instructor-directed graduate level course of study that helps the student develop a personal pictorial language, explore a variety of aesthetic concepts, investigate different processes while working with both traditional and non-traditional photography media and materials. Students will become familiar with contemporary art theories related to photography. The primary focus of this course of study is on the making of original works of art and integrating new understandings into one's personal pedagogy. Prerequisite: Admission to Master of Arts in Art Education program. Open to Upperclass and Graduate Students  2 hours

ART 5930 Digital Imaging Studio  An instructor-directed graduate level course of study that helps the student develop a personal pictorial language, explore a variety of aesthetic concepts, and investigate different processes while working with digital technologies. Students will become familiar with contemporary art theories. The primary focus of this course of study is on the making of original works of art and integrating new understandings into one's own pedagogy. Prerequisite: Admission to Master of Arts in Art Education program. Open to Upperclass and Graduate Students  2 hours

ART 5940 Ceramics Studio  An instructor-director graduate level course of study that helps the student explore the limits of clay, work toward a significant degree of growth, be innovative and creative, and gain insight and personal experience of ceramic process and technique. Traditional and contemporary approaches to clay will be demonstrated. Primary focus will be on ceramic objects, both functional and sculptural. Prerequisite: Admission to Master of Arts in Art Education program. Open to Upperclass and Graduate Students  2 hours

ART 5950 Sculpture Studio  An instructor-directed graduate level course of study that helps the student develop a personal visual language, explore a variety of aesthetic concepts, and investigate different processes while working with both traditional and non-traditional sculpture media/materials. Students will become familiar with contemporary art theories related to sculpture. The primary focus of this course of study is on the making of original works of art and integrating new understandings into one's personal pedagogy. Prerequisite: Admission to Master of Arts in Art Education program. Open to Upperclass and Graduate Students  2 hours

ART 5960 Printmaking Studio  An instructor-directed graduate level course of study that helps the student develop a personal pictorial language, explore a variety of aesthetic concepts, investigate different processes while working with both traditional and non-traditional printmaking media and materials. Students will become familiar with contemporary art theories related to printmaking. The primary focus of this course of study is on the making of original works of art and integrating new understandings into one's personal pedagogy. Prerequisite: Admission to Master of Arts in Art Education program. Open to Upperclass and Graduate Students  2 hours

ART 5970 Jewelry and Metalsmithing Studio  An instructor-directed graduate level course of study that helps the student develop a personal visual language, explore a variety of aesthetic concepts, investigate different processes while working with both traditional and non-traditional media and materials. Students will become familiar with contemporary art theories related to jewelry and metalsmithing. The primary focus of this course of study is on the making of original works of art and integrating new understandings into one's personal pedagogy. Prerequisite: Admission to Master of Arts in Art Education program. Open to Upperclass and Graduate Students  2 hours

Arts and Sciences

A-S 3040 Nonwestern World This course uses the evolution of modes of production as a key to gaining a meaningful understanding of the cultures of Africa and Asia. Its conceptual framework is the ageless struggle of humankind to (1) come to terms with nature (cultural evolution), (2) come to terms with one another (social evolution), and (3) raise consciousness (the evolution of "universalizing" values. This enables the student to compare and contrast African, Asian, and "Western" cultures; to analyze the impact of these cultures on one another; and to understand the "indivisible nature of the human condition." The course is cross-listed with SOC 3040. 4 hours

A-S 3200 Interinstitutional Study Students may take classes at Davenport College, Kalamazoo College, and Kalamazoo Valley Community College through a cooperative program using this course number for credit toward a WMU degree. Information and enrollment forms may be obtained from the Registrar's Office. Where credit toward the major or minor is desired, prior approval must be obtained from the student's major and/or minor department. Repeatable. 1 to 12 hours
A-S 3900 Arts and Sciences Seminar A variable topics course in interdisciplinary studies or other subjects that fall outside the traditional disciplines. May be taken as an elective or for credit in an Arts and Sciences major or minor by special arrangement with the department. Topics will be announced in the Schedule of Classes. May be repeated once when topic differs. Prerequisite: Permission of the instructor. 1 to 4 hours

A-S 3990 Field Experience (Community Participation) A program of independent study combining academic work with social, environmental, civic or political field work. May be used as elective credit only. Repeatable. Prerequisites: A written outline of the student's project, approved by a faculty supervisor, with approval from the office of the Dean. 2 to 8 hours

A-S 4960 Writing-Intensive Mentored Portfolio A student portfolio will be developed in conjunction with a faculty mentor. The faculty mentor will aid the student in the development of the portfolio and will evaluate its contents. The portfolio may be Based upon information about their "life experience," professional experience, credits from professional job training seminars and/or significant classroom projects. The course will include at least four significant writing experiences to meet the Baccalaureate Writing requirement. Mentored Portfolio credit can be used for all or part of the Professional Studies capstone experience. Students are required to seek advising prior to taking their first capstone experience. The course may be repeated for a total of six credit hours. Application forms are available from the College of Arts and Sciences advising office, the advising office at the WMU Branch Campuses and on the advising page of the College web site (<a href="http://www.wmich.edu/advising.html" target="_blank">http://www.wmich.edu/advising.html</a>). This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisites: Approved application and permission of instructor. 3 to 6 hours

A-S 4970 Mentored Portfolio A student portfolio will be developed in conjunction with a faculty mentor. The faculty mentor will aid the student in the development of the portfolio and will evaluate its contents. The portfolio may be Based upon information about their "life experience," professional experience, credits from professional job training seminars and/or significant classroom projects. Mentored Portfolio credit can be used for all or part of the Professional Studies capstone experience. Students are required to seek advising prior to taking their first capstone experience. The course may be repeated for a total of six credit hours. Application forms are available from the College of Arts and Sciences advising office, the advising office at the WMU Branch Campuses and on the advising page of the College web site (<a href="http://www.wmich.edu/advising.html" target="_blank">http://www.wmich.edu/advising.html</a>). Prerequisites: Approved application and permission of instructor. 2 to 6 hours

A-S 4980 Directed Independent Study A program of independent study (reading or research) that allows the student to pursue a subject that falls outside of the traditional disciplines. The initiative for describing the project, planning the method(s) of investigation, determining appropriate product or results, and securing the cooperation of a faculty member to supervise the work must come from the student. Application forms may be picked up in the College of Arts and Sciences Advising Office and must be approved by the Dean of the College. Approval is contingent on the merit of the proposal. Repeatable up to the maximum of 6 credit hours. Prerequisites: Approved application and permission of the instructor. 1 to 6 hours

Aviation

AVS 1110 Foundation of the United States Air Force Introduction to the U.S. Air Force today. Mission and organization; group leadership problems; introduction to communication skills. Leadership laboratory. Prerequisite: Department approval required. 1 hour

AVS 1120 Foundation of the United States Air Force II Introduction to the U.S. Air Force today. Mission and organization; group leadership problems; introduction to communication skills. Leadership laboratory. Prerequisite: Department approval required. 1 hour

AVS 1200 Introduction to Aviation This course surveys the major topics in the aviation industry. Components of the course include history, regulations, air space, fundamentals of flight, propulsion, and navigation. Basic crew concepts are introduced and various career paths are investigated. Corporate, airline and airport operations are discussed. 2 hours

AVS 1210 Aerodynamics and Performance Theory of flight, aircraft structure and control, propulsion, performance, and weight and balance. Students in AFAJ, AFBJ, AVAJ, MTCJ only. 2 hours
AVS 1220 Aircraft Systems Flight, navigation, and electrical systems. Maintenance and airworthiness requirements. Students in AFAJ, AFBJ, AVAJ, MTCJ only. Recommend taking AVS 1230 concurrently. 3 hours

AVS 1230 Aircraft Systems Laboratory This is a laboratory which relates to the topics covered in AVS 1220. It provides hands on familiarization and training with the construction, operation, and control of light aircraft systems. Students in AFAJ, AFBJ, AVAJ, MTCJ only. Prerequisites: AVS 1220 or taken concurrently (recommend taking concurrently). 2 hours

AVS 1410 Certified Accelerated Pilot Training I Light aircraft systems and propulsion. Basic systems including engine, propeller, flight controls, electrical, fuel, landing gear and brakes. Principles of flight and control. Aerodynamics and performance, weight and balance. Flight physiology and the effects of flight on human performance. Includes a systems laboratory. Students in AFAJ and AFBJ only. Prerequisites: Department approval required, and AVS 1200, GEOG 1050, MATH 2000, PHYS 1070/1080 or PHYS 1130/1140. May be taken concurrently with AVS 1420. 8 hours

AVS 1420 Certified Accelerated Pilot Training II Introduction to flight procedures and rules. Theory and practice of visual flight operations and navigation. Aviation meteorology. Includes a flight laboratory. Students in AFAJ and AFBJ only. Prerequisites: AVS 1410 (or taken concurrently) and department approval. 8 hours

AVS 2050 Aviation Safety Physiological and psychological factors relating to flight safety emphasizing cause and effect of airplane accidents and related problem-solving processes. Includes a systems approach to safety program development and management. Prerequisite: AVS 1050 or consent of instructor. 3 hours

AVS 2060 Flight Physiology Effects of high altitude flight on the human body, flying and health, first aid and survival. Attention will also be given to information processing and perception in flight. Prerequisite: AVS 2050. 3 hours

AVS 2210 Professional Flight I Theory Ground instruction leading to the successful completion of the Private Pilot Knowledge Exam. Students in AFAJ, AFBJ, AVAJ, MTCJ only. DF Prerequisites: Chief flight instructor approval, AVS 1200, AVS 1210, AVS 1220, or AVS 1230, or taken concurrently. (Application required for approval by chief flight instructor, FAA 2nd class medical certificate required.) Corequisite: AVS 2220. 3 hours

AVS 2220 Professional Flight I Lab Initial flight and simulator instruction in aeronautical skills and knowledge necessary for private pilot certification and select commercial pilot applications. Students in AFAJ, AFBJ, AVAJ, MTCJ only. Prerequisite: Chief flight instructor approval Application required for approval by chief flight instructor, FAA 2nd class medical certificate required. Corequisite: AVS 2210. 2 hours

AVS 2410 Certified Accelerated Pilot Training III Instrument flight procedures and rules. Theory and practice of IFR enroute and airport operations. Aviation safety concepts and practices. Includes a flight laboratory. Students in AFAJ and AFBJ only. Prerequisites: AVS 1420 and department approval. 8 hours
AVS 2420 Certified Accelerated Pilot Training IV Advance navigation systems and international navigation. Long range flight planning and transport aircraft performance. Advance aerodynamics and performance. Crew resource management, cockpit communication and decision-making. Students in AFAJ and AFBJ only. Prerequisites: AVS 2410 or taken concurrently and department approval required. 8 hours

AVS 2610 Maintenance Regulations Regulatory structure and legal environment impacting aviation maintenance operations and practices. Including discussion of the Federal Aviation Regulations rule making process, legal documentation, and maintenance publications required for repair station and airworthiness. Students in MTCJ only. Prerequisite: AVS 1200. 2 hours

AVS 2620 Aircraft Structures I Basic aircraft structures including materials, assembly methods, inspection and repair. Primary and secondary flight control operations and rigging, finishing and corrosion control, and aircraft drawings are also covered. Students in MTCJ only. Prerequisites: AVS 1200, PHYS 1070/1080, CHEM 1100/1110. 3 hours

AVS 2630 Basic Aircraft Engines Introduction of basic power plants concepts and principles, including Otto, Diesel, and Brayton cycles of operation. Laboratory work includes engine disassembly. Students in MTCJ only. Prerequisites: AVS 1200, PHYS 1070/1080, CHEM 1100/1110. 4 hours

AVS 2640 Aircraft Electrical I Laboratory study of basic electricity including electron theory, Ohm's law, Kirchhoff's laws, electrical power, series and parallel circuits, and aircraft electrical wiring. Students in MTCJ only. Prerequisites: PHYS 1070/1080, CS 1050, MATH 2000. 2 hours

AVS 2650 Aircraft Propellers Theory of propellers, constant speed propellers and turboprop propellers, propeller control systems and auxiliary systems, airworthiness inspection, maintenance and repair practices. Students in MTCJ only. Prerequisites: PHYS 1070/1080. 2 hours

AVS 2770 Flight Simulator Laboratory Ten hours of individual ground instruction and a 10 hour block of instruction in one of the university's flight simulators applicable to initial training in instruments, flight instruction or multi-engine; for recurrency training; or for preparation of FAA and airline flight checks. Students in AFAJ and AFBJ only. Prerequisite: Approval of chief flight instructor. Application required for approval by chief flight instructor. 1 hour

AVS 2800 Transportation Technology: Policy, Perils, and Promise Introduction to transportation technologies. Survey the development of transportation policy and the key players in policy decision-making. Case studies will be used to explore issues in the practical application of transportation and how these technologies impact society, including demographics, work, and the environment. 3 hours

AVS 3060 Advanced Aerodynamics and Performance Advanced aerodynamics and flight principles related to airplane operations and performance. Design concepts for high performance, supersonic and special use airplanes are studied to enable pilots to understand and predict airplane performance and limitations in a wide range of flight applications with special regard for speed and configuration. Prerequisite: PHYS 1070/1080, AVS 1210, AVS 1220, AVS 1230. 3 hours

AVS 3070 Advanced Aircraft Systems A study of the design, operation, monitoring, and control of transport category aircraft systems. The architecture and interaction among systems is discussed and various aircraft configurations are investigated. Prerequisite: AVS 1220. Recommend AVS 1230 and taking AVS 3080 concurrently. 3 hours

AVS 3080 Advanced Aircraft Systems Laboratory This is a laboratory which relates to the topics covered in AVS 3070. It provides hands-on familiarization and training with the construction, operation, and control of transport category aircraft systems. Students in AFAJ, AFBJ, AVAJ, MTCJ only. Prerequisite: AVS 3070 or taken concurrently (recommend taken concurrently). 3 hours

AVS 3190 Aviation Legislation Legal principles governing the aviation industry. Historical precedents, regulatory statutes, standards, contracts, liability and insurance, current developments and court decisions. Prerequisites: AVS 1200 and Junior status. 3 hours
AVS 3210  Air Force Leadership Studies I  Communication, management, and ethical skills for Air Force officers. Emphasizes standards and professionalism in the modern officer corps. Leadership laboratory. Prerequisite: Department approval required. 3 hours

AVS 3220  Global Navigation and International Flight Planning  Advanced navigation systems and equipment including RNAV, pictorial displays, flight directors, airborne radar, INS, IRS, OMEGA, GLONASS, SATCOM, and GPS. Principles of worldwide navigation including time zones, spherical distance and course, and electronic calculations for decision-making. Long range navigation including air transport performance. 3 hours

AVS 3230  Air Force Leadership Studies II  Leadership theory, traditional Air Force management functions, and current practices. Emphasizes the application of leadership concepts by junior officers. Leadership laboratory. Prerequisite: Department approval required. 3 hours

AVS 3300  Aerobatic Flight  Ground and flight instruction in aerobatic flight maneuvers. This course will improve aircraft handling capabilities, critical attitude recovery, understanding of aerodynamics, and self-confidence. Prerequisite: Approval of chief flight instructor. Application required for approval by chief flight instructor. 1 hour

AVS 3320  Single Engine Seaplane  Ground and flight instruction which would add a seaplane class rating to private or commercial pilot certificate holders. Prerequisite: Approval of chief flight instructor. Application required for approval by chief flight instructor. 1 hour

AVS 3410  Certified Accelerated Pilot Training V  Theory and practice of high performance complex aircraft operation. Practice of team concepts. Application of advanced navigation systems. Basic aerobatic training. Aviation law, regulatory statutes, and liability issues. Includes a flight laboratory. Students in AFAJ and AFBJ only. Prerequisite: AVS 2420 and department approval required. 8 hours

AVS 3420  Certified Accelerated Pilot Training VI  Transport aircraft systems theory and operation. Large aircraft systems including turbine engines, hydraulic, pneumatic, flight controls, pressurization, electrical, landing gear, anti-ice and fire protection systems. Includes a systems laboratory. Students in AFAJ and AFBJ only. Prerequisite: AVS 3410 or taken concurrently and department approval. 8 hours

AVS 3510  Professional Flight II Theory  Ground instruction pursuant to instrument rating certification with particular emphasis on use of air traffic facilities and airways in visual as well as instrument environments. Instruction leads to the successful completion of the Instrument Pilot Knowledge Exam. Students in AFAJ and AFBJ only. Prerequisites: Approval of chief flight instructor, AVS 2050, 2210, 2220, and AVS 2070 or taken concurrently. Application required for approval by chief flight instructor; FAA 2nd class medical certificate required. 3 hours

AVS 3520  Professional Flight II Lab  Continuing aeronautical skill, knowledge, and experience necessary for professional pilot application through flight and simulator instruction. Review of private pilot techniques and introduction to advanced instrument flight procedures and use of air traffic facilities required for instrument rating certification. Students in AFAJ and AFBJ only. Prerequisites: Approval of chief flight instructor, AVS 351 or taken concurrently. Application required for approval by chief flight instructor; FAA 2nd class medical certificate required. 2 hours

AVS 3530  Professional Flight III Theory  Ground instruction emphasizing select professional pilot operations required for commercial pilot certification. Course includes crew concepts, Federal Aviation Regulations, and aeronautical decision making. Students in AFAJ and AFBJ only. Prerequisites: Approval of chief flight instructor, AVS 3520 or taken concurrently. Application required for approval by chief flight instructor; FAA 2nd class medical certificate required. 2 hours

AVS 3540  Professional Flight III Lab  Continuing development of aeronautical skill, knowledge, and experience necessary for professional pilot application through flight and simulator instruction. Review of advance instrument, cross-country procedures, and introduction to complex aircraft. Students in AFAJ and AFBJ only. Prerequisites: Approval of chief flight instructor, AVS 3530 or taken concurrently. Application required for approval by chief flight instructor; FAA 2nd class medical certificate required. 2 hours

AVS 3550  Professional Flight IV Theory  Completion of ground instruction requirements for commercial pilot and multi-engine pilot certification. Focus on commercial maneuvers, complex aircraft systems, application of advance
navigation systems, and multi-engine principles of flight. Students in AFAJ and AFBJ only. Prerequisites: Approval of chief flight instructor, AVS 3530, AVS 3540. Application required for approval by chief flight instructor; FAA 2nd class medical certificate required. 2 hours

AVS 3560 Professional Flight IV Lab Completion of flight and simulator instruction in aeronautical skills, knowledge, complex aircraft and experience requirements for commercial, instrument and multi-engine pilot certification. Includes experience in crew concepts, upset training, instrument, single and multi-engine operations. Students in AFAJ and AFBJ only. Prerequisites: Approval of chief flight instructor, AVS 3540, and AVS 3550 or taken concurrently. Application required for approval by chief flight instructor; FAA 2nd class medical certificate required. 2 hours

AVS 3600 Reciprocating Engine Overhaul Comprehensive laboratory work involving the inspection, repair, overhaul, and operation of reciprocating power plants, in accordance with the FAA and manufacturer technical data. Proper logbook entries and overhaul documentation is included. Students in MTCJ only. Prerequisite: AVS 2630. 3 hours

AVS 3620 Aircraft Structures II Advanced study of aircraft structures building upon the knowledge gained in Airframe I. Includes substantial laboratory work including inspection, test and repair of welded, fiberglass, composite, plastic, honeycomb, and laminated primary and secondary structures. Students in MTCJ only. Prerequisite: AVS 2620. 4 hours

AVS 3630 Reciprocating Engine Systems Principles of operation of reciprocating engine, fuel metering, induction, exhaust, and ignition systems. Students in MTCJ only. Prerequisite: AVS 2630. 3 hours

AVS 3640 Aircraft Electrical II Classroom and laboratory study of aircraft electrical diagrams, components (batteries, starters, generators, alternators, regulators, switches, circuit breakers, and wiring), and systems including care, preventive maintenance, and repair. Students in MTCJ only. Prerequisite: AVS 2640. 4 hours

AVS 3650 Non-Destructive Testing Theory and application of non-destructive testing methods; liquid penetrant, magnetic particle, radiographic, eddy current, ultrasonic, and enhanced visual. Other methods are also discussed. Students in MTCJ only. Prerequisites: AVS 3620, AVS 3640. 3 hours

AVS 3660 Avionics Theory, operation, installation, inspection, maintenance, and repair of aircraft avionics and associated equipment. Included will be study of flight instruments, communication, navigation, flight management, auto flight, and weather avoidance systems. Students in MTCJ only. Prerequisites: AVS 3620, AVS 3640. 3 hours

AVS 3670 Airframe Systems Classroom and laboratory study of aircraft hydraulic and pneumatic components and systems, air conditioning and pressurization, fire detection and extinguishing systems and other airframe systems. Students in MTCJ only. Prerequisites: AVS 3620, AVS 3640. 4 hours

AVS 3690 Testing Evaluation and Instrumentation Aircraft engine and systems performance testing, operations, and evaluation including applications of indicating and warning systems, signal processing, digital and analog data acquisition. Engine diagnosis includes the use of dynamoseters, test cell thrust beds and computer based analyses. Students in MTCJ only. Prerequisites: AVS 3630, AVS 3640. Corequisite: AVS 3660. 4 hours

AVS 3990 Field Experience A program of practical experience and independent study to supplement and enrich classroom learning. Written reports are required. May be repeated to a maximum of eight semester credit hours. Graded on a Credit/No Credit basis only. Students in AFAJ, AFBJ, AVAJ, MTCJ only. Prerequisite: Department approval required. 1 to 3 hours

AVS 4020 Multi-Engine Flight Principles of flight in multi-engine airplanes. Provides transition from complex single-engine airplane to procedures and techniques peculiar to multi-engine operation. Students in AFAJ, AFBJ, AVAJ, MTCJ only. Prerequisite: Approval of chief flight instructor, AVS 3550. Application required for approval of chief flight instructor. 1 hour

AVS 4030 Flight Instructor Fundamentals An introduction to techniques and responsibilities of flight instruction. Includes classroom preparation in fundamentals of learning and teaching theory. Features instruction in proper supervision of
instructional scenarios in flight situations. Students in AFAJ, AFBJ, AVAJ, MTCJ only. Prerequisites: Approval of chief flight instructor, AVS 3560. Application required for approval of chief flight instructor. 2 hours

AVS 4040 Instrument Flight Instructing Techniques of flight instruction applied to instrument flying. Designed to upgrade an airplane flight instructor to an instrument instructor. Instructional techniques of attitude instrument flying, flight simulator utilization, instrument enroute procedures, radio navigation, critical situations, and performance analysis. After certification, supervised teaching experience is required. Students in AFAJ, AFBJ, AVAJ, MTCJ only. Prerequisites: Approval of chief flight instructor, AVS 4060. Application required for approval of chief flight instructor. 1 hour

AVS 4060 Flight Instructor Certification A study and application of airplane performance skills, flight maneuvers, and pilot operations pursuant to qualification as flight instructor. Involves flight and ground instruction, lesson planning and execution, and analysis of common student errors. Students in AFAJ, AFBJ, AVAJ, MTCJ only. Prerequisites: Approval of chief flight instructor, AVS 4030 or taken concurrently. Application required for approval of chief flight instructor. 2 hours

AVS 4090 Multi-Engine Flight Instructor Instructional techniques necessary to qualify for an airplane multi-engine flight instructor rating. Topics include multi-engine aerodynamics and performance, analysis of multi-engine procedures and maneuvers, multi-instructor responsibilities, common student errors, and flight safety considerations. Students in AFAJ, AFBJ, AVAJ, MTCJ only. Prerequisites: Approval of chief flight instructor, AVS 4060. Application required for approval of chief flight instructor. 1 hour

AVS 4100 Airport Planning, Operations, and Administration Comprehensive overview of airports and airport systems with a focus on administration matters. Topics covered include historical development, legislation and regulation, airport design and operations, project planning and funding, and administrative organizations and activities for airports of various sizes and activity levels. Airport related issues such as environment, safety, and security are examined. Students in AVAJ only. Prerequisites: AVS FIN 3200, LAW 3800. 4 hours

AVS 4110 Airline Flight Operations Systems, performance, and regulation of transport aircraft and operations. Role of the dispatcher in flight operations. Students in AFAJ and AFBJ only. Prerequisites: Student must have completed or be taking concurrently AVS 3060, AVS 3070, AVS 3080, and AVS 3220. 3 hours

AVS 4120 Line Oriented Flight Crew Simulation Utilization of aircraft performance, systems, and resources (both human and information) to enhance flight operations and human performance. Students in AFAJ and AFBJ only. Prerequisites: AVS 3540 and 4110 or taken concurrently. 3 hours

AVS 4210 National Security Affairs I Formation and implementation of defense policy and strategy. Bureaucratic interplay and impact of nuclear technology. Investigation of current defense issues. Leadership laboratory. Prerequisite: Department approval required. 3 hours

AVS 4220 National Security Affairs II and Preparation for Active Duty Role of the professional officer in a democratic society. Global security issues. Military justice and the laws of war. Leadership laboratory. Prerequisite: Department approval required. 3 hours

AVS 4240 Corporate Aviation Management Management of aviation flight departments of business corporations. Topics include human resource management, aircraft selection and planning, management and organization of flight and maintenance operations, and requirements of international operations. Current and future issues such as globalization of business operations. Prerequisite: Junior status. 3 hours

AVS 4270 Airline Administration Economic characteristics of the airline industry and air carrier ownership and organization. Revenues, costs, and productivity. Route structure and scheduling. International competition and regulation. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Students in AFAJ, AFBJ, AVAJ only. Prerequisites: AVS 1200, IME 1020, Junior status. 4 hours

AVS 4280 International Aviation A focus on the common issues surrounding the globalization of aviation. Topics include human resource management, employee recruitment and selection, labor/management relations, international
requirements and opportunities. International standards and agreements and international flight operations. Students in AFAJ, AFBJ, AVAJ only. Prerequisites: AVS 3190; Junior status. 3 hours

AVS 4300 Jet Equivalent Training This course provides transport category aircraft flight simulation. The student receives cockpit operation and flight training using a state of the art full motion Boeing 737 flight simulator. Students in AFAJ and AFBJ only. Prerequisites: AVS 3560, AVS 4110, and AVS 4120 (or 4120 taken concurrently). Department approval required. 6 hours

AVS 4410 Certified Accelerated Pilot Training VII Theory and practice of multi-engine commercial instrument flight operations. Transport aircraft operations including systems, performance, regulations and dispatch. Upset and unusual attitude recovery training. Includes a flight laboratory. Students in AFAJ and AFBJ only. Prerequisites: Department approval required; AVS 3420 or taken concurrently. 8 hours

AVS 4420 Certified Accelerated Pilot Training VIII Transport aircraft simulator training and jet aircraft transition. Crew operation, resource management, and performance planning for large aircraft. Students in AFAJ and AFBJ only. Prerequisites: Department approval required; AVS 4410 or taken concurrently. 8 hours

AVS 4600 Aircraft Inspection and Service I Required aircraft inspections are performed in accordance with the manufacturer's and FAA regulatory requirements. Servicing, airworthiness documentation, record keeping, data searches, inventory, parts tracking and accountability are performed with emphasis on computerized models. Students in MTCJ only. Prerequisites: AVS 3650, AVS 3660, AVS 3670, AVS 3690. 4 hours

AVS 4610 Aircraft Inspection and Service II Aircraft heavy maintenance, assembly, disassembly, rigging and engine removal and installations are performed. Includes corrosion control treatment, landing gear troubleshooting and repairs. Aircraft weight and balance, including compliance with airworthiness documentation, and record keeping is performed. Students in MTCJ only. Prerequisite: AVS 4600. 4 hours

AVS 4620 Reliability, Maintainability and Supportability Aircraft reliability, maintainability and supportability (RMS) are examined. Methods of incorporating reliability and maintainability into aircraft design are discussed. Support requirements and the economic impact of maintenance on life cycle costs are covered. Students in MTCJ only. Prerequisite: AVS 3670. 3 hours

AVS 4630 Airline Maintenance Operations Maintenance operations of commercial airlines will be examined. Topics include corporate structure, maintenance philosophy, authority and responsibilities of the maintenance organization, cost control, and economic impact of maintenance operations on airline profitability. Support organizations and the impact of Federal regulations will also be covered. Students in MTCJ only. Prerequisite: Department approval required. 3 hours

AVS 4640 Aircraft Turbine Engines and Systems Advanced aircraft engine and systems operations, service, repair, and overhaul. Emphasis is placed on inspection, servicing, troubleshooting, and repairing aircraft engines in the repair station and commercial air carrier environments. Students in MTCJ only. Prerequisite: AVS 3690. 4 hours

AVS 4700 Advanced Propulsion Systems Advanced propulsion systems with emphasis on aircraft turbine engines and systems. Component design, system integration, advanced testing, operations, and troubleshooting are covered. Students in MTCJ only. Prerequisite: Department approval required. 3 hours

AVS 4710 Advanced Instrumentation Systems Advanced engine instrumentation systems with emphasis on the aircraft engine monitoring systems and flight deck integration. Advanced topics in electronic data acquisition, systems integration, and applications to engine testing, operations, and troubleshooting. Prerequisite: Department approval required. 3 hours

AVS 4720 Advanced Structures and Materials Advanced topics in airframe structures. Included will be study of materials and manufacturing processes used in current, state of the art aircraft structures. New generation materials will be addressed, with emphasis being placed on non-metallic composite structures. Students in MTCJ only. Prerequisite: Department approval required. 3 hours

AVS 4730 Advanced Airframe Systems Classroom and laboratory study of the integration and interdependency of systems used on transport category aircraft. Systems included in the study will be hydraulics, pneumatics, air conditioning,
pressurization, fire detection and extinguishing, flight controls, flight management systems (FMS), and engine indications and crew alerting systems (EICAS). Students in MTCJ only. Prerequisite: AVS 4610. 3 hours

AVS 4900 Senior Project I – Planning First course of a two-semester sequence. Students work in teams on approved projects. Class discussion will include problem definition, project planning, task scheduling, ethics, and decision impact analysis. Use of case studies will add to the students' understanding of real world situations. This course, when completed satisfactorily with AVS 4910, is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Students in MTCJ only. Prerequisite: AVS 4610. 1 hour

AVS 4910 Senior Project II – Analysis Second course in the two-course senior project. Solutions proposed for the problem identified in Senior Project I will be fully researched by the same team. This investigation will include ethical, financial, legal and environmental concerns. Written and oral status reports are required along with a formal report and professional presentation. Interaction with faculty and industry mentors is also necessary. This course, when completed satisfactorily with AVS 4900, is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Students in MTCJ only. Prerequisite: AVS 4900 or taken concurrently. 2 hours

AVS 4920 Aviation Management Intern Under the direction of a faculty advisor, students obtain industrial experience with an aviation organization. Students are required to file periodic reports to the advisor. A final written and oral report must be presented to obtain credit. In addition, the student will be evaluated by the firm's executive or student supervisor. Students in AFAJ, AFBJ, AVAJ, MTCJ only. Prerequisite: Department approval required. 1 to 6 hours

AVS 4930 High-Performance Transition Ground and flight instruction that will lead to a high-altitude endorsement which will allow the holder of the endorsement to operate an aircraft above 25,000 feet and to obtain flight time in a turbo-charged, pressurized, multi-engine aircraft. Students in AFAJ and AFBJ only. Prerequisites: Department approval required; AVS 356. Application required for approval by chief flight instructor. 2 hours

AVS 4940 Airline Transport Pilot Flight and ground instruction leading to an Airline Transport Pilot certificate. Students in AFAJ, AFBJ, AVAJ, MTCJ only. Prerequisites: Department approval required; AVS 3560. Application required for approval by chief flight instructor. 3 hours

AVS 4950 AFROTC Independent Study Investigation of a particular aspect of aerospace studies. Prerequisite: Department approval required. 1 to 3 hours

AVS 4970 Special Flight Instruction Instruction tailored to the individual needs of students pursuing the professional pilot course sequence. Develop skills to progress efficiently in normal course sequence. Graded on a Credit/No Credit basis only. May be repeated. Students in AFAJ, AFBJ, AVAJ, MTCJ only. Prerequisite: Department approval required. 1 to 3 hours

AVS 4990 Studies in Aviation Sciences An individual study program to supplement regular course work, arranged in consultation with a study supervisor. One to three hours credit per semester. May be repeated not to exceed six credit hours. Students in AFAJ, AFBJ, AVAJ, MTCJ only. Prerequisite: Department approval required. 1 to 8 hours

Business Communication

BCM 1000 Introduction to Business Writing A course dealing with those areas of written communication necessary for the development of basic business writing skills. Designed as a foundation for subsequent business writing/communication courses. Credit for this course will not apply toward the number of credits needed for graduation. Graded on a Credit/No Credit basis. 3 hours

BCM 1420 Informational Writing Development of the basic composition skills required of the competent writer in business and professions. Through continuing directed practice in writing, students develop competence in the organization and presentation of facts and information in writing. This course fulfills the University college-level writing requirement. 3 hours
BCM 2420 Organizational Communication  A study of communication in modern organizations and the application of communication theory to information systems and current business practices. Group decision-making is emphasized.  3 hours

BCM 3430 Advanced Writing for Business  Students generate a variety of written projects which go beyond those covered in BUS 370. Additional genres are covered, with emphasis on a variety of purposes and types of documents. Students write individually and in teams, often generating projects appropriate to their majors. Emphasis is also given to integrating and designing effective visual elements.  Prerequisite: BUS 3700 (may be taken concurrently).  3 hours

BCM 3800 Business Web Design  This course emphasizes the theory and application of Internet-related technologies, such as World Wide Web, in various business communication situations. Combining critical thinking with design and presentation skills, students will explore, create, and implement various hypertextual and multimedia applications and presentations to effectively relate information in diverse business environments.  Prerequisites: CIS 1020/1100 (or equivalent) and BCM 1420 (or equivalent).  3 hours

BCM 3860 Advanced Office Systems  A study of automated and electronic communication and records management systems. Using projects, students consider trends and organizational forces and impacts on work processes, productivity, and decision-making.  3 hours

BCM 3880 Records Management  An examination of ways in which records are created, disseminated, accessed and stored. Focus includes legal issues as well as development of proactive strategies for document protection and disaster recovery.  3 hours

BCM 4000 Topics in Business Communication  An intensive study of a topic in business communication such as a communication system, business media, business publicity and others. The topic will be announced in advance. May be repeated for credit.  3 hours

BCM 4420 Senior Seminar in Business Communication  The senior seminar in business communication is a capstone course designed to teach participants how to analyze communication in modern business organizations. Focus of the course will be on evaluating and improving organizational communication. Seminar emphasis will vary depending upon semester and instructor.  3 hours

BCM 4540 Intercultural Business Communication  Intercultural Business Communication is designed to develop the effectiveness of students' communication skills with culturally diverse audiences, both at home and abroad. Prerequisite: BUS 3700.  3 hours

BCM 4560 Office Management  Procedures of office administration with attention to supervisory patterns in development, appraisal, and management of human resources.  3 hours

BCM 4580 Topics in Administrative Systems  Includes an intensive study of a selected topic in administrative systems such as communication audits, consumer relations, office systems, work measurement and simplification, forms control and design, and others. The topic will be announced in advance. May be repeated for credit.  3 hours

BCM 4800 Business Communication Technology  Business Communication Technology reviews the changes in communication strategies and procedures being brought about by modern technology, especially the computer. The course provides a theoretical framework for understanding the application of communication technology in modern business organizations and affords hands-on experience with word processing, electronic mail, electronic conferencing systems, electronic databases, computer graphics, FAX, voice mail, and desktop publishing procedures.  Prerequisite: BUS 370.  3 hours

BCM 4830 Business Publications and Presentations  This course provides students with the theory and the practice to enable them to develop various types of publications and presentations in diverse formats, from conception through finished product. Using word processing, desktop publishing, and web authoring tools, students will employ various design techniques to produce documents according to business communication needs.  3 hours
BCM 4860 Corporate Records Centers  An examination of commercial and corporate records centers. Includes services, equipment, systems, and technology; addresses functions of planning, staffing, operating, and managing records centers. Prerequisite: BCM 3880 or permission.  3 hours

BCM 4960 Independent Study  A directed independent project in an area of Administrative Systems or Business Communication. Prerequisite: Approved application required.  1 to 4 hours

BCM 4980 Readings in Business Communication  A series of direct readings in an area of Administrative Systems or Business Communication. Prerequisite: Approved application required.  1 to 4 hours

**Biological Sciences**

BIOS 1050 Environmental Biology  An ecology course that examines the relationships among living organisms, including man, and their environment. Emphasis will be placed on basic ecological principles. Credit does not apply toward a Biology or Biomedical Sciences major. Credit applies for the Biological Sciences minor and Liberal Education Area 6. Credit applies for Distribution Area 6 if taken with BIOS 1100.  3 hours

BIOS 1100 Biology Laboratory  Designed as a companion to BIOS 105 or BIOS 112 to fulfill Natural Sciences Area VI requirement. Biology Laboratory provides hands-on experiences in environmental and general biology. Experiments will involve the use of scientific methodology and instrumentation to collect, analyze, interpret data, and draw conclusions about life processes, basic biological principles, as well as the interaction of people and their environment. Corequisite or Prerequisite: BIOS 1005 or BIOS 1120. Credit not acceptable for Biological Sciences majors but applies toward a minor in biology.  1 hour

BIOS 1120 Principles of Biology  A course designed to provide a natural science foundation for BIOS minors, Allied Health majors, and to fulfill liberal/general education requirements. Foundation concepts in cell biology, human anatomy and physiology, botany, human genetics, microbiology, and ecology are presented for students who do not have strong biology and chemistry backgrounds. Credit does not apply for Biology or Biomedical Sciences majors. The course fulfills Liberal Education Curriculum Area 6. If taken with BIOS 1100, it fulfills Distribution Area 6.  3 hours

BIOS 1500 Molecular and Cellular Biology  This is the first in a two semester introductory biology sequence for majors and minors in the Biological Sciences Department. The course covers basic concepts of molecular and cellular biology and physiology.  4 hours

BIOS 1510 Organismal Biology  This is the second course in a two semester introductory biology sequence for majors and minors in the Biological Sciences Department. The course covers basic concepts of evolution, ecology, and animal behavior. Prerequisite: BIOS 1500.  4 hours

BIOS 1700 Life Science for Elementary Educators I  This is a laboratory-based course specifically designed for prospective elementary teachers. The objectives of the course are to aid students in developing meaningful and functional understanding of key biological concepts and their interrelations; to provide students with open-ended problem solving environments that facilitate insight in the nature of science as an intellectual activity; to explore alternate conceptions of scientific phenomena; to help students develop more positive attitudes about science and increase their confidence in their ability to do science.  3 hours

BIOS 1910 Introduction to Human Anatomy and Biology  This is a lecture and laboratory course providing an overview of human anatomy and some basic scientific principles, including a brief introduction to cell biology and genetics. Credit does not apply to Biological Sciences Majors. Credit cannot be counted for both BIOS 1910 and BIOS 2110.  4 hours

BIOS 2020 Botany  An introduction to the structure, function, and diversity of plants and plant-like organisms in relation to local and global environments. Students will learn to recognize plants of economic importance and gain experience in propagating and growing them. Prerequisites: BIOS 1500 and BIOS 1510.  4 hours

BIOS 2110 Human Anatomy  A lecture and laboratory course in which all major structures of the human body are studied. Prerequisites: BIOS 1500 or BIOS 1120.  4 hours
BIOS 2300  Cell Biology  This is a comprehensive course covering the fundamental principles of cell biology. The experimental basis of these discoveries will be stressed. It is intended for all biology majors and others who have a basic understanding of chemistry and biology. Prerequisites: CHEM 1120, BIOS 1500, BIOS 1510 with concurrency. 3 hours

BIOS 2320  Microbiology and Infectious Diseases  An introductory microbiology course emphasizing characteristics and modes of transmission of the microorganisms that cause human disease. Credit applies toward a minor in Biomedical Sciences and a major in secondary education. 4 hours

BIOS 2340  Outdoor Science  This course increases a student's awareness and appreciation of organisms in nature. Lectures introduce the classification, evolution, and ecology, as well as the natural history of selected plants and animals. The laboratory includes the identification of common organisms living in our area, hypothesis testing, data analysis, and report writing. Credit applies toward a minor in Biomedical Sciences. 4 hours

BIOS 2400  Human Physiology  This course is designed to provide an understanding of the basic functioning of the organ systems of the human body, as well as their regulation and control. The molecular and cellular mechanisms involved are emphasized. Applications to exercise physiology are made. Clinical applications are introduced where they provide additional insight into basic function and regulatory mechanisms. This course is not usable for the non-teaching biology major or the biomedical sciences major. Prerequisite: BIOS 1120 or BIOS 1500; BIOS 2110 is recommended. 4 hours

BIOS 2500  Genetics  A study of the mechanisms of heredity at the level of cells, individuals, families and populations. Prerequisites: CHEM 1120, BIOS 1500, BIOS 1510 with concurrency. 3 hours

BIOS 2700  Life Science for Elementary Educators II  This laboratory-based course is a continuation of SCI 1700 and is specifically designed for prospective elementary teachers. The objectives of the course are to aid students in developing meaningful and functional understanding of key biological concepts and their interrelations; to provide students with open-ended problem solving environments that facilitate insight in the nature of science as an intellectual activity; to explore alternate conceptions of scientific phenomena; to help students develop more positive attitudes about science and increase their confidence in their ability to do science. 3 hours

BIOS 3010  Ecology  We introduce students to the dynamics of ecological interactions at different spatial and temporal scales and at different levels of organization from individuals, through populations and communities, to ecosystems, landscapes and biomes. Our emphasis is on population-level processes and dynamics, and examples dwell on both pure and applied aspects of ecology. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the General Education curriculum. Prerequisite: BIOS 2020 or BIOS 2500. 5 hours

BIOS 3120  Microbiology  An introduction to the fundamental relationships among microbes with an emphasis on unifying principles. Laboratory work deals with techniques basic to bacteriology. Prerequisites: BIOS 2500 and CHEM 3750, 3760. 5 hours

BIOS 3190  Plant Physiology  An examination of plant functions and metabolism. The chemical elements essential for plant growth are studied, along with processes, such as photosynthesis, through which these elements combine to form the components of cells and tissues. The lab uses up-to-date techniques and equipment to investigate processes such as enzyme action and the movement of substances through membranes. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisites: BIOS 2020 and CHEM 3750, 3760. 4 hours

BIOS 3210  Clinical Physiology  A study of the functioning and regulation of the organ systems and the application of this knowledge to an understanding of their malfunctions. The molecular and cellular mechanisms involved are emphasized. Pre-Physician Assistant program or PASM or graduate standing. 4 hours

BIOS 3500  Human Physiology for Majors  An introduction to the functions and interrelationships of the human body organ systems with a description of various physiological malfunctions. The laboratory provides experience with some types of clinical measurements, laboratory instrumentation, data organization and scientific writing. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum.
Prerequisites: BIOS 2500 and either CHEM 3750 & 3760 or CHEM 3700 & 3710; junior or senior standing required; BIOS 2110 is recommended. 5 hours

BIOS 4270 Systematic Botany Principles and techniques of plant classification, nomenclature, and biosystematics are presented in lectures, in the field, and laboratory experiences, using vascular plants as examples. Evolutionary trends, family characteristics, and experimental systematics of vascular plants are emphasized. Students will be expected to learn to recognize 100 to 150 plant species by common and scientific name. Prerequisite: BIOS 2020 is recommended. 4 hours

BIOS 4300 Evolution This course in evolutionary biology covers the mechanisms of the evolutionary process, speciation, evolutionary genetics, the history of life on earth, and adaptation. Prerequisite: BIOS 2500. 3 hours

BIOS 4390 Animal Behavior Animal behavior is studied with regard to our understanding of the cause of behaviors, and the possible reasons for their existence. Particular emphasis is placed on how natural selection has affected individual and social behavior. Prerequisite: BIOS 1510. 3 hours

BIOS 4410 Invertebrate Zoology A study of the anatomy, physiology, embryology, and life history of representatives of the major groups of invertebrate animals. Prerequisite: BIOS 1510. 3 hours

BIOS 4420 Entomology This course is a general study of insects, their structure, classification, physiology, life histories, ecological relationships, and economic importance. Students will learn to identify common families of insects and make individual collections. Prerequisite: BIOS 1510. 3 hours

BIOS 4560 Tropical Biology A travel study course providing an introduction to both terrestrial and marine ecosystems in the tropics. The course, consisting of lectures, field explorations, and individual projects, examines the major life zones and biogeography of the region visited, from an ecological perspective. Tropical Rain, Montane and Dry Forests, and the biology of a coral reef will be studied. Human ecology, agriculture (tropical fruits and vegetables, sugar cane and coffee) and environmental issues will also be included. The course will be presented on one of the islands of the Caribbean and/or in Central America. 3 hours

BIOS 4970 Senior Seminar: Topic to be specified This capstone course integrates a variety of biological concepts within a selected broad topic. The student makes a technical presentation and submits a paper on a selected subject. The student's record will indicate the nature of the seminar in which he/she has participated. Not repeatable for credit. Prerequisite: Departmental approval required prior to registration. 3 hours

BIOS 4980 Readings in Biological Sciences Departmental approval required prior to registration. 1 to 3 hours

BIOS 4990 Independent Research in Biological Sciences Students may contact a faculty member to conduct research under the guidance of that faculty member. Before the initiation of the research, a literature search and a written experimental plan must be prepared. At the conclusion of the research project, a written report will be submitted to the guiding faculty member. At least three credits of this course can fulfill the departmental capstone course requirement. Prerequisites: Departmental approval required prior to registration. 1 to 4 hours

BIOS 5120 Environment and Health Problems Human activities impact the environment and environmental factors impact health. Human environment interactions are often not optimal or without cost. In this course we seek sustainable solutions to environment and health problems. May not be taken for credit with BIOS 4970 Senior Seminar with similar topic. The prerequisites to 5000-level courses are: Junior/Senior standing and at least 12 credits in biology including the specific prerequisite for each course. 3 hours

BIOS 5180 Endocrinology A survey of the hormonal integration of organ-system function including the chemical nature of these secretions, the cellular and biochemical mechanisms of hormone actions and the endocrine feedback control mechanisms. The regulatory nature of hormones in developmental processes, in adaptation and in disease processes will be stressed. Prerequisite: BIOS 3500; biochemistry is recommended. The prerequisites to 5000-level courses are: Junior/Senior standing and at least 12 credits in biology including the specific prerequisite for each course. 3 hours
BIOS 5240  Microbial Genetics  A lecture/seminar course emphasizing modern microbial genetics, as well as historic keystone experiments. This course focuses on work carried out with bacteria and bacteriophages. Concepts include mutation and selection, recombination and repair, DNA cloning and mutagenesis procedures, regulation of gene expression, differential gene expression in response to environmental stimuli, and genome organizations. Prerequisites: BIOS 3120 Microbiology and BIOS 2500 Genetics. The prerequisites to 5000-level courses are: Junior/Senior standing and at least 12 credits in biology including the specific prerequisite for each course. 3 hours

BIOS 5250  Microbial Ecology  The objective of this course is to understand the importance of the role and diversity of microorganisms for life on our planet. Students will integrate concepts from various disciplines, including microbiology, ecology, chemistry, geosciences, evolution, genetics, and health sciences. Lecture/seminar format includes computer usage with the web. Prerequisites: BIOS 2320 or 3120 and junior, senior, or graduate student standing. The prerequisites to 5000-level courses are: Junior/Senior standing and at least 12 credits in biology including the specific prerequisite for each course. 3 hours

BIOS 5260  Molecular Biology Laboratory  This course is designed to expose students to techniques that are currently being used to manipulate and analyze nucleic acids. Students will gain extensive hands-on experience with restriction mapping, ligations, bacterial transformations, eukaryotic gene-replacements, gel electrophoresis, non-isotopic hybridizations, as well as applications of the polymerase chain reaction (PCR). Experimental design, use of appropriate controls and handling of acquired data will be stressed. Prerequisites: BIOS 2500 Genetics, BIOS 3120 Microbiology, CHEM 3750 Organic Chemistry I, CHEM 3760 Organic Chemistry Lab I and junior, senior, or graduate student status. The prerequisites to 5000-level courses are: Junior/Senior standing and at least 12 credits in biology including the specific prerequisite for each course. 3 hours

BIOS 5265  Proteins as Biological Machines  The survey of principles of protein sequence, structure, and biological function. The course will review fundamental aspects of proteins, including evolution of amino acid sequence, structure, function, and biophysical properties such as solubility, stability, interactions with other molecules and catalysis. Individual case studies of model proteins that have medical relevance or applications in diagnostic assays, biopharmaceuticals and nanotechnology, will be presented. This course is approved to cover the capstone requirement for the Biology and Biomedical Sciences Majors. BYLJ and BMLJ students only. Prerequisites: BIOS 1500 and CHEM 1120 and 1130 or permission of instructor. The prerequisites to 5000-level courses are: Junior/Senior standing and at least 12 credits in biology including the specific prerequisite for each course. 3 hours

BIOS 5270  Cancer Biology  This course will cover advanced topics in cellular and molecular biology of cancer. Topics to be covered will include oncogenes, tumor suppressor genes, cell cycle, and pathology. New and developing treatments for cancer will also be discussed. This course is approved to cover the capstone requirement for the Biology and Biomedical Sciences majors. BYLJ, BYLN, BMLJ students only. Prerequisite: BIOS 1500 or permission of instructor. Recommended: CHEM 3550. The prerequisites to 5000-level courses are: Junior/Senior standing and at least 12 credits in biology including the specific prerequisite for each course. 3 hours

BIOS 5310  Biology of Aging  This course is designed to provide students with an understanding of the aging process. The lectures will emphasize the anatomical, physiological and molecular changes which occur in cells and organs with aging. Clinical applications are introduced where they provide additional insight into the aging process. Prerequisites: BIOS 2400 or 3500. The prerequisites to 5000-level courses are: Junior/Senior standing and at least 12 credits in biology including the specific prerequisite for each course. 3 hours

BIOS 5340  Virology  This course is designed to provide students with the basic understanding of viruses, their structures and replication strategies. Emphasis is placed on host virus interactions leading to disease processes and cellular alterations in mammalian systems. Viruses are considered as miniature model systems to unify biology at the molecular level. This course is approved to cover the capstone requirement for the Biology and Biomedical Sciences majors. Prerequisite: BIOS 3120; Biochemistry is recommended. The prerequisites to 5000-level courses are: Junior/Senior standing and at least 12 credits in biology including the specific prerequisite for each course. 3 hours

BIOS 5360  Immunology  This course is designed to provide students with the basic understanding of the mammalian immune system at cellular and molecular levels. This course also covers the role of the immune system both in health and disease, and explores the applications of immunological concepts in a variety of biological and biomedical
BIOS 5440 Global Change Ecology  The causes and consequences of global climate change will be the focus of this course. We will examine the most recent predictions about the rate and magnitude of global warming, the extent to which human activities are responsible, and the likely consequences for plants, animals, and other components of natural ecosystems, and for agricultural ecosystems and human health. Each topic will include a detailed illustrated outline that summarizes the current evidence, consensus predictions, conclusions, controversies, and uncertainties. The last several weeks will be devoted to additional global change issues, including loss of biodiversity, introduced species, ozone depletion, and acid precipitation. This course is approved to cover the capstone requirement for the Biology and Biomedical Sciences majors.  Prerequisite: BIOS 3010 or permission of instructor. The prerequisites to 5000-level courses are: Junior/Senior standing and at least 12 credits in biology including the specific prerequisite for each course.  4 hours

BIOS 5445 Human Ecology  Students will examine patterns of distribution and abundance of Homo sapiens and the ecological processes that generate these patterns, through lectures, reading, multi-media, interactive discussion and dissemination of research and understanding. We will also consider the concept of carrying capacity and the dynamics of human population change in relation to the human niche and changing patterns of resource availability. This course is approved to cover the capstone requirement for the Biology and Biomedical Sciences majors.  Prerequisite: BIOS 3010 or permission of instructor. The prerequisites to 5000-level courses are: Junior/Senior standing and at least 12 credits in biology including the specific prerequisite for each course.  3 hours

BIOS 5450 Chemical Ecology  In this course we will focus on an interdisciplinary appreciation for the ecology of chemically mediated interactions among organisms at different scales of organization from molecules to ecosystems. Students will engage in lectures, reading, multi-media, interactive discussion and hands-on research projects with presentations. This course is approved to cover the capstone requirement for the Biology and Biomedical Sciences majors.  Prerequisite: BIOS 3010 or permission of instructor. The prerequisites to 5000-level courses are: Junior/Senior standing and at least 12 credits in biology including the specific prerequisite for each course.  3 hours

BIOS 5455 Plant-Herbivore Interactions  Interactions between plants and herbivores provide the foundation processes for most observable ecological patterns. These processes have organized patterns of species diversity through evolutionary history as well as contemporary space. In this class we will examine interactions between plants and herbivores over a wide range of scales, from thrips elephants, that often control the dynamics of other exploitative, competitive and mutualistic processes both within and among trophic levels. The class is interactive with computer simulations, presentations, a grant-writing exercise and discussion of relevant literature. This course is approved to cover the capstone requirement for the Biology and Biomedical Sciences majors.  Prerequisite: BIOS 3010 or permission of instructor. The prerequisites to 5000-level courses are: Junior/Senior standing and at least 12 credits in biology including the specific prerequisite for each course.  3 hours

BIOS 5460 Molecular Phylogenetics and Evolution  Molecular Phylogenetics and Evolution is an advanced undergraduate/graduate course designed to provide students with a rigorous exposure to molecular data analysis and literature review. In this course students will learn the principles behind DNA data analysis for evolutionary studies. This will include phylogenetic analyses and studies of molecular evolution. Phylogenetic studies will involve the acquisition of comparative DNA sequence data, sequence alignment, conceptual models of nucleotide substitution, and tree analysis using parsimony, distance, maximum likelihood, and Bayesian methods of tree inference. For the molecular evolution portion of the course, we will investigate selected examples illustrating the effects of natural selection of DNA sequences. This course is approved to cover the capstone requirement for the Biology and Biomedical Sciences majors.  Prerequisite: BIOS 2500 or permission of instructor. The prerequisites to 5000-level courses are: Junior/Senior standing and at least 12 credits in biology including the specific prerequisite for each course.  3 hours

BIOS 5470 Ornithology  An introductory course that explores both scientific and popular aspects of bird study. Life history, behavior, ecology, and identification are emphasized.  Prerequisite: BIOS 1510. The prerequisites to 5000-level courses are: Junior/Senior standing and at least 12 credits in biology including the specific prerequisite for each course.  3 hours

BIOS 5490 Field Ecology  Field studies of forest, native grassland, wetlands, and other local ecosystems. Plant and animal composition, geological history, human effects, succession, and other aspects of the structure and working of
ecosystems are integrated. Field ecological methods are emphasized. Prerequisite: BIOS 3010. The prerequisites to 5000-level courses are: Junior/Senior standing and at least 12 credits in biology including the specific prerequisite for each course.

3 hours

BIOS 5535 Freshwater Ecology This course provides an introduction to the study of interactions between biological communities and their aquatic environments. Lectures and readings introduce the physical, chemical, and biological dynamics of streams, lakes, and wetlands. Emphasis is placed on application of fundamental concepts to problems in conservation and management of aquatic systems and species. Laboratory and fieldwork introduce modern methodological approaches to the study of aquatic ecosystems and the organisms that inhabit them. Two day-long Saturday field trips are required. Field exercises will be conducted largely in local streams, lakes, and wetlands. This course is approved to cover the capstone requirement for the Biology and Biomedical Sciences majors. Prerequisite: BIOS 1510 or ENVS 2250. 4 hours

BIOS 5590 Neurobiology The substrate of behavior will be examined in this interdisciplinary survey of neural structure and function across molecular, cellular and system levels. There will be a strong emphasis on underlying mechanisms in different animal models. Lecture and discussion will be integrated and supplemented by demonstrations. Topics covered will include: membrane biophysics, synaptic physiology, transduction and signaling in the visual, auditory, chemical and somatosensory systems, reflexes, simple behavior and plasticity. Prerequisites: BIOS 3500; PHYS 1130 & 1140; PHYS 1150 & 1160; CHEM 3550 & 3560 recommended. 4 hours

BIOS 5593 Biological Basis of Learning and Memory Learning and remembering is mediated by the nervous system and is a fundamental biological phenomenon. The ability to change responses as a result of experience seems to be a prominent feature of many nervous systems and is key for organisms to interact with their environments. Indeed, for humans to communicate, think, and be who we are requires that we learn and remember our thoughts and representations. This course will explore an overview of learning and memory research with a focus on the biological bases and include studies at the behavioral level, brain and nerve cell levels as well as the molecular foundations of synaptic plasticity thought to underlie both complex and simple learning. This course is approved to cover the capstone requirement for the Biology and Biomedical Sciences majors. Prerequisite: BIOS 3500 or permission of instructor. BIOS 5590 or graduate course in Neuroscience recommended. 3 hours

BIOS 5595 Biology of Sensory Systems This course provides an introduction, discussion and analysis of the anatomy, physiology, molecular biology and disease states of developed sensory systems identified in the human body and other animals. Recent sensory systems articles will be utilized to critique, strengthen student’s scientific reading skills, scientific writing skills and presentation skills. This course is approved to cover the capstone requirement for the Biology and Biomedical Sciences majors. Prerequisite: BIOS 2400 or 3500 or permission of instructor. BIOS 5590 or graduate course in Neuroscience recommended. 3 hours

BIOS 5600 Toxicology Through a lecture/discussion format, the means by which toxicants exert their effects on mammalian, aquatic and ecological systems will be explored. Topics will include bioaccumulation, distribution and excretion of chemicals in the body, the role of metabolism in enhancing or reducing toxicity, mechanisms of toxicity and the effects of toxicants on the major organ systems. Chemodynamic processes which control exposure of organisms will be presented in the context of risk assessment, and the problems inherent in predicting and quantifying risks will be discussed. This course is cross-listed with CHEM 5580. Prerequisites: BIOS 3500; CHEM 3550 & 3560 recommended. 3 hours

BIOS 5610 Pharmacology The study of the mode of action of drugs in the body. Topics may include, but are not limited to pharmacokinetics, pharmacodynamics, autonomic pharmacology, cardiovascular pharmacology, and renal pharmacology. The course will consist of approximately 50 percent lecture and 50 percent student presentations on selected topics. Prerequisites: BIOS 3500 and CHEM 3750 & 3760. 3 hours

BIOS 5700 General Pathology An introduction to pathology which describes the structural and biochemical changes occurring in cells and tissues following injury or disease. Prerequisites: BIOS 3500 and CHEM 3750 and 3760. 4 hours

BIOS 5740 Developmental Biology Developmental biology is the study of the formation of a complex, multicellular organism from a single cell, the fertilized egg. The course will present this material from both a classical description and an experimental cellular point of view. In addition to the lecture, laboratory exercises will provide experience in the recognition of the various stages of development and in the culturing and manipulations of embryos. Prerequisite: BIOS 2500. 4 hours
BIOS 5970  Topics in Biological Sciences  Lectures or seminars in various areas of Biological Sciences will be offered. The student's record will indicate the topic he/she has taken. May be repeated for credit.  Prerequisite: Departmental approval prior to registration.  3 to 4 hours

Business Information Systems
BIS 2640  Report Program Generator  Study of feasibility and applicability of RPG (Report Program Generator) computer programming to business problems. Included are the design, coding, compiling and execution of programs in RPG, RPG II, and RPG III.  Prerequisite: CIS 1020 or 1100 or equivalent.  3 hours

BIS 3620  Advanced Programming  Continuation of CIS 2610, including advanced treatment of sequential access; plus index sequential and random access, report writer, library routines, precompilers, documentation, efficiency, and database management systems.  Prerequisite: CIS 2610.  3 hours

Blindness and Low Vision Studies
BLS 3000  Application of Travel Instruction for Persons with Cognitive Impairments  This course is intended to provide an understanding of the specific needs relating to travel for individuals who are cognitively impaired. The focus is on how to best serve this population, how to design an appropriate individualized travel instruction program, and how to effectively implement such a program.  2 hours

BLS 3010  Blindness and Low Vision: An Overview  It is important for individuals considering entering any field related to human services to be familiarized with services available to persons who are blind or have low vision. Undoubtedly, working in any field related to Human Services or simply living everyday life will bring individuals in contact with persons who are blind or have low vision, including problems faced in everyday life, services they receive, skills taught that assist them in functioning as independently as possible, and career opportunities in the field of blindness and low vision.  3 hours

BLS 3020  Ambulatory, Communication, and Information Aids for Travel  This course will provide knowledge of ambulatory, communication, and information devices that assist independent travel for persons with disabilities. It will provide information about and practice with the use of different types of canes, walkers, wheelchairs, scooters, communication boards, and information such as GPS (global positioning system), Internet maps, talking maps, talking signs, and geographic information systems.  Prerequisite: Admission to Travel Instruction program.  2 hours

BLS 3050  Introduction to Adults with Disabilities  This course is intended to help students understand the impact of disability on the individual, in society, and to understand the contributions that can be made by persons with disabilities when they are accepted members of society. This course will present an overview of various disabilities, the services which have developed to help individuals function independently, and the capabilities of persons with disabilities. The student will gain an overview of medical aspects of disability, the demographics of disability, and issues relating to integration into society. The various components which make up independent functioning in our society will be examined as will the adjustment issues relating to disability.  3 hours

BLS 3940  Foundations of Travel Instruction  This course is designed to provide the theoretical underpinnings for the evaluation and provision of travel instruction for persons with disabilities. It examines the development of services, the sensory motor requirements, individual development, concepts relating to travel, analysis of the built environment, the systems of transportation available to persons with disabilities, and the professional information needed to provide quality services.  3 hours

BLS 3950  Methods of Independent Travel for People with Disabilities  This course is the heart of travel instruction. The knowledge provided prepares the practitioner to assess, teach, and monitor travel instruction for persons with disabilities other than blindness. Content in this area is taught through a combination of didactic lecture and experiential practice in the use of equipment and procedures.  3 hours

BLS 3960  Practicum in Independent Travel  This course will provide students the opportunity to observe travel instruction at an agency or school and to teach travel instruction to a consumer under the direction of an experienced supervisor. It is the purpose of the practicum to prepare students for more extensive training and responsibilities that will take
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<th>Course Code</th>
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<th>Description</th>
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<tr>
<td>BLS 4010</td>
<td>Small &quot;N&quot; Research Design</td>
<td>This course explores standard group research design, single subject and small numbers design. The emphasis is placed upon providing students with a working knowledge of an experimental methodology for demonstrating control in social/behavioral research where more traditional experimental control group paradigms are not feasible or desirable. This approach is based on an experimental methodology for demonstrating control with single or small numbers of subjects which includes design, internal replication, measurement, reliability, and visual or statistical analysis.</td>
<td>3 hours</td>
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<tr>
<td>BLS 4120</td>
<td>Internship in Independent Travel</td>
<td>Students will be provided with the opportunity to observe travel instruction at an agency or school and to teach travel instruction to consumers who are cognitively impaired and to consumers who are physically impaired. Outcomes of this course include the ability to develop assessment, planning, and teaching skills. Prerequisite: Completion, with a grade of “C” or better, of BLS 3960 Practicum in Travel Instruction. Graded on a Credit/No Credit basis.</td>
<td>4 hours</td>
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<tr>
<td>BLS 5770</td>
<td>Services to Individuals with Blindness or Other Disabilities</td>
<td>This course explores issues that affect services for people who are blind or have other disabilities. It includes prevalence and incidence of various disabling conditions, adaptive recreation, history and current status of service legislation, consumer organizations, professional organizations, accreditation, models of services delivery, national and international agencies and organizations, national and international resources, social service programs, and trends and future issues.</td>
<td>1 to 2 hours</td>
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<tr>
<td>BLS 5840</td>
<td>Computer Technology in Rehabilitation</td>
<td>This course is designed to introduce the student to computer technology as it is related to disabled persons. Students will learn the uses, parts, and operating commands of common adaptive computers, as well as the software used with them. In addition, the major adaptive forms of input and output will be investigated.</td>
<td>3 hours</td>
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<tr>
<td>BLS 5860</td>
<td>Job Development and Placement</td>
<td>This course applies career choice and job placement concepts to persons with disabilities. It includes occupational aspects of disability, pertinent laws and regulations including ADA and sections 501-504, labor market analysis, job analyses, rehabilitation engineering, job development, and work modification strategies. It provides experience in making employer contacts, overseeing clients' job seeking efforts, and training in job-related social skills.</td>
<td>3 hours</td>
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<tr>
<td>BLS 5880</td>
<td>Psychosocial Aspects of Disability</td>
<td>This course provides an understanding of the psycho-social factors that impact upon the integration into society of individuals with disabilities. It examines the philosophy of rehabilitation, major classifications and paradigms, common stereotypes, attitudes and their measurement, psychiatric disabilities, theories of adjustment, psycho-social losses, issues relating to sexuality, personal adjustment training, the role of the family, the use of effective interaction skills, and the stages of group process.</td>
<td>2 hours</td>
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<tr>
<td>BLS 5890</td>
<td>Medical and Functional Aspects of Disability</td>
<td>This course presents an interdisciplinary approach to the study of multi-handicapping conditions in rehabilitation. It includes information on the major disabling conditions such as traumatic brain injury; orthopedic, neuromuscular, visual, learning, speech and hearing, cardiovascular, mental and emotional disabilities; and other select disabilities. Emphasis is placed upon cumulative effects of concomitant disabilities with additional emphasis on visual impairment.</td>
<td>2 hours</td>
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<tr>
<td>BLS 5900</td>
<td>Physiology and Function of the Eye</td>
<td>The anatomy, structure, and function of the eye. Various eye diseases and malfunctions are stressed. The student is given an opportunity to observe all types of eye conditions and eye prostheses.</td>
<td>2 hours</td>
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<tr>
<td>BLS 5910</td>
<td>Braille and Tactual Communication Systems</td>
<td>Provides students with a basic knowledge of the braille literary code–reading and writing, and an overview of other communication methods available to the visually impaired.</td>
<td>2 hours</td>
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| BLS 5920   | Orientation and Mobility with Children                                       | This course will provide strategies for teaching orientation and mobility to children. Methods for teaching the typical orientation and mobility curriculum to children (indoor travel to
business travel) will be presented. In addition, strategies for teaching areas specific to children, such as body image, sensory-motor, and concept development will be addressed. The focus will be on practical application in educational settings. 2 hours

BLS 5950 Introduction to Orientation and Mobility The content of this course relates to problems of independent travel which result from reduced vision. Simulated experiences are provided which emphasize the sensory, conceptual, and performance levels needed for independent travel in a variety of environments. Course is repeatable. Prerequisite: Restricted to students in the Orientation and Mobility and Special Education/Orientation and Mobility programs. 2 to 4 hours

BLS 5960 Introduction to Electronic Travel Aids Systematic instruction in use of fundamental electronic travel aids and overview of major electronic devices. 1 hour

BLS 5970 Principles of Low Vision This course deals with assessment and remediation of functional problems encountered by low vision persons. Emphasis is placed on optical, non-optical, and electronic aids which increase visual functioning. In addition, the nature and needs of low vision persons and the interprofessional nature of low vision services are stressed. The concepts are explored that deal with initial intake procedures, assessment of near and distant visual acuity, assessment of near and distant visual field, color testing, evaluation of sunwear, evaluation of optical aids, training in the use of optical and non-optical aids, and use of equipment such as the lensometer and tonometer. Prerequisite: Approval of advisor. 2 hours

BLS 5980 Readings in Blindness and Low Vision Studies Restricted to students in the following curricula: Orientation and Mobility Rehabilitation Teaching, Rehabilitation Counseling and Teaching, and Special Education/Orientation and Mobility. Prerequisite: BLS students only. 1 to 4 hours

BLS 5990 Gerontology The course offers an overview of the characteristics, circumstances, and needs of the aging population of the United States and explores the types of services available to meet their needs. The course will focus upon the demography of the aged, the physiological changes and chronic diseases of aging, the social and economic aspects of aging, the psychological changes which come with age, and a review of the community resources which serve the aged. 2 hours

**Haworth College of Business Courses**

BUS 1750 Business Enterprise This course introduces students to the development and value of business institutions in society. Students will examine the dynamics of business decision-making and demonstrate the ability to identify, define, and interpret essential business concepts. The relationships among business activities will be studied to determine their interactions with the economic, political, legal, global, and social environments. 3 hours

BUS 2200 Introduction to Global Business An introduction to global business and its complex environment. Factors having an impact on global business including cultural differences, management theories, marketing activities and various legal and financial institutions are examined. Dominant international business policies will also be addressed. Prerequisite: Freshman/sophomore standing only. Not to be counted toward major/minor in BBA. 3 hours

BUS 2700 Information and Communication Infrastructure This course provides foundational knowledge about business information and communication infrastructures. A systems approach is used to present material on enterprise, national and global information, and communication infrastructures. The student will be introduced to applications for managerial information, data warehousing, decision support systems, CAD/CAM and logistic systems within the framework of integrated business and systems strategies. Electronic communication systems in networked, extended, and virtual enterprises also will be examined. Prerequisites: CIS 1020 or 1100 or CS 1050 or CS 1100 and BCM 1420 or ENGL 1050 or IME 1020; sophomore class standing required. 3 hours

BUS 3700 Integrated Communication in Business This course is designed to expand students' understanding of the complexities of oral and written communication in business. Individual and team projects will provide practical experience in the development of effective oral and written communication that reflects upon the students' ability to analyze an audience, adapt to the audience, and develop persuasive communication strategies reflecting the integration of written, oral, visual, and electronic modes of communication. This course is approved as a writing-intensive course which fulfills the
University Baccalaureate Writing requirement for BBA degree students. Prerequisites: BUS 2700; junior class standing required. 3 hours

BUS 3750 Business Process Productivity This course examines the impact of core business processes on the efficiency and effectiveness of a firm and its supply chain allies. The techniques for the design, implementation, and evaluation of continuous process improvements comprise the body of knowledge. The course uses experiential learning to challenge students to apply the techniques of continuous improvement and innovation to production and service process. Prerequisites: BUS 2700, MGMT 2500, and STAT 2160; junior class standing required. 3 hours

BUS 3900 Business Internship The business internship is designed to provide practical, hands-on business work experience within an organization and may be related to a business discipline. Internships may or may not be related to the student's major field of study and are recommended for completion prior to the senior year of academic work. For each credit hour received, students are expected to participate in a minimum of 75 hours of compensated work. Internships must be approved in advance by the Haworth College of Business before credit is awarded. Graded on a Credit/No Credit basis only. Prerequisite: Students must be admitted to the BBA (Business Administration) program. 1 to 3 hours

BUS 3990 Field Experience (Community Participation) A program of independent study combining academic work with social, environmental, civic or political fieldwork. Prerequisites: A written outline of the student's project, approved by a faculty supervisor, and approval from the office of the dean. 2 to 8 hours

BUS 4750 Strategic Business Solutions In this course students identify strategic issues and opportunities facing organizations and develop effective solutions. Students consider and evaluate strategic business alternatives and their implications by focusing on the key business dimensions of information, operations, people, and technology. The successful strategist integrates these four dimensions, sees the organization as a whole, and works proactively to improve organizational performance. This course requires students to learn new concepts as well as integrate prior course work and professional experiences. Prerequisites: ACTY 2110, ECON 2020, MGMT 2500, MKTG 2500, BUS 2700, BUS 3700, BUS 3750, FIN 3200, LAW 3800 (may be taken concurrently), and senior status. 3 hours

Civil and Construction Engineering

CCE 1490 Introduction to Architectural Drawing Introduction to the tools and techniques to enable the student to read, compose, and create architectural drawings related to interior design and construction. 3 hours (2 to 3)

CCE 2310 Introduction to Civil and Construction Engineering Students will develop a working knowledge of the computational technology used by civil and construction engineers. This knowledge will be applied in this course and used extensively in subsequent courses. In addition, students will gain a broad understanding of the types of problems solved by civil and construction engineers. Prerequisite: MATH 1220 or 1700. 1 hour (1 to 0)

CCE 2360 Geomatics Spatial data collection methods including surveying, digital photogrammetry and remote sensing, and global positioning systems. Methods and technologies used to manage, manipulate, and analyze spatial and associated attribute data including geographical information systems. Prerequisites: ENGR 1001, 1002, CCE 1490 (or IME 1420), MATH 1220 or 1700. 3 hours (3 to 0)

CCE 2530 Civil Engineering Measurements Principles and methods for measurement of loads, load effects, environmental variables, and performance of civil engineering systems. Classes integrate lectures and hands-on applications. Exercises provide students with an introduction to sensors, basic electrical circuits, data acquisition systems, and data analysis methods used in civil engineering. Prerequisite: ME 2560. Co-requisite: ME 2570. 2 hours (1 to 2)

CCE 3300 Transportation Engineering Introduction to transportation engineering with emphasis on highway and airport design. Topics include a survey of various transportation modes for surface, air, and water systems. Emphasis is placed on location and geometric design of highways and airport runways, highway/airport drainage systems, design of rigid and flexible pavement, and pavement testing methods and rehabilitation. Prerequisite: CCE 2360 and IME 2610. 3 hours

CCE 3330 Construction Codes, Specifications, and Contracts Application of model codes to residential and commercial structures, nonstructural and structural plan review; fire codes, codes governing the installation of the electrical,
plumbing and heating elements of the building; inspection techniques; code administration; and introduction to construction contracts. Prerequisite: ME 2570. 3 hours (3 to 0)

CCE 3350 Water Resources Engineering Survey of principles and practices of water resources engineering, including hydrogeology, hydraulics, water supply and wastewater treatment. Coverage: Descriptive and quantitative hydrology, groundwater, probability concepts in planning, reservoirs, dams, and spillways, open channel flow pumps, engineering economics in water resources planning, irrigation and drainage, water supply systems, wastewater treatment, flood damage mitigation. Prerequisites: ME 3560, IME 3100. 4 hours

CCE 3360 Soil Mechanics Mechanical and physical properties of soils and their relation to soil action in problems of engineering, such as classification, permeability, shearing strength, and consolidation. Prerequisite: ME 2570 and CCE 2530. 3 hours (2 to 2)

CCE 3380 Construction Materials and Methods The course will focus on the study of different construction materials. Design and control of concrete mixtures will form a major part of the course. Evaluation of physical and mechanical properties of important construction materials will also be included. Introduction to practical construction methods for residential, commercial, and heavy construction will be provided. Prerequisites: ME 2570 and CCE 2530. 3 hours (2 to 3)

CCE 3860 Structural Analysis Introduction to structural systems; structural requirements; structural systems and specification of loads; analysis of statically determinate and indeterminate structures using equations of equilibrium, moment distribution, and energy methods; determination of design forces in the structural components including shearing force and bending moment diagrams; and brief introduction to the direct stiffness method. Prerequisite: ME 2570. 3 hours (3 to 0)

CCE 4300 Traffic Design Elements of traffic engineering, including traffic flow theory and highway capacity analysis. Traffic engineering tools and implements including traffic signs and markings, signals, and lighting. Application of control measures such as coordination of signal systems, speed control, and zoning, one-way streets, and limited access facilities. Prerequisite: CCE 3300. 3 hours

CCE 4310 Construction Planning and Scheduling Construction Planning and control of construction projects are discussed. Scheduling techniques such as the critical path method (CPM) and the program evaluation and review technique (PERT) are covered. A scheduling software will be used. Prerequisite: CCE 3380. 3 hours (3 to 0)

CCE 4340 Hydraulics Measurement, control and conveyance of water flows, analysis, design, characteristics of hydraulic models, instrumentation, pipe systems, pumps and turbines. Prerequisite: CCE 3350. 3 hours

CCE 4350 Hydrology The hydrologic cycle and its components are described and estimated for specific settings. Concepts are applied to basins at different scales. Man-made modifications such as dams are considered. Prerequisite: CCE 4340 or ME 3560. 4 hours

CCE 4360 Construction Estimating, Bidding, and Cost Control This course will cover the procedures involved in material quantity takeoffs and in estimation of labor, material, equipment, and overhead costs. Estimating software will be used. The course will also discuss bidding procedures and the elements of construction cost control. Prerequisites: CCE 3330, CCE 3380. 3 hours (3 to 0)

CCE 4370 Pavement Design Covers pavement design concepts and considerations; engineering properties of pavement materials including soils, bases, asphalt concrete, and Portland cement concrete, design of flexible and rigid pavements. Prerequisites: CCE 3380, CCE 3360, and CCE 3860. 3 hours

CCE 4380 Construction Project Management Study characteristics of construction industry, project organizations, labor, material, and equipment utilization, construction productivity, value engineering. TQM, constructability, construction safety, contract types, and contract bonds. Prerequisites: CCE 4310, CCE 4360. 3 hours (3 to 0)
beams, columns and tension members using steel and concrete; principles for designing steel and concrete composite
members. Prerequisites: CCE 3380 and CCE 3860. 3 hours (3 to 0)

CCE 4450  Design of Steel Structures I  Design and behavior of structural steel members and their connections
subjected to moment, shear, and axial forces. Introduction to the design of steel structures. Prerequisite: CCE 3860. 3 hours

CCE 4480  Structural Analysis II  Analysis of indeterminate structural systems including trusses, frames, and
continuous beams using moment distributions, stiffness, and flexibility methods. Prerequisite: CCE 3860. 3 hours

CCE 4500  Reinforced Concrete Design II  Design and behavior of continuous beams, slender columns, two-way
floor slabs, flat slab floor systems, and eccentric and combined footing. Prerequisite: CCE 4400. 3 hours

CCE 4550  Design of Steel Structures II  Analysis and design of structural steel components and systems with
emphasis on theories necessary for a thorough understanding of the design of complete structures. Compression members
affected by local buckling, beams with lateral torsional buckling, continuous beams and beam column connections are
covered. Prerequisite: CCE 4400. 3 hours

CCE 4830  Project Design and Control  Problem definition, project planning and scheduling, follow-up and
control techniques. Results in presentation and plan for senior project. This course, along with CCE 485, is approved as a
writing-intensive course, which may fulfill the baccalaureate-level writing requirement of the student's curriculum.
Prerequisite: Senior standing. 1 hour (1 to 0)

CCE 4850  Senior Project  Open-ended team projects involving systems design, analysis, or application. Results in a
tangible system, written report and presentation. This course, along with CCE 483, is approved as a writing-intensive course,
which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisites: CCE 4830 and
approved project. 3 hours (1 to 6)

CCE 4990  Independent Studies  An individual study program to supplement regular course work, arranged in
consultation with a study supervisor. One to three hours credit per semester. Prerequisite: Consent of department. May be
repeated not to exceed six credit hours. 1 to 3 hours (Variable)

CCE 5300  Construction Project Delivery Systems  A comprehensive coverage of the standard contracts between
various agencies involved in construction will be described in the course. Analysis of traditional and current project delivery
methodologies will also be presented. Issues related to insurance and bonding in the construction industry will be highlighted.
Advanced topics such as alternate dispute resolution will also be covered. Prerequisites: CCE 4310 and CCE 4360 or
permission of instructor. 3 hours (3 to 0)

CCE 5310  Advanced Construction Project Management  The course will build on the information that is
normally provided to students in the undergraduate construction management courses on planning and control of construction
projects. The focus of this course will be to provide the students knowledge of quantitative tools that can be used in planning
and controlling construction projects. Topics to be covered will include cash flow forecasting, site planning, site
administration, risk analysis, contract documents and contracts administration. Advanced planning tools such as line of
balance, velocity diagrams, time-cost trade off, resource planning with applications to construction projects will also be
discussed. Prerequisites: CCE 4310 and CCE 4360 or permission of instructor. 3 hours (3 to 0)

CCE 5400  Transportation Planning  Theoretical foundations of transportation planning, analysis, and evaluation
methods. Theory and application of aggregate and disaggregate models for land use, trip generation, and destination, mode,
and route choice. Travel demand modeling and transportation network analysis for evaluation of system alternatives.
Prerequisite: CCE 3300 or permission of the instructor. 3 hours (3 to 0)

CCE 5460  Design of Timber Structures  Structural behavior of wood under loads; application of current timber
design codes; design of structural components and systems in wood; mechanical properties of wood fasteners and
connections. Prerequisites: CCE 3380 and CCE 4400 or permission of instructor. 3 hours (3 to 0)

CCE 5560  Foundation Design  Foundation analysis and design for different civil engineering facilities. High-
rise buildings, bridges, and other complex structures such as piles, drilled piers, and caissons. Theoretical aspects of
engineered foundations as well as practical applications are discussed. Prerequisites: CCE 3360 and CCE 4400 or permission of instructor. 3 hours

Counselor Education and Counseling Psychology

CECP 4830 Treating Diverse Clients in Employee Assistance Programs This course emphasizes increasing knowledge, understanding, and awareness of diversity among course participants and the contemporary American work force. Significant attention is devoted to treating racial minorities, women, gay/lesbian/bisexuals, older adults, persons with various religious affiliations, and the disabled within the context of Employee Assistance Programs. Open only to Employee Assistance Academic Program majors. 3 hours

CECP 5200 Foundations of Rehabilitation Counseling This course surveys the role of the rehabilitation counselor in establishing eligibility, planning services, the tracking system, counseling, case management, work evaluation, work adjustment, supported employment, transition, client assistance programs, job analysis, job development, post-employment, and advocacy. Major emphasis is given to the operation of the state vocational/federal system. 3 hours

CECP 5830 Workshops in Counselor Education and Counseling Psychology Workshops designed to enhance skill development related to Counselor Education and Counseling Psychology practices. Open to all students, but is not intended for counseling majors. May be repeated for credit. 1 to 4 hours

Chemical Engineering

CHEG 1010 Introduction to Chemical Engineering Introduction to chemical engineering, including process safety, basic laws at the foundation of chemical engineering, units and measurements, chemical equipment and instruments used in the process industries. Emphasis will be on oral and written communication skills and career planning development. Corequisites: CHEM 1100 and 1110, IME 1020. 3 hours (2 to 3)

CHEG 1810 Introduction to Chemical Engineering Computation An introduction to computer tools used to solve chemical engineering problems. These tools will provide a framework for doing homework, laboratory exercises, and research in later chemical engineering courses. MathCad and Excel with Visual Basic for Applications will be utilized. Prerequisites: MATH 1180; CHEG 1010 or PAPR 1000. Corequisite: MATH 1220. 2 hours (1 to 3)

CHEG 2610 Environmental Engineering The sources, impacts, and management practices for gas, liquid, and solid by-products of natural, industrial, and municipal sources. Legal, ethical and economic implications included in evaluation of applicable emission reduction and emission control techniques and processes will be stressed. Prerequisites: CHEM 1100 and 1110, MATH 1230, PHYS 1130 or 2050. Will be offered as honors courses for interested students 3 hours

CHEG 2810 Data Acquisition and Handling A lecture/laboratory consideration of the methods used to collect experimental or process data, data handling, and data presentation; methods and limitations when applying or collecting process information. Prerequisite: CHEG 1810. 1 hour

CHEG 2960 Material and Energy Balance Fundamentals of chemical engineering dealing with behavior of gases, thermophysical properties of solids, liquids and gases, thermochemistry and associated problem solving. Emphasis is on material and energy balances. The laboratory session will be used as a problem solving workshop. Prerequisites: CHEG 1810; CHEM 1100 and 1110, MATH 1230, PHYS 2050. Will be offered as honors courses for interested students 4 hours (3 to 3)

CHEG 3100 Work Experience/Coop Full-time employment in chemical process industries that provides first-hand experience in application of chemical engineering principles. A written report at the end of the semester is required. Prerequisites: Departmental consent; junior standing. 1 to 2 hours

CHEG 3110 Unit Operations in Chemical Engineering I A consideration of the unit operations in the area of fluid mechanics. Emphasis is on principles of fluid mechanics, equipment design, and applications. The laboratory is centered around problem solving, design, and optimization issues. Relevant software will be used in visualizing and solving industrial
Laboratory experiments demonstrating various principles and equipment will be conducted. Prerequisite: CHEG 2960. Will be offered as honors courses for interested students. 3 hours (2 to 3)

CHEG 3120 Unit Operations in Chemical Engineering II A consideration of the unit operations in the area of heat transfer. Emphasis is on the principles of heat transfer, equipment design, and applications. The laboratory is centered around problem solving, design, and optimization issues. Relevant software will be used in visualizing and solving industrial problems. Laboratory experiments demonstrating various principles and equipment will be conducted. Prerequisite: CHEG 2960. Will be offered as honors courses for interested students. 3 hours (2 to 3)

CHEG 3200 Chemical Engineering Thermodynamics A lecture consideration of the fundamental laws and concepts of thermodynamics and how they explain the behavior of matter in its different phases. Special emphasis on application to industrial situations. Prerequisites: CHEM 1120 and 1130, CHEG 2960. 3 hours (3 to 0)

CHEG 3300 Mass Transfer Fundamentals of diffusional mass balances; diffusion in solids, liquids, and gases. Convective mass transfer; simultaneous heat and mass transfer. Component separation in continuous processes; gas absorption and adsorption; liquid-liquid extraction and distillation. Prerequisites: CHEG 3110 or 3120; Corequisites: CHEG 3110 or 3120. 3 hours (3 to 0)

CHEG 3810 Computer Modeling and Simulation - Chemical Processes A laboratory class covering usage and application of process simulation packages; module set up, data inputting and optimization techniques. Prerequisite: CHEG 2960. 1 hour (0 to 3)

CHEG 4100 Chemical Reaction Engineering Chemical kinetics and equilibria; reaction rate expressions from mechanisms and experimental data; design and analysis of homogeneous flow and batch reactors; heterogeneous reactor design; solid catalyzed reactions. Prerequisites: CHEM 4300. 3 hours (3 to 0)

CHEG 4200 Separation Processes Survey of separations based on physical properties, phase equilibria and rate processes. Analysis and modeling of separation processes. Staged and countercurrent operations. Prerequisite: CHEG 3300. 3 hours (2 to 3)

CHEG 4440 Energy Management Engineering Energy systems including combustion processes and steam generation and distribution. Practical issues and equipment used in the energy industry. Energy efficiency, economic operation, and reduction of emissions. Prerequisites: (CHEG 3120 and 3200) or (ME 4310 and 4320). 3 hours (3 to 0)

CHEG 4600 Plant Economics and Project Design A lecture and laboratory consideration of: Process synthesis and operability characteristics; dynamics of chemical process industries; project evaluation and review; optimization in design and selection of process and/or equipment alternatives; environmental, health, and safety in the design of chemical processes; basis for cost estimation. Oral and written reports of individual and team efforts. CHEG 4600 is cross-listed with PAPR 4600. Prerequisites: CHEG 2960, CHEG 3110, CHEG 3120 and (CHEG 3300, CHEG 3810) or (PAPR 2040, PAPR 3030, PAPR 3520). 3 hours (2 to 3)

CHEG 4830 Process Control I Introduction to automatic control covering control methods, theory, loop analysis, and control loop hardware, including sensors, transmitters, controller and control valves. Includes the necessary secondary loop topics such as circuits (RC and RL) and circuit laws. Prerequisites: PHYS 2070; CHEG 3110 or 3120 (one of the two may be taken concurrently). 4 hours (3 to 3)

CHEG 4870 Senior Design Project Application of chemical engineering to the solution of a complex, open-ended research problem selected in consultation with faculty. The project will involve feasibility analysis, design, and optimization of chemical processes. Emphasis will be on working in small design groups, submission of written report, and oral presentation. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisite: CHEG 4600. Will be offered as honors courses for interested students. 3 hours

CHEG 4950 Topics in Chemical Engineering A specialized course dealing with a specific area in chemical engineering not included in other course offerings. May be repeated for credit with a different topic up to six hours. Prerequisite: Permission of instructor. 1 to 3 hours
CHEG 4990 Independent Studies A program of independent study in an area arranged in consultation with the instructor. One to three hours per semester, cumulative to six hours. Prerequisite: Permission of instructor. 1 to 3 hours

Chemistry

1000 Introduction to General Chemistry A course for students with insufficient background for college level chemistry which develops skills essential to a working understanding of the science of chemistry. Instruction and practice in the fundamental tools for solving chemical problems: chemical formulas, chemical equations, stoichiometry, measurement units, conversions. An introduction to the nature of matter is developed. Enrollment is restricted to students without high school chemistry or to those who demonstrate inadequate retention of their chemistry background. This course credit will not apply to curricular requirements of chemical science at this university and should be followed by CHEM 1100 or CHEM 1030. Prerequisite: MATH 1100 or equivalent performance on the Math Placement Examination. 3 hours

1100 General Chemistry I The theory and fundamental principles of chemistry are emphasized in this foundation course which serves primarily those who intend to enroll for more than two semesters of chemistry. Students well prepared may earn credit by taking an examination. Prerequisites: One year of high school chemistry and either MATH 1110 or equivalent performance on math placement examination. Students should concurrently enroll in CHEM 1110. (To count for general education credit, both CHEM 1100 and 1110 must be passed.) 3 hours

1110 General Chemistry Laboratory I The companion laboratory course to CHEM 110. This course is also intended for students who completed a general chemistry course without laboratory at another institution. Corequisite: CHEM 1100 (unless successfully completed in a prior term) or applicable transfer credit. (To count for general education credit, both CHEM 1100 and 1110 must be passed.) 1 hour

1120 General Chemistry II The properties of a number of the more representative elements and the compounds which they form are studied. Chemical relationships in the periodic table, electrochemistry, and the equilibrium principle are also treated. Prerequisites: CHEM 1100 and 1110. 3 hours

1130 General Chemistry Laboratory II The companion laboratory course to CHEM 1120. Corequisite: CHEM 1120 (unless successfully completed in a prior term). 1 hour

1510 Chemistry for Health Professionals I First semester of a two course sequence for College of Health and Human Services students whose curricula require an introduction to biochemistry. The first semester emphasizes general and organic chemistry. This course does not satisfy curricular requirements for chemistry outside of the College of Health and Human Services. Corequisite: CHEM 1520 (unless successfully completed in a prior term). 3 hours

1520 Chemistry for Health Professionals I Lab This laboratory course is designed to complement CHEM 1510. Corequisite: CHEM 1510 (unless CHEM 1510 has previously been successfully completed). 1 hour

1530 Chemistry for Health Professionals II The continuation of CHEM 151, emphasizing biochemistry. This course does not satisfy curricular requirements for chemistry outside the College of Health and Human Services, nor the chemistry requirements of the Physician Assistant Program. Prerequisites: CHEM 1510 and 1520. Corequisite: CHEM 1540 (unless successfully completed in a prior term). 3 hours

1540 Chemistry for Health Professionals II Lab This is the laboratory course which should be taken concurrently with CHEM 1530. Prerequisites: CHEM 1510 and 1520. Corequisite: CHEM 1530 (unless successfully completed in a prior term). 1 hour

1900 Chemistry in Society This course provides an overview of fundamental chemical principles so that the impact of chemistry on topics of importance to society may be discussed. These topics may include such areas as chemistry of the environment (air and water), radioactivity, energy sources, pharmaceuticals, household products, plastics, and food chemistry. Credit does not apply for a major or minor in chemistry. Prerequisite: MATH 1100. Corequisite: CHEM 1910 (unless successfully completed in a prior term). (To count for general education credit, both CHEM 1900 and 1910 must be passed.) 3 hours

500
Chemistry in Society Laboratory  This is the laboratory portion of CHEM 1900 which must be taken concurrently with or after passing CHEM 1900. Prerequisite: MATH 1100. Corequisite: CHEM 1900. (To count for general education credit, both CHEM 1900 and 1910 must be passed.)  1 hour

2250 Quantitative Analysis This course includes the theory, techniques, and calculations of quantitative analysis. Instrumental techniques are used to supplement classical analytical procedures in the laboratory. Prerequisites: CHEM 1120 and 1130. Corequisite: CHEM 2260 (unless successfully completed in a prior term).  3 hours

2260 Quantitative Analysis Laboratory This is the laboratory course which should be taken concurrently with CHEM 2250. Prerequisite: CHEM 1120 and 1130. Corequisite: CHEM 2250 (unless successfully completed in a prior term).  1 hour

3550 Introductory Biochemistry A basic course in the chemistry and metabolism of carbohydrates, lipids, proteins, and nucleic acids. Prerequisites: CHEM 3700 AND CHEM 3710; or CHEM 3770 and CHEM 3780.  3 hours

3560 Introductory Biochemistry Laboratory Basic biochemistry laboratory techniques. Isolation and properties of proteins, enzymes, carbohydrates, lipids and nucleic acids. Use of instrumentation for bioanalytical determinations. Prerequisite or corequisite: CHEM 3550 or CHEM 5500.  1 hour

3700 Introduction to Organic Chemistry A one semester course which surveys the chemistry of aliphatic and aromatic carbon compounds, designed for those needing a working knowledge of organic chemistry without the theoretical detail of a full year course. Prerequisites: CHEM 1120 and 1130. Credit may not be received for both CHEM 3750 and 3700. CHEM 3700 is not a satisfactory prerequisite for CHEM 3770. It is strongly recommended that students take CHEM 3710 concurrently.  3 hours

3710 Introduction to Organic Chemistry Lab This course is the laboratory to accompany CHEM 3700 and should be taken concurrently with CHEM 3700. Prerequisite: CHEM 1120 and 1130. Corequisite: CHEM 3700.  1 hour

3750 Organic Chemistry I The preparation and chemical properties of aliphatic and aromatic compounds are studied. The emphasis is placed on the nature of covalent bonds and molecules and the general reactions of functional groups. Prerequisites: CHEM 1120 and 1130. It is strongly recommended that students take CHEM 3760 concurrently.  3 hours

3760 Organic Chemistry Lab I This course is the laboratory to accompany CHEM 3750. Should be taken concurrently with CHEM 3750. Prerequisites: CHEM 1120 and 1130. Corequisite: CHEM 3750.  1 hour

3770 Organic Chemistry II This course is the continuation of CHEM 3750. Prerequisites: CHEM 3750 and 3760. It is strongly recommended that students take CHEM 3780 concurrently.  3 hours

3780 Organic Chemistry Lab II This course is the laboratory to accompany CHEM 3770. Should be taken concurrently with CHEM 3770. Prerequisites: CHEM 3750, CHEM 3760. Corequisite: CHEM 3770.  1 hour

3900 Special Problems in Chemistry This course is designed to give students that have completed basic chemistry an opportunity to receive credit for experience in chemical laboratory independent study in association with a faculty member. May be repeated once for credit. Prerequisite: 18 hours of chemistry, with approval of the department chairperson and a faculty director.  2 hours

4300 Physical Chemistry I Lectures on kinetic theory of gases, thermodynamics, phase rule, equilibria, electrochemistry, quantum theory, spectroscopy, statistical mechanics, chemical kinetics and mechanisms, transport properties, surface chemistry, macromolecules, crystal structure, etc. Prerequisites: PHYS 2050, 2060, 2070, 2080; MATH 2720; CHEM 1120 and 1130.  3 hours

4310 Physical Chemistry II A continuation of CHEM 4300. Prerequisite: CHEM 4300.  3 hours

4360 Physical Chemistry Laboratory I Laboratory experiments designed to emphasize and reinforce the principles covered in CHEM 430, with consideration of the limitations of physical measurements and their quantitative and qualitative
interpretation. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisites: CHEM 2250 and 2260, and 4300. 2 hours

4370 Physical Chemistry Laboratory II Laboratory experiments designed to emphasize and reinforce the principles covered in CHEM 4310. This course expands on the qualitative and quantitative interpretation or physical and chemical measurement skills introduced in CHEM 4360. Prerequisites: CHEM 4310, may be taken concurrently, CHEM 4360, concurrent enrollment strongly discouraged. 1 hour

4950 Co-op/Internship Research or practical training experience outside the department or university. This work is to be summarized in a written report. Students may take up to a maximum of six credit hours in CHEM 4950. Consent of the instructor will be required so that students can be matched appropriately with employers according to the course work they have completed. 1 to 4 hours

5070 Ethical Chemical Practice This class addresses ethical standards and professional practice for the conduct of chemists. Students will learn to access and search the scientific literature, develop a set of ethical standards, and maintain a safe laboratory environment in an atmosphere of responsible care. The course will also address responsibilities of the individual professional care. The course will also address responsibilities of the individual professional in group, academic, and industrial settings. Prerequisite: Twenty-four hours of Chemistry. Undergraduates with junior status and 12 hours of work in chemistry may enroll in 5000-level courses with prior approval of the department chair. 3 hours

5090 Topics in Chemistry A topic is presented in greater depth or from a perspective different from that of a typical undergraduate course. Representative topics such as microprocessors, industrial chemistry, chemical pollution, etc. according to student interest and request. Prerequisite: 16 hours of chemistry. Undergraduates with junior status and 12 hours of work in chemistry may enroll in 5000-level courses with prior approval of the department chair. 3 hours

5150 Inorganic Chemistry The course, along with CHEM 5700 and 5750, provides a capstone chemistry experience for undergraduates. The course will present the principles of inorganic chemistry in terms of its relevance to the "real world" of industry and environmental protection. Topics include symmetry, structure, and bonding, as well as a survey of the descriptive chemistry of the elements. Students are strongly advised to have already completed CHEM 5700 and be registered concurrently in CHEM 5750. Prerequisite: CHEM 4310 or permission of the instructor. Undergraduates with junior status and 12 hours of work in chemistry may enroll in 5000-level courses with prior approval of the department chair. 3 hours

5200 Instrumental Methods in Chemistry An introduction to the theory and application of modern chemical instrumentation is presented. General topics covered are elementary electronics, electrochemistry, spectroscopy, and other instrumental techniques. This course includes lecture and laboratory. Prerequisite or Corequisite: CHEM 4310, 4360. Undergraduates with junior status and 12 hours of work in chemistry may enroll in 5000-level courses with prior approval of the department chair. 3 hours

5250 Techniques in Water Analysis Analytical techniques and methodology commonly used to determine water quality are presented. Modern instrumental methods are stressed with particular emphasis on spectroscopic and chromatographic measurements. Laboratory provides practical experience in application of principles discussed in lecture. This course is not available to Chemistry majors. Prerequisites: CHEM 3700 and 3710 or 3770 and 3780. Undergraduates with junior status and 12 hours of work in chemistry may enroll in 5000-level courses with prior approval of the department chair. 2 hours

5280 Chemical Separations Principles and applications of chemical separations, including distillation, crystallization, extraction, electrophoresis and a variety of chromatographic techniques are presented. Laboratory exercises illustrate typical applications of the methods. Prerequisite: CHEM 3770. Undergraduates with junior status and 12 hours of work in chemistry may enroll in 5000-level courses with prior approval of the department chair. 3 hours

5400 Biogeochemistry An advanced survey of major current research topics in biogeochemistry. Examines chemical interactions among waters, mineral, and life in aquatic and geologic environment. Prerequisites: CHEM 1120 and 1130 or CHEM 5250, or permission of the instructor. Undergraduates with junior status and 12 hours of work in chemistry may enroll in 5000-level courses with prior approval of the department chair. 3 hours
5500  Biochemistry I  The chemistry, properties, and molecular biology of proteins and nucleic acids. Includes discussions of amino acids, enzymes and biochemical energetics. Prerequisites: CHEM 3770, CHEM 3780, and CHEM 4300. Undergraduates with junior status and 12 hours of work in chemistry may enroll in 5000-level courses with prior approval of the department chair.  3 hours

5510  Biochemistry I Laboratory This is the lab course that complements CHEM 550. Experiments involve more advanced techniques and instrumentation than in CHEM 356. Emphasis will be on purification and properties of proteins and nucleic acids. Prerequisites: CHEM 3770, CHEM 3780, and CHEM 4300; CHEM 5500 is either a prerequisite or corequisite. Undergraduates with junior status and 12 hours of work in chemistry may enroll in 5000-level courses with prior approval of the department chair.  2 hours

5540  Biochemistry II  Continuation of CHEM 550. Chemistry and metabolism of carbohydrates and lipids. Metabolism of amino acids and photosynthesis. Prerequisite: CHEM 5500. Undergraduates with junior status and 12 hours of work in chemistry may enroll in 5000-level courses with prior approval of the department chair.  3 hours

5580  Toxicology  Through a lecture/discussion format, the means by which toxicants exert their effects on mammalian, aquatic and ecological systems will be explored. Topics will include bioaccumulation, distribution and excretion of chemicals in the body, the role of metabolism in enhancing or reducing toxicity, mechanisms of toxicity and the effects of toxicants on the major organ systems. Chemodynamic processes which control exposure of organisms will be presented in the context of risk assessment and the problems inherent in predicting and quantifying risks will be discussed. This course is cross-listed with BIOS 5600. Prerequisites: BIOS 3500, and CHEM 3550 or CHEM 5540, or permission of instructor. Undergraduates with junior status and 12 hours of work in chemistry may enroll in 5000-level courses with prior approval of the department chair.  3 hours

5700  Advanced Organic Chemistry and Spectroscopy  This course, along with CHEM 5150 and 5750, provides a capstone chemistry experience for undergraduates. The course expands on fundamentals of organic reactions and mechanisms through investigation of molecular structure and reactivity. Students will gain experience in modern spectral interpretation and will learn to use the organic chemical literature and databases. Prerequisites: CHEM 3770, 3780, 4310 and 24 hours of chemistry. Undergraduates with junior status and 12 hours of work in chemistry may enroll in 5000-level courses with prior approval of the department chair.  3 hours

5750  Advanced Chemical Synthesis  This course provides a synthetic laboratory experience for undergraduates in conjunction with the CHEM 5700 and CHEM 5150 capstone courses. The fundamentals of synthetic techniques will be exercised through independent synthetic laboratory projects and detailed investigations of molecular structure using modern spectroscopic methods. Students will get hands-on experience with modern spectroscopic instrumentation and will learn to utilize the chemical literature and databases. It is strongly recommended that CHEM 5700 be taken before CHEM 5750 to prepare students for spectral interpretation. Prerequisites: CHEM 3770, 3780, 4310, 5200 or permission of the instructor. Undergraduates with junior status and 12 hours of work in chemistry may enroll in 5000-level courses with prior approval of the department chair.  2 hours

5900  Special Problems in Chemistry  Research work on a problem in chemistry in association with a faculty member. This research work is to be summarized in a written report. May be repeated once for credit. Prerequisites: CHEM 4360, 24 hours of chemistry, with approval of the department chairperson and a faculty director. Undergraduates with junior status and 12 hours of work in chemistry may enroll in 5000-level courses with prior approval of the department chair.  2 hours

5980  Readings in Chemistry  In consultation with a faculty member, the student will design a reading list in a specialized area. The student will master the material independently and will prepare a paper or other summary work as agreed with the faculty member. May be repeated up to a total of six hours. Graded on a Credit/No Credit basis. Prerequisite: 12 hours of Chemistry or graduate enrollment  1-4 hrs.

5990  Independent Research  Under the direction of a faculty member, highly qualified advanced students or small groups may pursue student-initiated research projects. The results will be summarized in a paper or other work as agreed with the faculty member. May be repeated up to a total of six hours. Graded on a Credit/No Credit basis. Prerequisite: 12 hours of Chemistry or graduate enrollment  1-3 hrs.
Chinese

CHIN 1000 Basic Chinese I  Fundamentals of Chinese. Background and practice in listening comprehension, speaking, reading and writing. 4 hours

CHIN 1010 Basic Chinese II  Continuation of CHIN 1000. Prerequisite: CHIN 1000 or equivalent. 4 hours

CHIN 2000 Intermediate Chinese I  The development of spoken and written expression in Chinese. Review of fundamental grammar and skills. Prerequisite: CHIN 1010 or equivalent. 4 hours

CHIN 2010 Intermediate Chinese II  The continued development of spoken and written expression in Chinese. Readings and discussions of civilization and culture materials. Prerequisite: CHIN 2000 or equivalent. 4 hours

CHIN 2100 Business Chinese  This course is designed to introduce students to various aspects of Chinese business culture and to provide basic business Chinese training. By linking the relationship between business culture and business language, this course will equip students with basic language skills and knowledge to do business in Chinese speaking countries and areas or with Chinese companies. Topics such as the following will be studied: The first business meeting; business negotiation; business connection; signing a contract; shipping and handling; and foreign trade corporations. We will emphasize communicative activities, and combine the language training with the introduction of Chinese business culture. Although students have different language background, all students are required to make a good faith effort to speak the target language at every relevant opportunity. It is our goal to use as much Chinese as possible while participating in this program. By the end of the course, students should be able to actively participate in basic business conversations. 3 hours

CHIN 2750 Chinese Life and Culture  This course is designed to introduce selected themes of Chinese life and culture, past and present. The main themes covered by this course are mostly linguistic, literary, philosophic, artistic, and religious. The course will be offered in English with no prerequisites and open to all students. The aim is to provide students new to the subject with an informed and balanced first impression of some of the fundamental components of Chinese culture, and to do so in such a way as to demonstrate its differences from the Western heritage while also noting their universal human value. 3 hours

CHIN 2800 Chinese Calligraphy  Introduction to the history of Chinese calligraphy and a brief theoretical framework for appreciation of the aesthetic qualities of the brushwork. A series of practice sessions will be held to facilitate a hands-on learning process for the lay person on major scripts. Taught in English, with translation for Chinese characters, can count toward minor in Chinese. 3 hours

CHIN 3160 Chinese Composition  Advanced study of composition in Chinese. Emphasis is upon increasing the student's command of written Chinese. Chinese characters competency and basic skills of using Chinese word processors are reinforced. Prerequisite: CHIN 2010 or equivalent. 3 hours

CHIN 3170 Chinese Conversation  Advanced study of conversation in Chinese. Students practice spoken Chinese through role-playing, the viewing of films, discussion, and other oral activities. Emphasis on both listening and speaking of the language. Prerequisite: CHIN 2010 or equivalent. 4 hours

CHIN 4770 Foreign Study  Student participation in departmentally approved program of study abroad. Repeatable for credit up to 32 credit hours. Prerequisite: Prior permission of departmental advisor and chairperson. Variable

CHIN 5020 Chinese for Graduate Study  Chinese instruction for graduate students enrolled in a degree program who need knowledge of Chinese for their field of study. Students will sit in appropriate level course for their learning. May be repeated for credit. May not be taken by undergraduate students in any field. Prerequisites: Approval of department of student's graduate program and approval of Department of Foreign Languages. 5000-level courses may be taken only by advanced undergraduate students. Advanced undergraduate students are defined as those who have satisfactorily completed a minimum of four courses, or equivalent, applicable towards a minor in any one language. Each course, however, may have more specific and/or additional prerequisites 3 to 4 hours

CHIN 5200 Topics in Chinese Linguistics and Language Science  The advanced study of a language or a group of languages from a scientific point of view, such as the function and status of languages in society, the comparative history of different language families or the manipulation of language for pragmatic needs across cultures. May be offered as
500-level courses may be taken only by advanced undergraduate students. Advanced undergraduate students are defined as those who have satisfactorily completed a minimum of four courses, or equivalent, applicable towards a minor in any one language. Each course, however, may have more specific and/or additional prerequisites

CHIN 5500 Independent Study in Chinese Directed individual study of a specific topic in Chinese language, literature, or culture. May be repeated for credit to a maximum of three hours. Prerequisite: Completion of four courses in Chinese or equivalent; minimum grade point average of 3.0 in Chinese; departmental approval required. 5000-level courses may be taken only by advanced undergraduate students. Advanced undergraduate students are defined as those who have satisfactorily completed a minimum of four courses, or equivalent, applicable towards a minor in any one language. Each course, however, may have more specific and/or additional prerequisites 1 to 3 hours

Computer Information Systems

CIS 1020 Introduction to End-User Computing Course focuses on the basic end-user computing skills needed by individuals to increase their productivity in the business workplace. This course develops students' skills through the use of software such as databases and spreadsheets, as well as presentation, communication, and information retrieval applications, and mainframe interfaces. A student may receive credit for only one of CIS 1020/1100, CS 1050, FCS 2250, HPER 1490, or SOC 1820. 3 hours

CIS 1100 End-User Computing This course provides BBA degree students with an on-line alternative to CIS 102. The class consists of a series of interactive skill modules for the student acquisition and demonstration of end-user computing ability. Students will be introduced to a combination of business applications, which provide introduction to campus and external computing networks. This is a self-paced course with exams for students with partial skills in computer usage. The course is graded on a Credit/No Credit basis. A student may receive credit for only one of CIS 1020/1100, CS 1050, FCS 2250, or SOC 1820. 1 hour

CIS 2600 Business Programming A This course introduces the fundamental concepts and implementations of modern visual programming language in a business environment. Major topics include general programming tools for business applications, fundamentals of business programming such as data types, expressions, and operators, etc., and basic programming structures of business applications. Prerequisite: CIS 1020 or CIS 1100 or equivalent. 3 hours

CIS 2610 Business Programming B This course introduces principles and techniques of object-oriented programming. It emphasizes on proper formulation and abstraction of the problem domain to build robust, flexible, and extensible business applications. Topics include programming logic, documentation, object-orientated design, user interfaces, business programming logic, and software verification and validation in the business environment. Prerequisite: CIS 1020 or CIS 1100 or equivalent. 3 hours

CIS 2800 Internet Programming This course is a programming course that develops the basic knowledge and skills needed to implement solutions with Internet programming tools. Students will create Internet solutions using current client-side programming technologies such as XHTML, CSS, JavaScript and VBScript, as well as current server-side programming technologies such as PHP and ASP. Prerequisites: CIS 1020 or 1100 or equivalent and BCM 1420 or equivalent. 3 hours

CIS 3260 LAN Administration This course provides an introduction into design, implementation, and administration of Local Area Networks (LAN). The characteristics, engineering, and economic tradeoffs among the essential hardware and software components are studied. Evolving standards, protocols, interfaces, and local area networking strategies are examined. This course supports the establishment of communication systems requirements and their translation into specific LAN configurations. Case projects are used throughout the course to emphasize design and administration options in practical situations. Prerequisite: Admission to the Business Administration curriculum. 3 hours

CIS 3600 Systems Analysis and Design This course focuses on systems analysis and design for a computer-based information system. It covers fundamental system concept and theory, analysis of information needs and data requirements, conceptual modeling techniques, and various system design methodologies. In addition, students are required to conduct a team-based project using modern CASE tools to analyze and design an information system with some real world applications. A developed system prototype with an oral presentation is also required. Students taking this course are required
to have a laptop computer meeting the minimum specifications defined by the Haworth College of Business. Prerequisite: CIS 2600 or CIS 2610 or CIS 2800 for eBizD major/minor. 3 hours

CIS 3660 Computer Networking  
The analysis of enterprise needs for computer networking is examined. The design of enterprise network architecture composed of Local Area Network (LAN), Metropolitan Area Network (MAN), Wide Area Network (WAN), and Global Area Network (GAN) is undertaken. A network architecture is designed within the framework of Enterprise, National and Global Information Infrastructures through private or public information superhighways (the Internet) and telecommunication services. E-commerce's networking solutions are studied as a major component of those infrastructures. A case study is applied to gain skills in planning and designing enterprise-wide computer network architectures. Students taking this course are required to have a laptop computer meeting the minimum specifications defined by the Haworth College of Business. Prerequisite: BUS 2700. 3 hours

CIS 3900 Business Web Architecture  
This course applies human computer interaction theories, principles, and techniques to develop effective and usable Web applications for the business environment. Topics include WWW architecture, modern web-based languages, search engines, interactive content, multimedia, and other technologies for the WWW. Students will evaluate the effectiveness of various Web sites and develop Web applications to support Internet commerce. Students taking this course are required to have a laptop computer meeting the minimum specifications defined by the Haworth College of Business. Prerequisite: CIS 2600 or CIS 2610 or CIS 2800 for eBizD major/minor. 3 hours

CIS 4100 Internship  
Under the direction of a faculty advisor, qualified students may engage in a variety of professional experiences. Scheduled meetings with advisor and written experience reports required. May be repeated for a maximum of 4 hours credit. Prerequisite: Approved application required. 1 to 4 hours

CIS 4600 Business Database Applications  
This course focuses on the design and development of business database applications. Content includes data modeling, data dictionary, normalization theory, logical and physical database design, database inquiry using query languages, database implementation using modern database management systems and networking technologies, and data maintenance and administration skills. Students are required to construct and develop a business database using current technology and graphic user interface design packages. Students taking this course are required to have a laptop computer meeting the minimum specifications defined by the Haworth College of Business. Prerequisite: CIS 3600. 3 hours

CIS 4640 Business Data Mining  
This course focuses on the theoretical understanding and practical applications of Knowledge Management. Specifically, it covers data warehousing, data-mining along with the decision support theories and models from quantitative methods and artificial intelligence applications such as decision support systems, expert systems, fuzzy logic, and neural networks. Students taking this course are required to have a laptop computer meeting the minimum specifications defined by the Haworth College of Business. Prerequisite: CIS 4600. 3 hours

CIS 4700 e-Portals Development  
This is an advanced course of the E-Business curriculum. This course focuses on the design and development of Web-based information sharing systems - portals. Pertinent concepts of E-business, database integration and Internet programming will be implemented. Issues and strategies involved in developing successful portals are also discussed. Prerequisite: CIS 3900. 3 hours

CIS 4900 Electronic Commerce Development  
The trends in e-commerce architecture are studied within the scope of consumer-to-business, business-to-business relations and the enterprise evolution. The impact of e-commerce solutions upon local, national, and global trading are examined in order to plan a customized solution for a given business. A part of the course is skills-oriented with computer projects that employ modern web technologies with interactive database processing in support of cybercash, and other e-commerce components and activities, including security protection. Web sites are developed with strong links to real world business applications. Students taking this course are required to have a laptop computer meeting the minimum specifications defined by the Haworth College of Business. Prerequisites: CIS 3900; CIS 4600 (as corequisite). 3 hours

CIS 4950 Web Administration  
This course is focused on the use of advanced Web technologies, interfaces, and system development tools for the administration and maintenance of a secured Web site. Students are expected to use modern web software to implement Internet, Intranet, and Extranet solutions for E-business. In addition, students will also apply theories and methodologies to build an E-business oriented knowledge base. Students taking this course are required to have
CIS 4960 Independent Study  A directed independent project in the area of Computer Information Systems. Prerequisite: Approved application required. 1 to 4 hours

CIS 4980 Readings  A series of direct readings in the area of Computer Information Systems. Prerequisite: Approved application required. 1 to 4 hours

CIS 4990 Enterprise Project  This is the capstone course of the CIS curriculum. Applications of computer, programming, and system knowledge, and skills gained from the previous classes are applied in developing an enterprise-wide software project. Some industrial enterprise-wide packages are reviewed. A team approach is applied to develop and integrate different computerized business functions into an integrated software system. Project management techniques and computer simulated solutions are formally presented to emphasize team dynamics and management skills. Students taking this course are required to have a laptop computer meeting the minimum specifications defined by the Haworth College of Business. Prerequisite: CIS 4600. 3 hours

CIS 5550 Topics in Computer Information Systems  Special topics appropriate to business applications such as database management systems, structured concepts, networking, programming documentation and efficiency, planning, organizing and directing management information systems. May be repeated for credit. Prerequisite: Permission of instructor. 3 hours

Communication

COM 1040 Public Speaking  Study of the application of principles of communication underlying effective oral presentations, with attention given to speaking in business, professional and public settings. Includes practice in preparing, presenting and evaluating speeches and other forms of oral presentations. This course may be offered in an accelerated format. 3 hours

COM 1700 Interpersonal Communication  An introductory course in communication theory and practice in which students utilize their powers of speech to increase their effectiveness in interpersonal relations through understanding of self and others. This course may be offered in an accelerated format. 3 hours

COM 2000 Introduction to Communication Theory  A study of communication models and theories which are common to the fields of interpersonal, group, organizational, public and mass communication. 3 hours

COM 2010 Communication Inquiry  This course introduces students to the humanistic and social science traditions of inquiry into human communication. Prerequisites: "C" or better in COM 2000. 3 hours

COM 2040 Advanced Public Speaking  Advanced study and presentation of informative, argumentative, persuasive and special occasion speeches. Prerequisite: "C" or better in COM 1040 or consent of School; admitted major or declared Communication minor status. 3 hours

COM 2100 Performance of Literature I  Emphasis is placed on developing the student's appreciation of literature and his/her skill in analysis and performance of prose, poetry, and drama, including an introduction to group performance of literature. 3 hours

COM 2400 Introduction to Media and Telecommunications  This course proposes to help students attain understanding of how media and telecommunication technologies are organized and how media products impact personal attitudes and life styles, patterns of social and public communication, as well as national and international policies and governance. The course surveys the history of these technologies, the scientific development of these technologies, the legal and ethical environment in which they operate, and the organizational, political, economic and social structures that sustain the telecommunication technologies and corresponding industries. Special attention is given to four sectors of the media and telecommunications fields: broadcasting, cable, telephony, and the internet. 3 hours
COM 2410 Film Communication An introduction to the unique language and elements of the film medium through the study of outstanding examples of historical and contemporary experimental, documentary and feature films. 3 hours

COM 2560 Broadcast Operations Introduction to the electronic theory, equipment, operating procedures and personnel involved in radio/television production, storage and distribution. 3 hours

COM 2570 Radio Programming and Production Analysis of sound as a creative element with computerized digital audio control in radio broadcasting and production. Studio experience in writing and producing radio formats, commercials, and other types of aural messages. Prerequisites: "C" or better in COM 2000; COM 2410 or COM 2560; admitted major or declared Communication minor status. 3 hours

COM 2800 Introduction to Organizational Communication Provides a broad overview of the field of organizational communication, addressing both traditional and contemporary theories, concepts, and research. Students will undertake the systematic study of internal and external organizational communication processes at the individual, group, and organization-wide levels. Prerequisite: "C" or better in COM 2000. 3 hours

COM 3050 Special Topics in Communication Group study of special topics in communication education, interpersonal and organizational communication, mass communication, oral interpretation, and film. Many of these special courses are organized in response to special needs or interests of students on campus, in the community and in the region. Some topics are announced in the Schedule of Classes; some are added during the semester. Further information and a full listing of topics may be obtained from the School office, 301 Sprau Tower. Specific topic must be approved by an advisor. May elect COM 3050 no more than twice. 3 hours

COM 3070 Freedom of Expression The traditions and justifications for freedom of expression are explored and applied to contemporary challenges facing interpersonal, organizational, and mass mediated communication. Beginning with the historical roots of free speech rights, students will trace the rise of the "modern" First Amendment through an analysis of court decisions. Topics to be investigated include free expression on the Internet and in the mass media, hate speech, campus speech codes, sexual harassment, free expression in the workplace, international differences in speech rights, and other topical free speech issues. 3 hours

COM 3320 Group Problem Solving This course examines principles and procedures of effective group communication with an emphasis on practical application of problem solving, decision making, and critical thinking skills. Individuals will work together in a variety of group situations learning to communicate effectively, plan agendas, make decisions, write and present group reports, and analyze group communication behaviors. Prerequisites: COM 1700 and COM 2000. 3 hours

COM 3340 Argumentation and Debate Theory and practice in argumentation and debate. Included are the analysis of propositions and the use of logic and evidence. Students will build, present, and defend cases. Students will also gain practical experience in managing forensic activities. Prerequisite: "C" or better in COM 1040; admitted major or declared Communication minor status. 3 hours

COM 3350 Leadership A study of the characteristics and behaviors of leaders with emphasis on the development of leadership abilities in the individual for different group situations. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisites: "C" or better in COM 1700 and COM 2000; admitted Communication major or declared Communication minor status. 3 hours

COM 3410 Film Modes and Genres This course will focus on analytic studies of representative films from various modes of film communication (narrative; non-narrative; film movements) and film genres (including, but not limited to, the musical, the western, the horror film, film melodrama, the science fiction film, film comedy, experimental film, etc.) Prerequisite: COM 2410. 3 hours

COM 3420 The International Film Industry This course will survey the history and development of commercial film and video from a global perspective, with an emphasis on the analysis of film and video content as well as industry practices in both Western and non-Western nations. We will use screenings of representative film and video work from
across the globe to illustrate and explore the complex social, economic, technical, and aesthetic forces that shape the international entertainment industry. Prerequisite: COM 2410. 3 hours

COM 3430 American Film History This course will survey developments over time in the production and reception of feature films. Major concerns will include the evolution of the studio system, the impact of technological change on film practice, influences on Hollywood of other national cinemas, and the changing relationship between Hollywood and American society. Representative films will provide key texts for each unit of the course. Prerequisite: COM 2410. 3 hours

COM 3500 Public Relations and Organizations The course will examine the role of public relations and public information in a variety of organizations with a communication theory perspective. The course is designed to prepare individuals for positions in public relations and public information, or for other positions in organizations concerned with the flow of information across organization boundaries. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisite: COM 2000 or consent of instructor; admitted Communication major or declared Communication minor status. 3 hours

COM 3540 Interactive Media The course is designed to investigate the psychological and social effects of on-line interactive communication technologies in the interpersonal, organizational, and social contexts. It also proposes to develop on-line communication and information retrieval skills, and guide students through non-linear organization of information and hypertext design of communication on the Web. 3 hours

COM 3550 Small Format Video Production Practical experience in the design, production, implementation and evaluation of small-format television programs. Applications of portable video technology to the broadcast industry and community cable television systems will be stressed. Prerequisites: COM 2000; COM 2410 or COM 2560; admitted major or declared Communication minor status. 3 hours

COM 3560 Film Production Production of short experimental films; scripting, planning, editing, directing and photography. Work in this course will be done within the limitations of 8 mm format. In addition to text materials, students must provide supplies averaging about $30.00 per student. Prerequisites: COM 2000, COM 2410; admitted major or declared Communication minor status. 3 hours

COM 3570 TV Studio Production Explores the elements of television studio production and directing. Studio experience in equipment operation, crew roles, and producing and directing various types of television studio formats. In addition to the texts, students must provide supplies averaging about $10. Prerequisites: COM 2000 and COM 2410 or COM 2560; admitted major or declared Communication minor status. 3 hours

COM 3580 TV and Film Scripting The styles and techniques of film and television scripting for broadcast formats, station continuity, commercials, dramatic scripts, small format video, and documentary. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisite: Admitted Communication major or declared Communication minor status. 3 hours

COM 3590 Broadcast Journalism Radio and TV as news and information media. Studies and applies principles of news gathering and reporting, commentary, on-the-spot news coverage, features, and structure of the newscast. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisite: Admitted Communication major or declared Communication minor status. 3 hours

COM 3700 Interpersonal Communication II An analysis of relational communication with particular emphasis on the nature of transactional relationships. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisites: COM 1700 and COM 2000; admitted major or declared Communication minor status. 3 hours

COM 3720 Introduction to General Semantics A study of the function of language. The course deals with the nature and meaning of symbols and differences between the communication systems of the human animal and other species. Examines the assumptions held by Western man about the structure/function of his universe as reflected in language; the problem of "reality" as distinct from "meaning." The purpose of the course is to increase the student's awareness of his/her effectiveness as a thinker or symbol-user. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. 3 hours
COM 3980 Independent Study Communication  Designed to allow outstanding students to work independently under faculty supervision. Includes extensive study, research or special creative projects in any of the several areas of communication. One to six hours credit may be accumulated. Prerequisite: Consent, Director of School. 1 to 6 hours

COM 4300 Persuasion and Social Influence  This course examines theory and research on social influence processes including compliance, conformity, and persuasion. Specifically, the course examines cognitive, interpersonal, and structural-level models of social influence and persuasion, and the impact of source, message, receiver, context, and channel on the influence process. 3 hours

COM 4320 Group Communication Theory  A study of small group communication from theoretical perspectives. The emphasis will be on analyzing small group communication based on an understanding of group communication theories, concepts, and research methods. Prerequisite: COM 3320. 3 hours

COM 4400 Public Relations Case Studies  This course uses a case study approach to apply principles of communication and persuasion theory to public relations problems. The course examines a variety of types of organizations in relation to issue advocacy and public policy, risk communication, legitimization, defense, and crisis management. Prerequisites: COM 3500; admitted major or declared Communication minor status. 3 hours

COM 4410 Documentary in Film and Television  A study of documentary philosophies, strategies, and accomplishments through an examination of important documentarists, movements, and films. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisites: COM 2410; admitted Communication major or declared Communication minor status. 3 hours

COM 4430 Media Theory and Social Change  The course examines the role of the mass media in diffusing information and persuasive messages, and the effects of these messages on individuals, groups and institutions. The fields of politics, advertising, and public relations are studied from the communication/change viewpoint of the practitioner and the consumer. 3 hours

COM 4440 Mass Communication, News, and Public Affairs  The course examines the role of the media in covering public affairs news and disseminating it to the public. Questions related to media access, fairness, media regulation and message production are discussed in light of current events. 3 hours

COM 4450 Media Criticism  Examines the various functions and writings of contemporary media critics and establishes criteria for evaluating media content and critical methods. Students will read, view, and listen to a variety of media content, including television and radio programs, newspaper and magazine articles, advertisements, films, documentaries, and Web pages. 3 hours

COM 4480 Telecommunications Management  The course examines broadcasting, telephone, cable, and other new communication technologies, with a primary emphasis on principles of telecommunication management, economics, and policy. The course is supplemented with a series of case studies and discussions pertaining to select management issues. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisites: Junior or Senior, COM 2000 and COM 2400; admitted Communication major or declared Communication minor status. 3 hours

COM 4500 Public Relations Program Development  This is an advanced course in public relations emphasizing research methodology, developing planning objectives, and program evaluation for corporate, governmental, educational, and social service organizations. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisites: COM 2000 and COM 3500; admitted Communication major or declared Communication minor status. 3 hours

COM 4550 International Telecommunications  This course is designed to provide the student with an overview of the essential regulatory and policy issues governing the field of international telecommunications. Special attention is given to the major regulatory agencies and economic players responsible for the formation of telecommunications policy at the international level. Prerequisites: COM 2000 and 2400; admitted Communication major or declared Communication minor status. 3 hours
COM 4570 Advanced Video Production  This course will afford students the opportunity to write, plan, produce, shoot and edit advanced independent productions in either 16 mm film, S-VHS analog, or digital video. Students participating in this course will work in production teams to conceptualize, produce, and direct two production projects. Students will also be required to serve as crew for other members in the class (if needed). At the end of the semester, students will be expected to exhibit an exceptionally high level of digital video production competence through the completion of these projects. Prerequisites: COM 3550 or COM 3560; admitted major or declared Communication minor status. 3 hours

COM 4700 Communication, Social Issues and Change  A study and practical application of communication and rhetorical methodology in contemporary social problems. 3 hours

COM 4720 Nonverbal Communication  The course examines theory and research in the nature and function of nonverbal message systems. Topics include: the role of nonverbal communication in the developmental stages of humans; individual differences in ability to interpret messages; the relationship of nonverbal communication to the concept of culture; extension of a person such as space, clothing, possessions; and specific messages related to the face and body. 3 hours

COM 4740 Intercultural Communication  An examination of the factors contributing to effective communication in an intercultural context. The course focuses on such topics as ethnocentrism, cultural perceptions, values and beliefs, language and meaning, and nonverbal factors. Communication systems of selected cultures are described and analyzed. 3 hours

COM 4750 Family Communication  Examines the current literature pertaining to holistic systems, power influences, and satisfactory patterns of family communications. Students analyze family interactions and identify satisfactory patterns of marital family communication. 3 hours

COM 4770 Communication Ethics  Ethical theories and justification models are studied and related to ethical decision making in a variety of communication contexts, including mass communication, organizational communication, and interpersonal communication. The course will examine the components of good ethical decision making in communication, as well as obstacles that can stand in the way of responsible choices. 3 hours

COM 4790 Female/Male Interaction  Examines the variable of gender as it influences communication between women and men. Topics include female-male stereotypes, interpersonal attraction, differences in female-male verbal and nonverbal codes, relational dialogues and patterns, and female-male interaction on the job. 3 hours

COM 4800 Applied Topics in Organizational Communication  This course will enable students to master knowledge and skills in an applied specialty area of organizational communication. Students will participate in an extensive hands-on project addressing a pragmatic problem in an organizational setting. Topics will vary. Six hours of COM 4800 may be taken for credit toward the Organizational Communication major. Specific topics may not be repeated for credit. Prerequisites: COM 2010, COM 2800; admitted major or declared Communication minor status. 3 hours

COM 4830 Interviewing  Theories and principles of planning, conducting, and evaluating interviews are studied and applied to specific interview types, including selection, performance appraisal, survey, and journalistic interviews. Emphasis is placed on the perspective of the interviewer rather than interviewee. 3 hours

COM 4840 Health Communication  Studies concepts and theories relevant to the maintenance and enhancement of effective communication in health care settings. Emphasis is given to the study and application of communication theories, to the transactions which occur among health professionals, and between professionals and clients/patients. This course may be offered in an accelerated format. 3 hours

COM 4990 Internship  This internship for academic credit is available only to those students who meet School requirements of prerequisite courses and grade point average. Specific requirements for various types of internships are described in the School's undergraduate handbook, available in the School of Communication office. 1 to 6 hours

COM 5410 Telecommunications Law and Policy  Provides an overview of the essential regulatory and policy issues governing the field of telecommunications. Special attention is given to such topics as libel, privacy, access and right to reply, and copyright. A case study approach is used for the purpose of understanding legal precedent. Prerequisites: COM 2000 and COM 2400; admitted major or declared Communication minor status. Undergraduates with junior or
senior status with listed prerequisites completed may enroll in 5000-level courses with prior approval of advisor and/or
instructor 3 hours

COM 5510 Methods of Media Analysis An investigation of the approaches to media analysis (auteurist, intentionalist, sociological, structural, historical, ideological, psychological) by intensive "reading" and shot sequence examination and evaluation of widely divergent works. Prerequisites: Junior or senior or graduate standing and COM 2410 or COM 3560; admitted major or declared Communication minor status. Undergraduates with junior or senior status with listed prerequisites completed may enroll in 5000-level courses with prior approval of advisor and/or instructor. 3 hours

COM 5540 Communication Technology This course provides an overview of telecommunications technology and services. The course is intended for the manager who requires a "practical" understanding of the design and performance characteristics of such telecommunication technology as satellite, optical fiber, PBX, and cellular telephone communications. In addition this course will include an appropriate measure of economic, regulatory, and policy issues as they pertain to the development of new and enhanced telecommunication services. Prerequisites: COM 2000 and COM 2400; admitted major or declared Communication minor status. Undergraduates with junior or senior status with listed prerequisites completed may enroll in 5000-level courses with prior approval of advisor and/or instructor. 3 hours

COM 5550 Multi-Media Production This course is designed to help students develop competencies required to produce linear and non-linear interactive multi-media projects. By the end of the semester students will gain an understanding and appreciation of the steps necessary to produce multimedia projects and the concepts, tools, and techniques involved in the design and delivery of interactive multimedia projects. Students will also be able to create a fully functional multimedia document delivered via a CD-ROM. Prerequisite: COM 2410 or COM 2560; admitted Communication major or declared Communication minor status. Undergraduates with junior or senior status with listed prerequisites completed may enroll in 5000-level courses with prior approval of advisor and/or instructor. 3 hours

COM 5600 Teaching Communication This course provides an overview of the concepts, materials, and methods used in teaching communication courses. The focus will be on the following: (a) philosophies and theories of speech communication, (b) development of instructional strategies and objectives, and (c) development and evaluation of teaching materials. Students will take part in, observe, and evaluate teaching-learning processes. Prerequisites: COM 1040, 1700, 2000, or consent of the School; admitted major or declared Communication minor status. Undergraduates with junior or senior status with listed prerequisites completed may enroll in 5000-level courses with prior approval of advisor and/or instructor. 3 hours

COM 5640 Telecommunications Networks This course provides an overview of telecommunications networking technologies, standards, and protocols. Network configurations, switching technologies and signaling standards that sustain voice and data communications networks, corporate networks, and advanced intelligent networks are major sections of the course. Prerequisites: COM 2000 and COM 2400; admitted major or declared Communication minor status. Undergraduates with junior or senior status with listed prerequisites completed may enroll in 5000-level courses with prior approval of advisor and/or instructor. 3 hours

Computer Science

CS 1000 Fluency With Information Technology Foundational concepts of information technology (IT), plus the opportunities and limitations of computer systems. Various computer applications - including operating systems, file managers, Internet browsers and search engines, email and other network applications, word processing, spreadsheet, database and presentation software. Application of IT methodologies in high-level problem-solving through self-learning computer projects. Specialized lab assignments (or sections) available to meet needs of a discipline (or department). A General Education Area VII course. Cannot be used to satisfy computer science major or minor program requirements. 3 hours

CS 1010 What is Computer Science? This course surveys the discipline of computer science and discusses: the history of computing, binary numbers and data representation, computer logic, components of a computer, problem solving and algorithmic design, low-level and high-level programming, abstract data types and algorithms, operating systems, file systems and databases, artificial intelligence, simulations, and networks and the World Wide Web. It differentiates computer science, computer engineering, information processing, and other areas of study of computing and computing
technology. A General Education Area VII course. Prerequisites: Basic computer literacy/usage and MATH 1110. Co-

requisite: CS 1011. 3 hours

CS 1011 What is Computer Science? - Lab This laboratory course accompanies CS 1010 What is Computer

Science? It provides hands-on experience for students in a broad range of areas of computing including number systems,
digital logic, computer programming, operating systems, databases, artificial intelligence, and computability. Students will be
introduced to programming in a higher level language. A General Education Area VII course. Prerequisites: Basic
computer literacy/usage and MATH 1100. Corequisite: CS 1010. 1 hour

CS 1021 Introduction to Engineering Computing 1: Spreadsheets An introduction to computing for engineers

and technologists using spreadsheets. Basic concepts and structures of spreadsheets are presented. Examples come from
diverse disciplines of engineering, technology, and computer science. Students learn how spreadsheets are different from and
similar to mathematical software and computer programming. Practical experience with spreadsheets is gained in laboratories
built into this course. Prerequisite: MATH 1180. 1 hour

CS 1022 Introduction to Engineering Computing 2: Mathematical Software An introduction to computing for

engineers and technologists using mathematical software. Basic concepts and structures of mathematical software are
presented. Examples come from diverse disciplines of engineering, technology, and computer science. Students learn how
mathematical software are different from and similar to mathematical software and computer programming. Practical
experience with mathematical software is gained in laboratories built into this course. Prerequisite: MATH 1180. 1 hour

CS 1023 Introduction to Engineering Computing 3: Computer Programming An introduction to computing for

engineers and technologists using elementary computer programming. Basic concepts and structures of computer
programming are presented. Examples come from diverse disciplines of engineering, technology, and computer science.
Students learn how computer programming is different from and similar to mathematical software and computer
programming. Practical experience with elementary computer programming is gained in laboratories built into this course.
Prerequisite: MATH 1180. 1 hour

CS 1040 Introductory C/C++ This course provides an introduction to programming using a subset of the C++

language. Topics covered will include: programming practices and structures; C++ syntax including variable declaration
types, arrays, assignment statements, looping, functions, scope of variables, pointers and basic input-output. Although classes
are introduced, concepts of object oriented programming will not be covered. Prerequisite: 1-1/2 years of high school
algebra or MATH 1110. 2 hours

CS 1060 Introductory Visual BASIC This course provides an introduction to programming in the BASIC

language using Visual BASIC. It is designed primarily to give students enough background so they can use BASIC in further
course work. Prerequisite: 1-1/2 years of high school algebra or MATH 1110. This course does not fulfill the computer
literacy requirement. 1 hour

CS 1070 Introductory Programming: FORTRAN An introduction to computer programming using the

FORTRAN language (FORmula TRANslation). Prerequisite: 1-1/2 years of high school algebra or MATH 111. Credit
will not be given for both CS 2010 and CS 1070. This course can not be used towards a major or minor in Computer Science.
2 hours

CS 1110 Computer Science I A first course in the science of programming digital computers. Analysis of
problems and development of correct procedures for their solution will be emphasized along with the expression of
algorithmic solutions to problems in a structured high level computer language. Applications will solve both numerical and
non-numerical problems for the computer. Co-requisite: MATH 1180. Enrollment is restricted to undergraduates
and those graduate students admitted under the PCS (Permission to take Computer Science) classification. Enrollments in all
5000-level computer science classes will be restricted to undergraduates and graduate students in the Computer Science
master's program (CMP). Students in other graduate programs who need one of these courses either for subject matter or a
research tool can gain admission by permission from the department. 4 hours

CS 1120 Computer Science II This course is a continuation of Computer Science I with more emphasis on top-
down, modular, structured design and techniques involved in the production of large computer programs. Advanced language
features such as recursion, sets, pointers, records/structures will be discussed. Data structures and their various

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implementations are introduced. Design and analysis of various searching and sorting techniques will be presented. Elementary file processing using sequential and random access input and output will be demonstrated. A team project will be assigned. Prerequisite: CS 1110; co-requisite: MATH 1220 or MATH 2000 or MATH 1700. Enrollment is restricted to undergraduates and those graduate students admitted under the PCS (Permission to take Computer Science) classification. Enrollments in all 5000-level computer science classes will be restricted to undergraduates and graduate students in the Computer Science master's program (CMP). Students in other graduate programs who need one of these courses either for subject matter or a research tool can gain admission by permission from the department. 4 hours

CS 2000 Programming Language Experience Details of a specific computer programming language are presented. The name of the specific language discussed will appear in the student's transcript. Students obtain practice by writing programs in the language. This course assumes knowledge of the use of the computer system and editor and basic programming concepts. It is suitable for anyone wishing to learn the specific language being taught. Course can be repeated for credit in a different language. Prerequisite: CS 1110 and 1-1/2 years of high school algebra or MATH 1110. 4 hours

CS 2010 Programming in FORTRAN Details of the FORTRAN computer programming language are presented. Students obtain practice by writing programs in the language. This course assumes knowledge of the use of the computer system and editor and basic programming concepts. Credit will not be given for both CS 2010 and CS 1070. Prerequisite: CS 1110 and 1-1/2 years of high school algebra or MATH 1110. 2 hours

CS 2020 Programming in COBOL Details of the COBOL computer programming language are presented. Students obtain practice by writing programs in the language. This course assumes knowledge of the use of the computer system and editor and basic programming concepts. Prerequisites: CS 1110 and 1-1/2 years of high school algebra or MATH 1110. 2 hours

CS 2030 Programming in C Details of the C computer programming language are presented. Students obtain practice by writing programs in C. The course assumes knowledge of a computer system, editors, and programming concepts. Prerequisite: Substantial programming in a structured high-level language. 2 hours

CS 2040 Programming in C++ Details of the C++ computer programming language are presented. Students obtain practice by writing programs in C++. The course assumes knowledge of a computer system, editors, and programming concepts. Prerequisite: Substantial programming in a structured high-level language. 2 hours

CS 2050 Programming in Java Details of the Java computer programming language are presented. Students obtain practice by writing programs in Java. This course assumes knowledge of and experience using a computer system, editors, and programming concepts. Prerequisite: Programming experience in a structured high-level language. 2 hours

CS 2060 Programming in Visual BASIC Details of the Visual BASIC computer programming language are presented. Students obtain practice by writing programs in Visual BASIC. This course assumes knowledge of and experience using a computer system, editors, and a programming language. Prerequisite: Programming experience in a structured high-level language and use of a MS Windows-based computer system. 2 hours

CS 2100 Introductory Topics in Computing Technology A topics course presenting introductory computer science material suitable for credit in some undergraduate computer science major and minor programs. Topic can vary with each offering. The course can be repeated with different topics for credit. 1 to 3 hours

CS 2230 Computer Organization and Assembly Language This course introduces concepts of computer architecture and assembly language. CISC and RISC instruction sets, along with associated hardware issues (e.g., data representation and instruction formats, instruction pipelining, register windows, context switching, and memory management) will be discussed. The student will program in both assembly language and the C programming language as well as interfacing the two languages. Prerequisite: CS 1110. Enrollment is restricted to undergraduates and those graduate students admitted under the PCS (Permission to take Computer Science) classification. Enrollments in all 5000-level computer science classes will be restricted to undergraduates and graduate students in the Computer Science master's program (CMP). Students in other graduate programs who need one of these courses either for subject matter or a research tool can gain admission by permission from the department. 3 hours
CS 2240 System Programming Concepts  Topics include: program development tools, basic testing, timing, profiling and benchmarking, characteristics of physical devices, memory management, device drivers, pseudo-devices, file structures, file I/O (both buffered and unbuffered), processes, shells, inter-process communications, signals, exceptions, pipes, sockets, shared memory and file and record locking. All topics are viewed from a UNIX system programming perspective. Prerequisites: CS 1120 and CS 2230. Enrollment is restricted to undergraduates and those graduate students admitted under the PCS (Permission to take Computer Science) classification. Enrollments in all 5000-level computer science classes will be restricted to undergraduates and graduate students in the Computer Science master's program (CMP). Students in other graduate programs who need one of these courses either for subject matter or a research tool can gain admission by permission from the department. 3 hours

CS 3020 Teaching of Computer Science  This course deals with the problems and current trends of teaching high school computer science. The main emphasis is on effective methods of instruction. Practical methods of selection, organization, and maintenance of hardware and software are also considered. Topics such as computer literacy, the computer as a problem-solving tool, issues in computing, and related computer applications will be considered and discussed. This course does not carry credit towards a Computer Science Major or Minor; however, it is required course for those in Secondary Education. Prerequisites: CS 1050, CS 1120, and junior status. 3 hours

CS 3310 Data and File Structures  This course focuses on the study of internal and external data structures and algorithms with an ongoing emphasis on the application of software engineering principles. Trees, graphs and the basic algorithms for creating, manipulating and using them will be studied. Various types of hash and indexed random access file structures will be discussed and implemented. B-trees and external file sorting will be introduced. Internal and external data and file organizations and algorithms will be compared and analyzed. Students will carry out a number of programming projects which will include the various interface (person-to-person, module-to-module, person-to-module-to-person) aspects of the software development process. Prerequisite: CS 1120 or equivalent. Enrollment is restricted to undergraduates and those graduate students admitted under the PCS (Permission to take Computer Science) classification. Enrollments in all 5000-level computer science classes will be restricted to undergraduates and graduate students in the Computer Science master's program (CMP). Students in other graduate programs who need one of these courses either for subject matter or a research tool can gain admission by permission from the department. 3 hours

CS 3400 Graphical User Interface Development  An introduction to the design and development of graphical user interfaces. The emphasis in the course is on event-driven code design and programming using GUI toolkits, with special emphasis on the design of interactive programs, web-based interaction, and the role of usability testing. Prerequisite: CS 1120. 3 hours

CS 4020 Introductory Microcomputer Concepts for Teachers  This course is designed to provide teachers with a minimum foundation in computer concepts and programming. Emphasis is on the use of the BASIC language to perform a variety of educational applications on microcomputers. Computer terminology and capabilities are explored as well as the significance of computers in contemporary society. Students will write a number of programs and will receive an introduction to the use of standard system software. Flowcharting is introduced. Examples of Computer Assisted Instruction will be given. Not for Computer Science majors and minors (except teaching). Prerequisite: MATH 1500 or equivalent. 3 hours

CS 4120 Professional Field Experience  This course allows students to receive academic credit for professional work experience in the computing field. The work activities must require significant computer science knowledge and education. This course may not be taken for work already completed and may not be used for computer science major or minor elective. It is a credit/no credit course and may be taken for a maximum of three credit hours. Prerequisites: CS 3310 or equivalent, and approval in advance by the Department. 1 to 3 hours

CS 4310 Design and Analysis of Algorithms  A continuation of the study of data structures and algorithms. It provides a theoretical foundation in designing algorithms. The focus is on the advanced analysis of algorithms and on how the selections of different data structures affect the performance of algorithms. Algorithmic paradigms such as divide and conquer, greedy method, dynamic programming, backtracking and branch and bound are covered. B-trees and 2 to 3 search trees and a variety of graph structures are discussed along with their applications to algorithm implementation. Algorithms will be analyzed for their complexity. NP-completeness will be introduced. Prerequisites: MATH 1450 and CS 3310 or equivalent. 3 hours
CS 4430 Database Management Systems This course presents fundamental concepts and practices of database management systems. Database environment and administration are defined along with roles of the database administrator and the data dictionary. Conceptual and logical models are discussed with emphasis on the relational approach. Data access techniques such as sequential and multi-level sequential indexes, linked lists, inverted files and hashing are briefly reviewed. A few commercial systems will be surveyed. Security, reliability and integrity will be studied. Students will acquire experience with the various topics by applying them to an actual database system. Students will also write application programs which use the database systems. Prerequisite: CS 3310. A student may not receive credit for both CS 4430 and CS 5430. 3 hours

CS 4540 Operating Systems The internal and external views of computer operating systems are presented. A historical survey of the development and growth of operating systems is given. Fundamentals of systems and system design are stressed. Basic concepts and terminology are emphasized. Processes, communications and synchronizations, deadlocks, scheduling, shared resources, resource allocation, and deallocation, memory management, files management, and protection are discussed. Applications to real systems are investigated to motivate the ideas presented. Students build or run simulations and modify the internals of a working operating system. Prerequisites: CS 2240 and CS 3310. 3 hours

CS 4800 Theory of Computation I: Automata An introduction to the theory of computation emphasizing automata and their applications in the specification of languages and computer systems. Prerequisites: CS 3310 and MATH 1450. 3 hours

CS 4850 Programming Languages Properties of various programming languages including scope of declarations, storage allocation, control structures and formal parameters will be studied, as well as run time representation of programs and data structures. A study of compilers and interpreters will be made. This will include loading, execution, storage allocation, symbol tables, lexical scan, parsing and object code generation. The relation of automata to formal languages and grammars will be discussed. Prerequisite: CS 3310. 3 hours

CS 4900 Software Systems Development I: Requirements and Design This course is the first of a capstone project sequence required for all computer science majors. Software engineering and its methodologies are explained. Various software life cycle models are introduced. Students are placed into teams and assigned to a client and project. The teams create a project plan, analyze and specify requirements for their project and develop a design. Prototype demonstrations and periodic oral and written progress reports are required to help assure steady progress. Individuals and teams produce a variety of documents throughout the course. Documents include a management plan, project abstracts, a requirements specification, a user interface prototype document, and a design document consisting of architectural and detailed design elements. This course is approved as a writing-intensive course, which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisite: CS 3310. 3 hours

CS 4910 Software Systems Development II: Implementation and Testing This course is the second of a capstone project sequence required for all computer science majors. Students are placed into teams and assigned to complete an existing project for a client. The teams implement and debug code according to a design produced earlier. They produce a testing plan, carry out testing, record test results and summarize them. Prototype demonstrations and periodic progress reports are required to help assure steady progress. Individuals and teams produce a variety of documents throughout the course. These documents include a testing plan, a testing log, a summary of testing, a maintenance manual and a user manual. Teams also deliver a public demonstration at the end of the course. Prerequisite: CS 4900. 2 hours

CS 4950 Topics in Computer and Information Science The content of this course varies. It is intended to introduce the student to significant topics which are not normally offered as separate courses. This course may be taken more than once with the approval of the student's advisor. Prerequisite: Approval of Department. 3 hours

CS 4980 The Computer Science Profession This course examines the role of the computer scientist in society. Topics covered are designed to promote awareness of professional, ethical, and societal issues in the field of computer science. Prerequisite: Senior status. 1 hour

CS 4990 Undergraduate Research in Computer Science Supervised undergraduate research. Topics are chosen and arrangements are made on an individual student basis. With prior written approval, this course may be used for elective credit in the Theory and Analysis option of the B.S. degree in computer science. Students interested in CS 499
should consult their department advisor or the department chair for details. Prerequisite: Department approval. May be repeated for credit to a maximum of three hours. Graded on a Credit/No Credit basis. 1 to 3 hours

CS 5030 Programming the Microcomputer for Teachers A course in programming at an intermediate level for teachers. An introduction to file handling and graphics on small computers will be provided. Flowcharting, top-down design and the development of algorithms are stressed. Some programming projects in each teacher's area of interest will be assigned. Not for Computer Science majors or minors (except teaching). Prerequisite: CS 4020 or equivalent experience. 3 hours

CS 5180 Introduction to Computer Modeling and Simulation This course provides an overview of both model development and computer simulation. A methodology is introduced which is generally applicable to simulation projects. The relationships between real systems, models, and simulation are presented, and the concept of experimental frames is discussed. General purpose simulation languages (e.g., Simscript, GPSS, CSMP, Simula) and the formalisms they support are presented. An introduction to random variables and elementary frequency distributions is provided. Simulation as a tool for exploring ill-defined systems will also be discussed. Several small programs and a simulation project will be assigned the student. Prerequisites: CS 3310 and a course in probability or statistics. 3 hours

CS 5250 Computer Architecture General topics in computer architecture, memory systems design and evaluation, pipeline design techniques, RISC architectures, vector computers, VLSI systems architecture. Prerequisites: ECE 2500; CS 2230 or ECE 2510; and CS 3310. 3 hours

CS 5260 Parallel Computations I Parallel Computations I will cover architecture, synchronization and communication aspects of parallel and distributed systems. This course will focus on the design and analysis of algorithms which have a prototype treatment on current machines. These algorithms may include parallel sorting, combinatorial search, graph search and traversal, applications in graphics, 2-D finite differences, 2-D finite element techniques, matrix algorithms and the Fast Fourier Transform. Prerequisite: CS 3310. 3 hours

CS 5270 Theory of Computer Graphics A first course in the design of interactive computer graphics systems. Currently available hardware and software systems are described. Emphasis is on theoretical considerations in the design of interactive computer graphics software systems. Prerequisites: MATH 2300 and CS 3310. 3 hours

CS 5300 Artificial Neural Systems An introduction to neural net concepts, algorithms, and applications. A history of neural nets will be presented along with some discussion of models of Biological neural systems. The salient features of neural nets (architecture, activation functions, weighting scheme) will be characterized. Standard algorithms will be presented including Hopfield nets, linear associative mode bidirectional associative memories, and adaptive resonance models. The student will use neural net software to experiment with standard models to develop an application for a project. Prerequisite: CS 3310. An introductory statistics course is recommended. 3 hours

CS 5320 Introduction to Evolutionary Computation Introduction to optimization algorithms which operate using the principles of Darwinian evolution. Both underlying theory and applications. Genetic algorithms, evolutionary programs, and evolution strategies. This course is cross-listed with ECE 5320. Prerequisite: CS 3310. 3 hours

CS 5400 Designing of User Interfaces An introduction to the specification, development, and evaluation of user interfaces. This course provides an overview of human capabilities, technological possibilities, interaction design, and interface evaluation. The course presents both the theoretical foundations of interaction design and practical case studies of good and bad interface design. During the course, students will design and test one or more interfaces. Prerequisites: CS 3400 or permission of instructor for undergraduate students. No prerequisite for graduate students in Computer Science. 3 hours

CS 5430 Principles of Database Management Systems The fundamentals of database design and usage are covered, focusing on the relational data model. Topics include basic DB and DBMS concepts, logical design (ER modelling, normalization), physical storage concepts, relational algebra, SQL query language, PL/SQL and embedded SQL. A relational DBMS is used for lab assignments. Other topics may include query optimisation, transaction processing, concurrency, security, forms/reports, object-relational data model, and an overview of advanced DB topics. A student may not receive credit for both CS 4430 and CS 5430. Prerequisite: CS 3310. 3 hours
CS 5550 Computer Networks and Distributed Systems  The design and evaluation of computer networks using current hardware and software are explained. Various types of computer buses, local area networks, and long haul networks are defined. Case studies of popular networks are presented. Layered network models are studied. There is lab work with local area and long haul networks. Prerequisites: CS 2240 and CS 3310. 3 hours

CS 5600 Software Requirements Analysis and Design  This course provides in-depth study of notations, methodologies, and tools for analysis and design of software requirements. This course includes object-oriented requirement development and design, the relationships between object-oriented design concepts and software engineering principles. The course concentrates on the techniques used in the early stages of software development. Prerequisite: CS 3310. 3 hours

CS 5800 Theory of Computation II: Formal Languages  An introduction to the theory of computation emphasizing grammars and computational complexity. Prerequisite: CS 4800. 3 hours

CS 5810 Compiler Design and Implementation  Students are introduced to major aspects of compiler design. These include lexical analysis, parsing, and translation. Each student will implement a small compiler using modern compiler writing tools. Prerequisite: CS 4850 or CS 5800. 3 hours

CS 5820 Artificial Intelligence  This course provides an overview of artificial intelligence including basic A.I. techniques and concepts, e.g., production systems, heuristic searching techniques, knowledge representation, predicate calculus, and pattern recognition. It introduces A.I. application areas such as game playing, expert systems, vision, natural language processing, and learning. Prerequisite: CS 3310. 3 hours

CS 5950 Advanced Topics in Computer and Information Science  The content of this course varies. It is intended to introduce the student to advanced topics which are normally offered as separate courses. The course may be taken more than once with approval of the student's advisor. Prerequisite: Approval of Department. 1 to 3 hours

CS 5990 Independent Study in Computer Science  Advanced students with good scholastic records may elect to pursue independently the study of some topic of special interest. Topics are chosen and arrangements are made to suit the needs of each particular student. Prerequisite: Written approval of instructor. 1 to 3 hours

Clinical Trials Administration

CTA 5000 Introduction to Drug and Device Development  This course introduces the student to the pharmaceutical and medical device industry and the process of drug and device development. Drug Development Phases I-IV are discussed. Preclinical (animal) research, regulatory requirements, are reviewed along with the content of the Investigational New Drug Application (INDA), the New Drug Application (NDA), Pre-Market Approval (PMA), and the Marketing Authorization Application (international). The roles of the Investigator, Study Coordinator, Sponsor, and Monitor are discussed. Students are exposed to the skills necessary to function as a mid-level research employee. 3 hours

CTA 5100 Clinical Pharmacology in Drug Development  This course provides an overview of pharmacology, highlighting pharmacodynamics and pharmacokinetics, both of which are necessary to understand new drug discovery and development. A review of selected therapeutic areas will be reviewed, including oncology, cardiovascular, central nervous system, and anti-infectives. 3 hours

CTA 5200 Clinical Trial Design and Statistical Concepts  The course is designed to allow the student to develop an understanding of the use and importance of statistics in drug development. This course will teach the fundamental statistical concepts used in the design, analysis and regulatory review of clinical studies and drug dossiers. It will provide an understanding of the basic statistical theory used in the interpretation of clinical trial efficacy and safety results. It will give the student an understanding of the statistical requirements applied by regulatory agencies in their review processes. 3 hours

CTA 5300 Clinical Study Administration I  This course covers the planning, development, implementation and management of clinical trials. Topics include regulations, protocol development, case report form design, clinical data management operation, writing and conducting informed consent, Institutional Review Boards, contracting, budget development, selection and evaluation of research sites and activities required for implementation of a clinical trial. Prerequisite: CTA 5000. 3 hours
CTA 5400  Clinical Study Administration II  The course builds on the content of Clinical Study Administration I and presents the steps necessary to initiate, monitor, and close clinical trials within the context of Food and Drug Administration (FDA) regulations, Canadian Health Protection Branch regulations, and International Conference on Harmonization guidelines for Good Clinical Practices. Topics include: study monitoring, source document review, drug and device distribution and accounting, data correction and management, adverse event reporting, auditing and preparing for FDA inspection, Data review and summarization and final study reports. Prerequisite: CTA 5300. 3 hours

CTA 5500  Ethical and Legal Issues in Clinical Research  Generally, biomedical professionals are expected to learn the high standards of their chosen profession by example and experience. In the area of clinical trials that involve human volunteers, the assimilation of ethical standards cannot be left to chance. Personnel involved in clinical trials must balance the dual goals of scientific merit and ethical acceptability. Ethical principles (respect for autonomy, non-maleficence, beneficence, justice), and other ethical concerns (privacy, confidentiality, compassion, relationships among patients and professionals) are studied and applied to contemporary problems in medicine and clinical research. This course is designed to be practical, incorporating the use of case studies that illustrate problems arising in the design and conduct of research trials. 3 hours

Career and Technical Education

CTE 3050  Career and Employability Skills  Intensive investigation of career and employability skills in Career and Technical Education. Included are the concepts required to develop skills and behaviors that will prepare students for the world of work. This course is approved as a writing-intensive course which fulfills the baccalaureate-level writing requirement of the student's curriculum. 3 hours

CTE 3460  Education Skills for Non-school Practitioners  Analysis of the teaching/learning process for professionals employed in non-school settings. Included are communication and education skills, interviewing and counseling techniques, teaching methods and evaluation strategies. Prerequisite: FCS 2600. 3 hours

CTE 3480  Student Assessment and Management  This course is designed to prepare students for the responsibilities of classroom instruction. Emphasis is placed on student classroom management, assessment, and evaluation strategies. Requires a minimum of one (1) day per week participating in a classroom. Prerequisites: CTE 5420 and 3440. May be taken concurrently with ED 305. 3 hours

CTE 4100  Seminar in Education  The seminar will be directly related to the student intern's teaching experiences within the field of career and technical education. The seminar will further the student's practical understanding of important facets of the art and science of teaching including creating a productive learning environment, advancing student learning in subject matter areas and workplace readiness while improving teaching practice through professional development and outreach with business, professional, family, and community partners. The seminar will be designed to develop reflective practitioners through the use of discussion, learning journals, and the development of a professional teaching portfolio. Must be taken concurrently with CTE 4750. 2 hours

CTE 4750  Intern Teaching in CTE  This course represents the final field experience of the student's curriculum during which an application of all knowledge and skills acquired is facilitated. Through the experiences provided in this course, students develop the skills and knowledge necessary for certification as a career and technical education teacher in the state of Michigan. Must be taken concurrently with CTE 4100. 10 hours

CTE 5100  Special Populations in Career and Technical Education  Special populations enrolled in career and technical education programs and the identification of appropriate teaching strategies, materials, and support services for effective teaching and learning. 3 hours

CTE 5120  Principles of Career and Technical Education  Explanation, identification, investigation of the history, philosophy, principles, programs, and services in career and technical education. 3 hours

CTE 5130  Teaching Methods in Career and Technical Education  Analysis and methods of organizing instruction in career and technical education. Included is a review of instructional theory and practice in career and technical education, the development of lesson plans, the selection and use of instructional methods, and the presentation of content using various methods of delivery. Prerequisites: Minimum of 26 hours completed. 3 hours
CTE 5140 Workshop in Career and Technical Education  Investigation, research, and development of a particular topic or area of interest for career and technical education. Students may enroll for more than one topic, but in each topic only once, to a maximum of three credit hours. Prerequisite: Vocational Certification or consent.  1 to 3 hours

CTE 5150 Grant Writing for Career and Technical Educators  Analysis of the grant writing process, including the identification of a sponsor, development of an idea and plan, and completion of a proposal.  2 to 3 hours

CTE 5420 Curriculum Development in CTE  Principles of analyzing, selecting, and arranging curriculum for instructional purposes in career and technical education. Prerequisites: Minimum of 26 hours completed.  3 hours

CTE 5430 Work-site Based Education Programs  Study of work-site based education programs, including the organization and establishment of training programs, supervision of trainees on the job, and development of individual training plans and programs. Emphasis on establishing working relationships between school, business, and the community, including cooperative education, work experience, apprenticeship, work-study, and work exploration programs for career and technical education.  3 hours

Dance

DANC 1010 Beginning Ballet  Elementary ballet technique for the general student. The emphasis is placed on line, control, alignment and musicality. Students will learn simple combinations utilizing fundamental classical ballet vocabulary.  2 hours

DANC 1020 Beginning Jazz  Elementary jazz technique for the general student. Rhythmical integration of isolated movements with emphasis on dynamics, style and performance is stressed.  2 hours

DANC 1030 Beginning Modern  Elementary modern technique for the general student. The emphasis is placed on body integration, locomotor skills, dynamic variety, and musicality.  2 hours

DANC 1040 Beginning Tap  Elementary tap technique for the general student, emphasizing the basic terminology as well as an investigation of rhythm and improvisation as audibly produced by the feet. Some turns and stylized arm movements may be included.  2 hours

DANC 1100 Ballet Technique I  An introduction to the art of ballet, designed for dance majors and minors, primarily concerned with development of technique. The emphasis is placed on developing control, balance, musicality and strength of movement. Students will continue in DANC 1100 until advanced to DANC 2100 by the instructor. Repeatable for credit. Prerequisite: Advisor approval.  2 hours

DANC 1140 Digital Media in the Arts  This course will introduce students in Dance to the audio, graphics, video and other digital tools used by professionals in the arts. All instruction will be delivered on-line, and students must have a WMU email account before the first class of the semester. Course assignments will be comprised primarily of projects created in the various open computer labs within the College of Fine Arts. The course will be graded on a Credit/no Credit basis. Open only to majors in the Department of Dance. This course will fulfill the College of Fine Arts’ computer literacy graduation requirement.  3 hours

DANC 1200 Jazz Technique I  An introduction to the art of jazz dance, designed for dance majors and minors, primarily concerned with development of technique. The emphasis is placed on alignment, movement isolation, rhythmic awareness, basic vocabulary and both percussive and free-flow combinations. Students will continue in DANC 1200 until advanced to DANC 2200 by the instructor. Repeatable for credit. Prerequisite: Advisor approval.  2 hours

DANC 1210 Roots of Jazz  An introduction to the basis for the development of contemporary jazz dance forms through exposure to African dance forms and 20th Century American vernacular dance. Students will explore these forms and their interrelationships to contemporary jazz dance styles through movement explorations, videotapes, historical readings, and discussions. Emphasis will be placed on rhythm, syncopation, movement isolation, and improvisation. Live accompaniment and historic music recordings will be used for classes. Required for dance majors. Recommended for dance minors and music theatre performance majors. Not repeatable for credit. Prerequisite: Advisor approval.  2 hours
DANC 1250  Special Studies in Introductory Dance Technique  
A study of areas in introductory dance technique not included in regularly scheduled courses. Examples of possible topics include: African-American Dance, Music Theatre Dance Styles, Dance Technique Skill Building, Men's Ballet, and World Dance Forms. Repeatable for credit up to 6 hours.  
1 to 6 hours

DANC 1300  Modern Technique I  
An introduction to the art of modern dance, designed for dance majors and minors, primarily concerned with development of technique. The emphasis is placed on alignment, range of movement, dynamic quality, rhythmic accuracy and the application of kinesiological principles. Students will continue in DANC 1300 until advanced to DANCE 2300 by the instructor. Repeatable for credit. Prerequisite: Advisor approval.  
2 hours

DANC 1450  Experiencing Dance  
An introduction to the art of dance through historical and multicultural perspectives including direct experiences in the studio and viewing of live and recorded performances. Readings, lectures, videos/films, discussions, writings, and movement classes will be used to introduce the student to: non-Western dance, ballet, modern, jazz, tap and other theatrical dance forms. The course also addresses training in dance, the development of movement vocabulary, and the creative process from literal and metaphorical perspectives. Activities are designed to stimulate the perception and enjoyment of dance on a kinesthetic, musical and visual level. The course meets Area I, Fine Arts, General Education requirement.  
3 hours

DANC 1480  Direct Encounter with the Arts  
A course that uses a direct approach to introduce students to their cultural world by guiding them through first-hand experiences in a number of arts: cinema, photography, theater, sculpture, music, poetry, dance, and architecture. Classroom discussions are held following the students' participation in the various art events scheduled each semester, with students expected to write journals or response papers about the major events of the course. There will be a course charge in lieu of textbooks. Cross-listed with ART 1480, MUS 1480, THEA 1480. May be taken only once from College of Fine Arts Departments.  
4 hours

DANC 1800  Choreography I  
A practical experience in dealing with the basic elements of dance composition. Emphasis will be placed on solo choreographic studies. Prerequisite: Advisor approval.  
2 hours

DANC 1810  Dance Improvisation  
Exploration of movement through spontaneous problem-solving. The course is designed to evoke the student's creative individuality and sense of ensemble.  
1 hour

DANC 1850  Music Fundamentals for Dancers  
Designed for the novice in music, the course places emphasis on rhythmic skills, but also teaches basic concepts of notation, clefs, scales, key signatures, intervals and triads. The rhythm work begins with reading of simple and compound meters and progresses through complex syncopations and polyrhythmic exercises. Students will be able to read and perform rhythmic patterns using a variety of percussion instruments. Additionally, students will be introduced to formal concepts in music such as phrase, period, cadence and abstract formal designs. Prerequisite: Dance majors and minors only.  
2 hours

DANC 1950  Introduction to Bartenieff Fundamentals(SM)  
This course introduces Irmgard Bartenieff's theories of functional movement. Through practice students will explore major Fundamentals concepts such as body connections, sequencing, movement initiation, mobility/stability and spatial intent. Students will also learn the "Basic Six," a series of movement sequences which are distillations of Bartenieff's theories.  
1 hour

DANC 1960  Conditioning for Dancers  
An introduction to the principles of physical conditioning with a focus on specific application of the information to individual needs and capacities. The course covers methods of building strength, flexibility and cardiorespiratory endurance as a means of enhancing dance performance, including instruction on equipment such as rotator disks, Therabands, and the Current Concepts Reformer utilizing the Dancer Specific(TM) technique. This course, in combination with DANC 2950, meets the Area VIII Health and Well-being General Education requirement for dance majors. Prerequisite: Dance majors and minors.  
2 hours

DANC 2100  Ballet Technique II  
A development of ballet technique at the intermediate level. Emphasis is on increased strength and flexibility, jumps, turns, and an introduction for women to pointe technique. Students will continue in DANC 2100 until advanced to DANC 3100 by the instructor. Repeatable for credit. Prerequisite: Advisor approval.  
2 hours

DANC 2200  Jazz Technique II  
A development of jazz technique at the intermediate level. Emphasis is on lyrical integration of isolated movements, sequential combinations involving multiple turns, and skills in performance and quick
DANC 2200 Special Studies in Intermediate Dance Technique  A study of areas in intermediate dance technique not included in regularly scheduled courses. Examples of possible topics include: Repertory, Intermediate Tap, and Contact Improvisation. Repeatable for credit up to 6 hours. Prerequisite: Advisor approval. 1 to 6 hours

DANC 2300 Modern Technique II  A development of modern technique at the intermediate level. Emphasis is on quick study skills and movement which has contrasting dynamic qualities, varying rhythmic patterns and spatial complexity. Students will continue in DANC 2300 until advanced to DANC 3300 by the instructor. Repeatable for credit. Prerequisite: Advisor approval. 2 hours

DANC 2450 Ballet History  A survey of the historical development of ballet. Course content includes: roots in 16th century European peasant and court dance forms; refinement and reform in the 17th and 18th centuries; romantic and classic periods in the 19th century; and trends of the 20th century, including modernism, neo-classicism and the influences of other dance forms. Prerequisite: A grade of "C" or better in DANC 1450. 3 hours

DANC 2800 Choreography II  Further exploration of the compositional elements as used in group choreography. Prerequisites: A grade of "C" or better in DANC 1800 and DANC 1850. 2 hours

DANC 2850 Musical Style and Form for Dancers  The course surveys composers and musical style from the Renaissance through the twentieth century. There will be an emphasis on the chief stylistic characteristics of the major composers of each period, and discussion of the particular compositions in relation to their suitability for choreographic treatment. Score-reading is an important aspect of the course. Prerequisite: A grade of "C" or better in DANC 1850. 2 hours

DANC 2900 Dance in the Elementary School  This course covers the principles, materials, and techniques of teaching creative movement and dance activities to elementary school children as they can be applied in various learning environments. Lecture, observation, and laboratory experiences are provided. 3 hours

DANC 2950 Introduction to Dance Science and Kinesiology  An introduction to the field of Dance Science for dance majors. Emphasis is placed on anatomical analysis, conditioning principles and injury prevention, with special attention given to application of information to technique class, rehearsal, choreography and individual anomalies. This course, in combination with DANC 1960, meets the Area VIII Health and Well-being General Education requirement for dance majors. 3 hours

DANC 2960 Introduction to Laban Movement Analysis  An overview of the theoretical framework and language for describing movement which was developed by Rudolf von Laban. This course includes the history of the development of Laban Movement Analysis, motif writing, and discussion and practice of the theories of Effort, Space, Shape and their relationship to Bartenieff Fundamentals(SM). 2 hours

DANC 3100 Ballet Technique III  Ballet technique for the advanced/pre-professional student in the classical idiom. Emphasis is placed on complex movement sequences, ensemble awareness, pointe technique and men's combinations. Repeatable for credit. Prerequisite: Advisor approval. 2 hours

DANC 3200 Jazz Technique III  Jazz technique at the advanced/pre-professional level with work on quick-study and theatrical skill. Combinations will address a variety of jazz styles and develop the student's own dynamic style. Repeatable for credit. Prerequisite: Advisor approval. 2 hours

DANC 3250 Special Studies in Dance Theory  A study of areas of dance theory not included in existing courses. Examples of possible topics include: writing and criticism; costuming; make-up; technology (e.g., audio and video techniques; computer applications for music, lighting design, notation or choreography); and dance for the exceptional student. May be offered with a visiting instructor or artist-in-residence. Repeatable for credit up to 6 hours. Prerequisite: Advisor approval. 1 to 6 hours

DANC 3300 Modern Technique III  Technique for the advanced/pre-professional student in the modern idiom. Emphasis is placed on the ability to quickly analyze and skillfully reproduce complex movement combinations within the
technique. Performance skills are emphasized throughout the course. Repeatable for credit. Prerequisite: Advisor approval. 2 hours

DANC 3450 Twentieth Century American Dance A survey of the purposes, functions, and manifestations of American dance forms the beginning of the twentieth century to the present. Relationships are examined between dance and general cultural developments in the United States in each decade of this century. Topics covered include: the forerunners and pioneers of modern dance; avant-garde and post-modernists; and artists of jazz, tap, Broadway, movies, and the current media. Students will write several short papers and prepare a research paper. Examinations will emphasize essay writing. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisite: A grade of "C" or better in DANC 1450. 3 hours

DANC 3800 Choreography III Concert and musical theatre choreography in the student's area of concentration. Prerequisite: A grade of "C" or better in DANC 2800. 2 hours

DANC 3850 Introduction to Dance Notation A study of dance notation systems which provide practical methods of recording human movement for purposes of analysis and reading. The course includes reading (interpretation), theory, and practice at the introductory level. Prerequisites; A grade of "C" or better in DANC 1100, DANC 1300, and DANC 1850. 2 hours

DANC 3890 Lighting and Staging for Dance An introduction to dance production from a lighting and staging viewpoint. Course content includes: stage equipment and terminology; stage management; lighting instruments, distribution, and color; and lighting control via both manual and computer lighting boards. Students will have hands-on experience in producing dance concerts through crew assignments completed outside of class, including hanging crew, running crew, and striking crew. The culminating assignment for the course is designing and executing lighting for a dance. Prerequisite: Advisor approval. 2 hours

DANC 4000 Practicum An individual approach to a practical field experience in dance. The student must file an approved application for his/her project with the dance academic advisor prior to registration for the course. Through reading and practice, the student will have an opportunity to explore a topic of interest in dance. Repeatable for credit up to 4 hours. Prerequisite: Advisor approval. 1 to 4 hours

DANC 4250 Advanced Technique A study of areas in advanced dance technique not included in regularly scheduled courses. Examples of possible topics include: Pointe and Variation, Partnering, Advanced Tap, and Senior Technique. Repeatable for credit up to 6 hours. Prerequisite: Advisor approval. 1 to 6 hours

DANC 4400 Teaching Dance Technique This course is designed to develop the skills to teach introductory ballet, jazz and modern dance techniques to children and adults in both academic and private studio environments. The student will serve concurrently as a demonstrator two days per week in a dance technique course, as arranged by the course instructor. Prerequisite: Dance major only and Junior standing. 2 hours

DANC 4450 Senior Seminar An exploration of current trends, literature and developments in dance in a seminar format. Students will discuss, compare and analyze ideas generated by assigned readings, as well as their work on capstone projects. Prerequisite: Dance major only and Senior standing. 1 hours

DANC 4600 Performance An experience in student or faculty choreographed dance works, in fully produced projects not encompassed in specific dance courses. Application with approval of the dance advisor, the faculty evaluator, and the department chair, must be completed and submitted to the dance advisor at least one month prior to performance. Registration occurs after performance has been completed. Repeatable for credit up to 6 hours. Prerequisite: Advisor approval. Variable

DANC 4650 Dance Ensemble An experience in a performing ensemble which provides one or more of the following: master classes, residencies, lecture-demonstrations, and concerts in various dance styles in the region. Members must show proficiency in performance, improvisation, teaching, and public speaking. Members must concurrently enroll in at least one technique course at the 200- or 3000-level as specified by the ensemble director. Repeatable for credit. Prerequisite: Dance majors and minors only, sophomore standing, and audition. 1 to 3 hours

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DANC 4700  Senior Capstone Project  A seminar course in which each student completes a Senior Capstone Project that integrates curricular content with the student's career objectives. Students will meet weekly to discuss and present topics related to the preparation of the Senior Capstone Project. Each student will have his/her project evaluated by the course instructor and another member of the faculty. Prerequisites: Senior standing; BA dance major.  2 hours

DANC 4800  Graduating Presentation  The preparation and presentation of an advanced choreographic project accompanied by a portfolio and an oral examination. Prior to registration the student must complete an application, select a faculty advisory committee, and secure the approval of the dance academic advisor. Course guidelines are available from the Department and should be reviewed by the student at least one semester prior to enrollment. Prerequisite: A grade of "C" or better in DANC 3800 and advisor approval.  3 hours

DANC 4890  Dance Management  Course covers front-of-house management and publicity, budget, programming, organization of elements involved in company management, and grantsmanship. Practical application of these principles will be evaluated wherever possible. Prerequisite: College of Fine Arts only and Sophomore standing.  2 hours

DANC 4950  Performance Workshop  Students will perform a variety of roles and styles from a broad spectrum of music theatre repertoire. Scenes will be performed before a public or invited audience. Performers will be directed and evaluated by a faculty team from Dance, Music and Theatre. Prerequisite: MUS 3950.  2 hours

DANC 4960  Performance in Music Theatre  Students will perform in music theater productions both on and off WMU campus. Their performance will be evaluated by a team of evaluators, to include at least two WMU faculty/staff and/or two full-time professional staff members of the producing theater. Music Theatre majors (MTFJ) only.  2 hours

DANC 4980  Readings in Dance  Advanced undergraduate students with good academic standing may elect to independently pursue a program of readings in areas of special interest. Repeatable for credit up to 4 hours. Prerequisite: Advisor approval.  1 to 4 hours

DANC 4990  Non-Reading Independent Study in Dance  Advanced undergraduate students with good academic standing may elect to independently pursue the study of some area of dance through the creative process. Topics are chosen and arrangements are made to suit the needs of each particular student. Repeatable for credit up to 4 hours. Prerequisite: Advisor approval.  1 to 4 hours

DANC 5450  Arts Administration Seminar  To be taken in conjunction with PADM 641 Administering Arts Organizations. The seminar will offer the student an opportunity through readings and discussions to focus on those administrative issues specific to the student's arts discipline. Prerequisite: Admission to M.F.A. in Performing Arts Administration. Open to Upperclass and Graduate Students  1 hour

DANC 5890  Season Planning and Production  This course will address two components. The Season Planning component will cover the programming of an entire season of live performances focusing on program concepts, choices of facilities, scheduling, budgeting and marketing. The Production component will address planning, schedules, touring, front-of-house management, contracting, technical production, stage management, rehearsals, and performances. Prerequisite: Admission to M.F.A. in Performing Arts Administration. Open to Upperclass and Graduate Students  2 hours

DANC 5980  Readings in Dance  Advanced students with good academic standing may elect to independently pursue a program of readings in areas of special interest. Repeatable for credit up to 4 hours. Prerequisite: Advisor approval. Open to Upperclass and Graduate Students  1 to 4 hours

DANC 5990  Non-Reading Independent Study in Dance  Advanced students with good academic standing may elect to independently pursue the study of some area of dance through the creative process. Topics are chosen and arrangements are made to suit the needs of each particular student. Repeatable for credit up to 4 hours. Prerequisite: Advisor approval. Open to Upperclass and Graduate Students  1 to 4 hours

Employee Assistance
EAP  2200  Introduction to EAPs: EAP Structure and Process in the Work Setting  This course is offered on a self-instructional basis. Content focuses on the organization of business and industry (both public and private); the organization of
labor and labor unions; variations in labor-management relations across organizational types; discipline in union and non-union settings; grievances and arbitration; collective bargaining; historical overview of health and human services at the workplace; laws/regulations regarding workers' compensation, EEO, health and safety, and affirmative action; employee benefits and health financing; career counseling, retirement counseling, and other human services in the workplace structure, and EAP.

EAP 3180 EAP Assessment Interviewing This course focuses on the theories and methods of assessment interviewing for EAP services. Course content addresses client readiness; relationships, rationality and resources and drug training. Prerequisite: EAP 2200. 3 hours

EAP 3190 EAP Administration This course is designed to provide an overview of the operational responsibilities within the various program models. Through student examination, manual preparation, selected readings, oral presentation, and classroom interaction it is intended for the total experience to provide an understanding of the requirements of the management and administration of an Employee Assistance Program. Major emphasis is placed on understanding current management trends in business and how those have been adapted to the EAP profession. An examination of policies, procedures and actual practices are highlighted in this class. Prerequisite: EAP 2200. 3 hours

EAP 4200 EAP Consultation This course is designed to provide a classroom contained group and individual experience, where the student can learn about the role of the consultant, while using basic skills that the profession demands. Students participate in small and large group experiences, as well as individually tailored exercises, that are aimed at giving them a flavor of the consultant's practice. Major emphasis is placed on written and oral communication skills. This course fulfills the University's Baccalaureate Writing Requirement. Prerequisite: EAP 2200. 3 hours

EAP 4700 EAP Field Placement I The placement is a field based learning experience in assuming responsibilities in Work Organization and Human Resource Management and EAP Administration. Through the field placement, the student will actively apply the foundations of their knowledge and skill. Prerequisite: Successful completion of all EAP course work. 6 hours

EAP 4710 EAP Field Placement II This course is a continuation of EAP 470 EAP Field Placement I. The placement is undertaken only after the successful completion of EAP Field Placement I. The placement is a field based learning experience in assuming responsibilities in EAP Direct Services and Substance Abuse and Addictions and Personal Psychology and Problems. Through the field placement the students will actively apply the foundations of their knowledge and skill. Prerequisite: EAP 4700. 6 hours

Electrical and Computer Engineering

ECE 1000 Fundamentals of Circuits and Electronics Basic principles of electricity, magnetic devices, and electronics. May not be used as prerequisite for other ECE courses except 101. Cannot be used as credit in engineering curricula. Prerequisites: MATH 1110 or equivalent and high school physics. 3 hours (2 to 3)

ECE 1010 Fundamentals of Electronics and Machines Basic principles, characteristics, and applications of semiconductor devices, AC machines, and DC machines. May not be used as prerequisite for other ECE courses. Cannot be used as credit in engineering curricula. Prerequisite: ECE 1000. 3 hours (2 to 3)

ECE 1230 Mobile Robots This course provides an introduction to the practice of electrical and computer engineering. Students learn skills that will be required throughout their academic and professional careers, including the art and science of engineering design, teamwork, basic electronics construction skills, and basic computer programming. Prerequisite: Department approval. 3 hours (2 to 3)

ECE 2100 Circuit Analysis Analysis of linear electric circuits using methods based on Kirchhoff's laws and network theorems. RL, RC, and RLC transients. Sinusoidal steady state analysis. Prerequisites: PHYS 2070 or taken concurrently and MATH 1230 or 1710. 4 hours (3 to 3)

ECE 2110 Machines and Electronic Circuits Introduction to machines and electronics for non-electrical engineering students. Principles of operation, characteristics, ratings, and applications of transformers, alternators, motors, diodes, and
transistors. ECE and CPE students may not use credit in ECE 2110 toward graduation. Prerequisite: ECE 2100. 3 hours (2 to 3)

ECE 2120 Electronic Circuits and Systems DC and AC analysis of linear electric circuits. Simple first and second order transients. Analog signals and instrumentation. Applications of operational amplifiers. The first course in a two-course sequence for non-electrical engineering majors. Prerequisites: PHYS 2070 or taken concurrently; MATH 3740. 3 hours (3 to 0)

ECE 2210 Electronics I Junction theory, semiconductor diode and models, bipolar transistors and models, field-effect transistors and models. Semiconductor circuits, biasing, and stabilization. Computer-aided design of single- and two-stage amplifiers. Principles and basic technology of MOS and bipolar digital and linear integrated circuits. Prerequisites: ECE 2100, PHYS 2070. 4 hours (3 to 3)

ECE 2500 Digital Logic Analysis and design of combinational and sequential logic systems. Prerequisite: MATH 1110 or equivalent. 3 hours (2 to 3)

ECE 2510 Introduction to Microprocessors I Machine and assembly language programming of small computers. Introduction to microcomputer architecture and interfacing. Prerequisites: ECE 2500; CS 1110. 4 hours (3 to 3)

ECE 3100 Network Analysis Classical and transform methods of network analysis, signals and waveforms. Fourier series and Fourier transforms. Frequency response. Prerequisites: ECE 2100; MATH 3740. 3 hours (3 to 0)

ECE 3120 Fundamentals of Electronics and Machines Fundamentals of operation, characteristics, ratings, and applications of electronic and magnetic devices such as diodes, transistors, digital logic devices, transformers and motors. Laboratory provides experience with actual hardware. This is the second in a two-course sequence for non-electrical engineering majors. Prerequisite: ECE 2120. 3 hours (2 to 3)

ECE 3200 Electronics II Design, analysis, simulation, and laboratory evaluation of electronic amplifiers, filters, and nonlinear signal shaping circuits composed of transistors, diodes, and integrated circuits. Transient response and steady state frequency response behavior for both small and large signal excitation conditions. Amplifier macro-model description and synthesis is introduced. Prerequisites: ECE 2210, ECE 3100. 4 hours (3 to 3)

ECE 3300 Electrical Machinery Three-phase analysis. Analysis and design of transformers, electromechanical devices, and machines. Prerequisites: ECE 3100, ECE 3610. 4 hours (3 to 3)

ECE 3500 Digital Electronics The electrical and logic aspects of digital integrated circuits and their applications. Prerequisites: ECE 2210, ECE 2500. 4 hours (3 to 3)

ECE 3510 Engineering of Real Time Systems Characterizing, modeling, and specifying real-time systems. Designing, programming and verifying sequential and concurrent real-time systems. Software engineering processes in real-time system development. Case studies and project using C/C++. Prerequisites: ECE 2510, CS 1120. 3 hours

ECE 3550 Digital Design Systems level design of digital logic circuits using hardwired and programmable system controllers. Introduction to asynchronous sequential logic circuits. Prerequisite: ECE 2500. 3 hours (3 to 0)

ECE 3570 Computer Architecture Structural organization and hardware design of digital computers. Processing and control units, arithmetic algorithms, input-output systems, and memory systems. Prerequisites: CS 2230 or ECE 2510. 3 hours (3 to 0)

ECE 3610 Electromagnetic Fields Static and time-varying electric and magnetic fields, plane waves, guided waves, transmission lines, radiation and antennas. Prerequisites: ECE 2100; MATH 3740; PHYS 2070. 4 hours (4 to 0)

ECE 3710 Linear Systems Systems and their models, state variable formulation. Stability and performance of feedback systems and their analysis in the s-plane. Root locus methods. Analysis and synthesis of sampled-data linear feedback control systems. This course is cross-listed as ME 1710. Prerequisite: ECE 3100. 3 hours (3 to 0)
ECE 3800  Probabilistic Methods of Signal and System Analysis Introduction to probability, random variables, random processes, correlation functions, spectral density, response of linear systems to random inputs, optimum linear systems. Prerequisite: ECE 3100. 3 hours (3 to 0)

ECE 4200  Power Electronics Analysis and design of industrial electronic systems, power sources, motor controls, timing and sequencing circuits. Prerequisites: ECE 2500, ECE 3200, ECE 3300. 3 hours (3 to 0)

ECE 4300  Electrical Power Systems Transmission lines, network analysis, load flow, system faults, fault calculation, transients, and system stability. Prerequisite: ECE 3300 or taken concurrently. 3 hours (3 to 0)

ECE 4510  Microcontroller Applications Analysis and design of microcontroller-based digital systems. Prerequisites: ECE 2210, ECE 2510. 3 hours (2 to 3)

ECE 4550  Digital Signal Processing Introduction to discrete time systems. Z-transforms. Discrete Fourier transforms and Fast Fourier transforms. Design and implementation of digital filters. Statistical methods, optimal filters and error analysis. Prerequisite: ECE 3800. 3 hours (3 to 0)

ECE 4600  Communication Systems Introduction to digital and analog communication systems. Design constraints of noise and bandwidth, comparison of various modulation techniques, and statistical methods. Information and channel capacity. Prerequisite: ECE 3800. 3 hours (3 to 0)

ECE 4700  Feedback Systems Design principles of linear and non-linear feedback systems in both the frequency and time domain. Prerequisite: ECE 3710. 3 hours (3 to 0)

ECE 4710  Motion and Control Analysis and implementation of linear closed-loop motion control systems containing electrical, hydraulic, pneumatic and mechanical components. Analytical and experimental development of models for components and systems. This course is cross-listed with ME 4710. Prerequisite: ME 3600 or ECE 3710. 3 hours (3 to 0)

ECE 4810  Electrical/Computer Engineering Design I First of a two-semester sequence on engineering design in which students work in teams on approved design projects. A preliminary design is expected at the conclusion of this course. This course, along with ECE 4820, are approved as writing-intensive courses which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisites: IME 3160, ECE 2510, and any one of ECE 3200 or 3300 or 3550 or 4510. 2 hours (1 to 3)

ECE 4820  Electrical/Computer Engineering Design II Senior electrical/computer engineering design project. A continuation of ECE 481. A formal written report and a formal presentation is required at the end of the semester. This course, along with ECE 481, are approved as writing-intensive courses which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisite: ECE 4810. 3 hours (0 to 6)

ECE 4900  Independent Research and Development Individual research or special project in Electrical/Computer Engineering. Open only to juniors and seniors having the approval of the faculty member under whom the student will work and the approval of the department chair. Students may register more than once, not to exceed 4 hours. 1 to 4 hours

ECE 4950  Topics in Electrical/Computer Engineering A specialized course dealing with some particular area of electrical/computer engineering not included in other course offerings. May be repeated for credit with a different topic. Prerequisite: Consent of department chair. 1 to 4 hours

ECE 4980  Readings in Electrical/Computer Engineering A course in which advanced students may elect to pursue a program of readings in areas of special interest. Prerequisite: Permission of the instructor with whom the student wishes to work and consent of department chair. 1 to 4 hours

ECE 5150  Real-Time Computing Characterizing, modeling, and specifying real-time systems. Software life cycle. Designing and programming sequential and concurrent real-time systems. Scheduling. Distributed real-time computing. Engineering case studies using C++/Ada. Prerequisite: CENM, EENM, or ELCD admission. 3 hours
ECE 5200  Power Electronics and Motors  Basic, transformer isolated and resonant switchmode converter topologies. Steady-state analysis, large-signal, small-signal modelling and analysis, state-space and discrete-time models. Magnetics, transformers, control techniques and power conditioning of converters. PWM control. Advanced application areas: electric drives. Power systems – HVDC, FACTS, and STATCOM. New materials – Galium arsenide (GaAs), polytypes of silicon carbide (SiC), and gallium nitrate (GaN). Prerequisite: Admission to the computer engineering masters (CENM), electrical engineering masters (EENM) or electrical and computer engineering doctoral (ELCD) program.  3 hours

ECE 5210  Surface Mount Technology Design  This course will focus on two major areas of electronic design. First, we will study effective implementation of circuit board designs to address the technical issues in Surface Mount Technology (SMT). The second area will include a study of solid-state devices and digital circuits. Technical discussions will explore advantages and disadvantages of SMT, SMT processes and equipment, design tools and guidelines, internal circuit structure and device operation, and defect analysis. Prerequisite: CENM, EENM, or ELCD admission.  3 hours

ECE 5240  Introduction to VLSI Technology  A course in VLSI semiconductor devices, modern CMOS technology, crystal growth, fabrication, and basic properties of silicon wafers. It will focus on lithography, thermal oxidation, (Si/Si)2, interface, dopant diffusion, ion implantation, thin film deposition, etching, and back-end technology. Prerequisite: CENM, EENM, or ELCD admission.  3 hours

ECE 5320  Introduction to Evolutionary Computation  Introduction to optimization algorithms which operate using the principles of Darwinian evolution. Both underlying theory and applications. Genetic algorithms, evolutionary programs, and evolution strategies. This course is cross-listed with CS 5320. Prerequisite: CENM, EENM, or ELCD admission.  3 hours

ECE 5510  Application Specific Integrated Circuit Design  Design, analysis and implementation of application-specific circuits (ASIC.) Emphasis will be placed on programmable design (including field programmable gate arrays (FPGA) and programmable logic devices (PLD). Semi-custom design will also be discussed and full-custom design will be briefly introduced. Introduction to contemporary CAD systems. Prerequisites: ECE 3500 and ECE 3550 and CENM, EENM, or ELCD admission.  4 hours

ECE 5520  Switching and Finite Automata Theory  Introduction to the theory and application of switching theory and automata theory. Sets, relations, functions. Boolean and combinational functional composition and optimization. Finite automata theory. Automata composition and optimization. Regular sets and recognizers. Fault tolerance. Prerequisites: ECE 2500 and CS 5540 and CENM, EENM, or ELCD admission.  4 hours

ECE 5530  Advanced Microcontroller Applications  This course is intended to give graduate students and seniors the ability to specify, design, and test microcontroller based digital systems. Prerequisite: CENM, EENM, or ELCD admission.  3 hours

ECE 5550  Advanced Digital Signal Processing  Discrete-time signals and systems, time and frequency domain representations. Structures of discrete-time systems and digital filters. DFT and FFT methods of special analysis and estimation. Discrete Hilbert Transforms and multidimensional signal processing. Prerequisite: ECE 4550 and CENM, EENM, or ELCD admission.  3 hours (3 to 0)

ECE 5570  Design of Reconfigurable Digital Machines  Introduction to hardware design languages. Modeling and simulation using VHDL. Advanced design techniques for digital machines based on Field Programmable Gate Arrays and Complex Programmable Logic Devices. System design with on-line reprogrammable FPGAs. Prerequisites: CENM, EENM, or ELCD admission.  3 hours

ECE 5600  Time-varying Fields  Electrodynamics, Maxwell's equations, Boundary value problems and solutions of Helmholtz Equation in different coordinate systems, Green's functions, transmission lines and wave guides. Introduction to perturbational and variational methods. Prerequisite: CENM, EENM, or ELCD admission.  3 hours (3 to 0)

ECE 5700  Digital Control Systems  State variable technique, controllability and observability, digital control system design with state or output feedback, maximum principle, optimal linear regulator - deterministic, and stochastic state observers. Prerequisite: CENM, EENM, or ELCD admission.  3 hours (3 to 0)
ECE 5800 System Modeling and Simulation This is a first course in the principles of mathematical modeling of stochastic and deterministic systems. It will focus on analytical models, mathematical rigor and computer simulation of problems. Students will simulate a number of systems using appropriate stochastic and deterministic models using a computer. This course is cross-listed as ME 580. Prerequisite: CENM, EENM, or ELCD admission. 3 hours

ECE 5810 Astrodynamics A course in celestial dynamics as applied to space travel. Students will learn the basics of satellite orbit definition, determination, and navigation. While the general n-body problem will be taken up, the emphasis will be placed on the calculation of geocentric and heliocentric orbits. The primary application will be satellite systems as applied to the Global Positioning System. This course is cross-listed with ME 5810. Prerequisite: CENM, EENM, or ELCD admission. 3 hours (3 to 0)

ECE 5850 Mechatronics A course in fundamentals of motion control, primarily as it is applied to robotics. Students will learn the basics of control systems as applied to multiaxis servo systems. Appropriate time will be devoted to develop a sound basis in the electro-mechanical discipline. This course is cross-listed with ME 5850. Prerequisite: CENM, EENM, or ELCD admission. 3 hours (3 to 0)

ECE 5860 System Identification This is a course in model determination. Students will learn the basics of defining system structure and techniques for finding parametric values. The emphasis will be placed on the application of modeling to practical problems in the student's specific discipline. This course is cross-listed with ME 5860. Prerequisites: ECE 5800 or ME 5800 and CENM, EENM, or ELCD admission. 3 hours (3 to 0)

ECE 5950 Introduction to Advanced Topics To introduce students to advanced topics in electrical/computer engineering not included in other course offerings. May be taken more than once up to six hours. Prerequisite: CENM, EENM, or ELCD admission. 3 hours (3 to 0)

Economics

ECON 1000 Economics for Elementary Education This course is designed to provide students with an understanding of fundamental economic concepts that are the building blocks of the fields of microeconomics and macroeconomics. These are necessary for understanding and analyzing problems from an economic perspective. 3 hours

ECON 1070 Economic Issues in the U.S. Today A nontechnical examination of contemporary economic issues in the United States, such as unemployment, inflation, the environment, crime, education, health care, and taxation. This course cannot be used to satisfy major or minor requirements in Economics. 3 hours

ECON 1080 Contemporary International Economic Issues A nontechnical economic approach to understanding important contemporary international issues and problems. This course focuses on topics such as international trade, finance, populations, migration, agriculture, the environment, and developing and transitional economies. This course cannot be used to satisfy major or minor program requirements in Economics. 3 hours

ECON 1090 History of Modern Economic Society A survey of the evolution of modern economic society from premarket conditions to the present day. Topics include premarket economies, emergence of the market system, the industrial revolution, the Great Depression, the evolution of mixed capitalism, and the modern economic system. This course cannot be used to satisfy major or minor program requirements in Economics. 3 hours

ECON 2010 Principles of Microeconomics An introduction to microeconomics, the study of the price system and resource allocation, problems of monopoly, and the role of government in regulating and supplementing the price system. 3 hours

ECON 2020 Principles of Macroeconomics An introduction to macroeconomics, the study of total output and employment, inflation, economic growth, and introduction to international trade and development. For students who plan to take both ECON 2010 and ECON 2020, it is preferable to take ECON 2010 before taking ECON 2020. 3 hours

ECON 3010 Economic Issues: Variable Topics This course is intended to teach "current events" topics to which economics is relevant. Examples of current events around which this course could have been structured are the savings and
ECON 3040 The Organization of Industries This course examines the various ways in which the organization of industries affects pricing and other business behavior and more generally, competition and resource allocation. The topics covered will include the theory of competitive markets, the theory of monopoly and the theories of oligopoly. The course will address the policy implications of various horizontal and vertical agreements among firms in industries. Prerequisite: ECON 2010. 3 hours

ECON 3090 Women and the Economy This course studies the role of women in the economy, both in the labor force and the household, and women's economic status. Topics covered include gender discrimination, the feminization of poverty, and the effects of public policies on the economic status of women. Prerequisite: ECON 1070, 1080, 2010, or 2020. 3 hours

ECON 3100 Labor Economics An analysis of the nature and underlying causes of the problems facing the worker in modern economic society. Includes an examination of unions, collective bargaining, labor legislation, wages, unemployment and economic insecurity. Prerequisite: ECON 2010. 3 hours

ECON 3180 The Economics of Medical Care This course is designed to familiarize the student with the basic economic problems that exist in the field of health care. It introduces to the student some basic economic tools which are useful in analyzing these problems. The demand for medical care, the supply of health services, the role of health insurance, and pricing and output decisions are analyzed. Various policy questions are also raised, and the pros and cons of alternative policies are presented. Finally, the role of planning in the reorganization and delivery of medical care services is discussed. Prerequisite: ECON 1070, 1080, 2010, or 2020. 3 hours

ECON 3190 Environmental Economics The study of economic aspects of environmental problems. Benefit-cost analysis is introduced and applied to problems in the management of air, water and other natural resources. Environmental problems of selected industries—including transportation and electric power—economic growth, population and environmental quality are analyzed. Prerequisite: ECON 2010. 3 hours

ECON 3200 Money and Banking An analysis of the role of money and its impact on the economy-on inflation, unemployment, interest rates, income, and foreign exchange. The operations and relationships of commercial banks and the Federal Reserve are examined. Prerequisites: ECON 2010 and ECON 2020. 3 hours

ECON 3240 Public Finance Practices, effects, and policy issues in federal government budgeting, spending, taxation, borrowing and debt, with particular attention to individual and corporate income taxation. Prerequisite: ECON 2010. 3 hours

ECON 3450 Business, Government, and Society This course examines the interrelationships among business, government and society. The course attempts to provide insights into how, when and why government policy towards business firms can either benefit or harm society. Topics covered include antitrust policies, economic regulation and social regulation. Prerequisite: ECON 2010. 3 hours

ECON 3800 International Economics A study of the fundamentals of international trade and related problems, with special reference to the implications of the international economic policies of the United States both for the economy and for the firm. Prerequisites: ECON 2010 and ECON 2020. 3 hours

ECON 3850 Central and East European and Central Asian Economies This course examines the interaction between economic and cultural changes emerging during periods of transition in Central and east European and Central Asian economies. Prerequisite: ECON 1070, 1080, 2010, or 2020. 3 hours

ECON 3870 Studies in Asian Economies The course concentrates on the study of the Japanese, Chinese, and Indian economic systems. These models are then applied as a basis of comparison to other Asian economies. Prerequisite: ECON 1070, 1080, 2010, or 2020. 3 hours

ECON 3880 African Economies This course provides students with an understanding of the crucial role of culture and tradition in shaping the economic evolution of African nations. It is intended for undergraduate majors and minors in African Studies, Black Americana Studies, Economics, Environmental Studies, international business, and other
ECON 3890 Latin American Economies

An examination of the economic problems and challenges of the Latin American region. Topics covered include structure and performance of the Latin American economies, the industrialization process, economic integration, stabilization programs, and capital formation. Prerequisite: ECON 1070, 1080, 2010, or 2020. 3 hours

ECON 4000 Managerial Economics

An introductory examination of the application of tools of economic analysis to management problems and decision making. The basic concepts include marginalism and cost analysis, demand pricing, capital budgeting, and selected optimality models. Prerequisites: ECON 2010 and MATH 1160 3 hours

ECON 4020 Introductory Economic Statistics

An introduction to statistical methods and techniques used in the acquisition and analysis of economic data. Data acquisition topics include collection and preparation techniques, survey design and sampling. Students will be familiarized with several government and private economic data sets and their strengths and weaknesses. Data analysis topics emphasize statistical methods used to analyze economic data such as descriptive statistics, hypothesis testing and regression analysis. Prerequisites: ECON 2010, ECON 2020, MATH 1180 or equivalent. 3 hours

ECON 4030 Intermediate Microeconomics

An examination of microeconomic theory, with emphasis on the theory of consumer behavior (the derivation of the demand curve), the theory of the firm and factor pricing. Prerequisite: ECON 2010. 3 hours

ECON 4060 Intermediate Macroeconomics

An examination of macroeconomic theory with particular emphasis on business cycles, economic growth, and price level instability. The interplay between theory and policy is analyzed. Prerequisite: ECON 2020. 3 hours

ECON 4090 Econometrics

Instruction is given on the design and conduct of economic research and the analysis of economic data. Each student designs a research project drawing upon economics courses already taken by the student. In addition to examinations, the student conducts in-depth research, gives an oral report, and submits a written report. Prerequisites: ECON 4020 or STAT 2160, ECON 4030, ECON 4060, or equivalents. 3 hours

ECON 4840 Comparative Economic Systems

The economic institutions and conditions of capitalism, socialism, communism, fascism, and the cooperative movement are critically examined as to ideology and actual operation. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisites: ECON 2010 and 2020, or consent of instructor. 3 hours

ECON 5030 Economic Computing

This course provides students with basic skills needed for gaining access to economics databases and for using data management programs on personal and mainframe computers. It provides instruction and lab experience in transferring files and performing operations widely employed by economists. Prerequisites: ECON 4030, 4060, or permission of instructor. Undergraduate students wishing to take 5000-level courses must be of junior or senior standing and have 12 or more credit hours of economics or the consent of the department chairperson. 3 hours

ECON 5040 Mathematics for Economists

This course presents the mathematical material necessary as background for the topics covered in graduate-level economics courses. Topics covered include differential calculus, optimization, comparative statics, and mathematical programming. These techniques are applied to selected economic problems. Prerequisites: ECON 2010 and 2020, MATH 1220 or consent of instructor. Undergraduate students wishing to take 5000-level courses must be of junior or senior standing and have 12 or more credit hours of economics or the consent of the department chairperson. 3 hours

ECON 5050 History of Economic Thought

This course surveys the origins and developments of economic analysis from the ancient Greeks to the present. Prerequisites: ECON 2010, 2020. Undergraduate students wishing to take 5000-level courses must be of junior or senior standing and have 12 or more credit hours of economics or the consent of the department chairperson. 3 hours
ECON 5880 Economic Development An analysis of the economic factors such as population, resources, innovation and capital formation which affect economic growth. Selected underdeveloped areas will be studied to understand the cultural patterns and economic reasons for lack of development and the steps necessary to promote economic progress. Prerequisites: ECON 2010 and 2020. Undergraduate students wishing to take 5000-level courses must be of junior or senior standing and have 12 or more credit hours of economics or the consent of the department chairperson. 3 hours

ECON 5910 Guest Economist Seminar Seminar series on a topic of current interest featuring invited visiting economists. Topics will vary and courses may be repeated. Prerequisites: ECON 2010 and 2020. Undergraduate students wishing to take 5000-level courses must be of junior or senior standing and have 12 or more credit hours of economics or the consent of the department chairperson. 1 hour

ECON 5920 Guest Economist Seminar Seminar series on a topic of current interest featuring invited visiting economists. Topics will vary and courses may be repeated. Prerequisites: ECON 2010 and 2020. Undergraduate students wishing to take 5000-level courses must be of junior or senior standing and have 12 or more credit hours of economics or the consent of the department chairperson. 1 hour

ECON 5980 Readings in Economics An independent program of study for qualified advanced students to be arranged in consultation with the instructor. Prerequisite: Consent of instructor and department chairperson. Undergraduate students wishing to take 5000-level courses must be of junior or senior standing and have 12 or more credit hours of economics or the consent of the department chairperson. 1 to 3 hours

Teaching, Learning, and Leadership
ED 1030 Critical and Creative Reading Designed to develop practical application of principles of critical reading through extensive use of content area textbooks. Course will stress author's purpose, summarizing, and outlining for academic efficiency. 2 hours

ED 1040 Effective Reading for College Students Designed to provide the student with skills in vocabulary development, comprehension, and reading efficiency. Attention is given to the effective use of text and reference books in academic subjects, inferential reading, and synthesis of main ideas. 2 hours

ED 1060 Effective College Reading for International Students This course focuses on vocabulary development and comprehension, including an emphasis on correct pronunciation, word analysis, factual and inferential thinking, and synthesis of ideas. Course is graded on a credit/no credit basis. Prerequisite: Results of TOEFL or MTEL. 2 hours

ED 2000 Introduction to American Education This course is designed to explore some of the major educational issues that have provoked public debate and institutional reform in America. The purpose of the course is to achieve an understanding of these issues and the functions of education through the use of historical, sociological and philosophical concepts. The course provides an opportunity for pre-education students to explore their interest in education and teaching. This course is cross-listed with ES 2000. 3 hours

ED 2300 The Nature of Creativity This course explores the nature of creativity - its processes, its products, its characteristics, its values, and its relationship to human beings and society. Growth in aesthetic sensitivity, personal interaction, self-confidence, and ability to solve problems creatively are the objectives of this course. Open to all students. 3 hours

ED 2500 Human Development This course traces the psychological and social development of human beings from conception through adolescence. Consideration is given to those factors which facilitate or inhibit normal progress in the areas of physical, emotional, social, intellectual, and moral development. Attention is also given to the development of the self-concept for purpose of helping students to become more aware of themselves and of their relationships with others. Students are required to observe human beings at different stages of development in a variety of cultural settings. 3 hours

ED 2600 The Cognitive Development of the Child This course focuses on the physical, social, emotional, and cognitive development of the child, birth through 12 years. Special attention is given to cognitive development viewed in a Piagetian framework. Applications to the teaching of language arts are emphasized. 2 hours
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Description</th>
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<tr>
<td>ED 3000</td>
<td>The Adolescent and School Learning</td>
<td>This course aims to have students see adolescents as unique individuals and understand the variety of forces acting upon middle and secondary students. Students examine adolescence as a contemporary social and psychological phenomenon; employ cognitive, self, and narrative psychology; consider cultural differences and the exceptional learner. Critical thinking skills are emphasized in the analysis of theories and descriptions of adolescence. Prerequisite: Admission to Secondary Education program.</td>
<td>3 hours</td>
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<tr>
<td>ED 3010</td>
<td>Secondary Content Literacy</td>
<td>This course explores content literacy as it relates to the acquisition of new knowledge in various subject areas. Students will apply the cognitive components of content literacy through assessment of learners and subject area materials, as well as instructional procedures designed to meet the needs of diverse students. Requires participating in a secondary classroom for a minimum of two class periods three days per week. Prerequisite: ED 3000. Corequisite: ED 3020.</td>
<td>3 hours</td>
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<td>ED 3020</td>
<td>Teaching and Learning in the Secondary School</td>
<td>This course is designed to prepare students for the responsibilities of classroom instruction. Emphasis is placed on writing clear outcome statements for instruction, designing learning activities which motivate students and enable learners to retain information and transfer learning; and designing assessment strategies. Requires participation in a secondary school classroom. Prerequisite: ED 3000 for College of Arts and Sciences major(s) only. Corequisite: ED 3010.</td>
<td>4 hours</td>
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<td>ED 3030</td>
<td>Organization and Management in Education</td>
<td>Students will study the organizational and management challenges that secondary teachers face. Students will engage in a critical examination of current school and classroom organization and management models, methods, and strategies in middle and high schools. Prerequisites: ED 3000, ED 3010, and ED 3020.</td>
<td>3 hours</td>
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<td>ED 3050</td>
<td>K-12 Content Area Literacy</td>
<td>This course is designed to provide the K-12 preservice content area teacher (Art; Health, Physical Education, and Recreation; Music; Vocational Education) with the knowledge and skills necessary to assist students in using the language processes-reading, writing, speaking, listening, thinking, as well as performance-as tools for learning. Students will explore the following topics: 1) factors affecting the learner; 2) instructional methods designed to meet the needs of a diverse population; 3) the nature of the reading process and reading to learn; 4) implications of current research on teaching and learning; 5) ways to integrate language arts across the curriculum. The major goal of the course is the application of course concepts and strategies to subject area instruction. Prerequisites: ED 2500 and admission to the College of Education.</td>
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<td>ED 3090</td>
<td>Educational Psychology of Early Childhood</td>
<td>This course will develop an understanding of how children learn, from birth through early adolescence. Emphasis will be placed on the learning styles of young children, aged 0 through 9. Emphasis will be placed on major learning theories, on the growth of positive self-concepts, and on the cognitive styles of these age levels. Students will examine the effects of cultural and gender differences and of discrimination on learning. Prerequisite: Admission to the Early Childhood Professional Education minor.</td>
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<td>ED 3100</td>
<td>Educational Psychology of Childhood</td>
<td>This course will develop an understanding of how children learn, from birth through early adolescence. Emphasis will be placed on major learning theories, on the growth of positive self-concepts, and on the cognitive styles of these age levels. Students will examine the effects of cultural and gender differences and of discrimination on learning. Prerequisite: Admission to professional program in education.</td>
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<td>ED 3500</td>
<td>Young Children, Their Families, and Their Society</td>
<td>A study of the effects of family, peer group, and society on the development of young children. Emphasis will be placed on family styles and child-rearing practices and their effects on learning and other behavior. Family constellations, the learning of sex roles, the effects of divorce, and similar phenomena will be studied. Consideration will be given to the effect of cultural and subcultural differences on early childhood development and students will look at the contemporary American scene as it affects young children. Prerequisite: ED 3090.</td>
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<td>ED 3690</td>
<td>Early Childhood Classroom Organization and Management</td>
<td>Students will examine and apply recent research on effective classroom management, concentrating on such variables as time on task; appropriate choice of group structures and direct instruction; the management of time, space, and materials; and the analysis of classroom interactions. Students will design, implement, and evaluate an integrated curriculum and will learn management principles designed to minimize &quot;discipline problems.&quot; Micro-teaching experiences and a supervised teaching practicum will give each student the opportunity to apply research on effective teaching and to become an effective classroom manager. Emphasis will be placed</td>
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on organization and management in early childhood classrooms and on appropriate learning experiences for young children. Requires a minimum of one (1) day per week participation in a classroom. Prerequisites: ED 3090; admission to the Early Childhood minor. 3 hours

ED 3710 Elementary Classroom Organization and Management Students will examine and apply recent research on effective classroom management, concentrating on such variables as time on task; appropriate choice of group structures and direct instruction; the management of time, space, and materials; and the analysis of classroom interactions. Students will design, implement, and evaluate an integrated curriculum and will learn management principles designed to minimize "discipline problems." Micro-teaching experiences and a supervised teaching practicum will give each student the opportunity to apply research on effective teaching and to become an effective classroom manager. Requires a minimum of one (1) day per week participation in a classroom. Prerequisites: ED 3090 or ED 3100. 3 hours

ED 3770 Literacy I: Literacy/Language Development in Emergent and Beginning Literacy This course addresses language and literacy development processes in emergent and beginning readers and writers in pre-K through 3rd grade classrooms. Studying proficient readers' use of the reading/writing processes, students (teacher candidates) will learn how to support young learners' first experiences in bringing meaning to print. Students will focus on the symbolic system of written language including the four cueing systems: phonemic and morphemic (phonics) semantic, syntactic, and pragmatic. Students will explore social, cultural, and dynamic nature of language and how these factors influence young learners' literacy instructional needs. Students will learn to select multiple materials and assessments to identify young learners' strengths, and needs, and engage in best practices to address these needs based on learners' strengths. Students will learn how to communicate effectively with parents and colleagues about young learners' developing progress. A field placement is required with this course. Students are to successfully complete a 20-hour practicum in a pre-kindergarten, kindergarten, 1st, 2nd, or 3rd grade classroom. This course includes Michigan Framework standards as well as Michigan Literacy Progress Profile modules (MLPP) for grades K-3. Designed for students seeking K-8 certification. 3 hours

ED 3780 Literacy II: Literacy/Language Arts Development in the Content Areas This course explores ways in which various teaching methods, materials, and assessments foster independent and strategic uses of literacy for young students in grades 4 through 8. Students (teacher candidates) will explore and participate in literacy as a social, cultural, and psychological process. The emphasis will be on upper elementary/middle level students and how they learn and create meaning in their lives through literacy. Students will study ways to integrate literacy learning across all school subjects through a wide application of varied "texts" to meet both mandated curricular purposes and the needs of diverse learners. Students will learn to select multiple materials and assessments to identify young learners' strengths and needs, and engage in best practice to meet literacy instructional needs for the grade 4 through 8 students. This course includes Michigan Framework standards. Designed for students seeking K-8 certification. Prerequisite: Ed 3770. 3 hours

ED 3790 Literacy III: Literacy/Language Inquiry and Multiple Media This course will build upon the concepts and strategies learned in Literacy I & II. Students (teacher candidates) will learn to organize multiple materials for instruction using an inquiry framework focusing on literacy development as a life-long process. Students will learn how to support children in the use of reading, writing, speaking, listening, and visual representation as a means to generate questions, to gather and organize data, and to analyze, synthesize and critique information for all content areas. Meeting the standards of the Michigan Curriculum Framework, students will connect inquiry instruction in an integrated curriculum to help young learners engage in critical thinking, problem solving, and independent literacy activities. Students will learn to evaluate materials and administer assessments to identify readers' strengths and needs. Designed for students seeking K-8 certification. Prerequisite: Ed 3770. 3 hours

ED 3950 School and Society This course is concerned with the nature and direction of American education in its changing social context. The course focuses on major issues affecting the advancement of education in a culturally diverse, democratic society. Course content includes inquiry as to how social, historical, political, philosophical, economic, and legal factors influence educational policy and practice. The role of individuals in the change process in education is examined. An interdisciplinary approach is used. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. This course is cross-listed with ES 3950. Prerequisite: Minimum of 70 earned semester credit hours. 3 hours

ED 3980 Special Studies in Education With variable topics and variable credit, this course is designed for undergraduates who, by virtue of their special interest or concerns, find it desirable to pursue in greater depth topics or problems related to children's educational development. The course will be offered under the following conditions: (1) that a
written outline of the offering be approved by the Department Chairperson, and (2) that prior arrangement be made with a faculty member. The course offers variable credit from one through six semester hours. Students may repeat the course so long as topics differ. Each offering of 398, Special Studies in Education, will be given an appropriate subtitle, which will be listed on the student's official transcript. Students may earn up to three hours of credit for any given subtitle. No more than six hours of 3980 may be applied toward meeting professional program requirements.

ED 3990 Field Experience (Community Participation) A program of independent study combining academic work in education with social, environmental, civic or political fieldwork. Prerequisites: A written outline of the student's project, approved by a faculty supervisor, and approval from the office of the dean.

ED 4010 Teaching Elementary School Science Designed to introduce students to a sampling of the elementary school science program. Emphasis will be given to the exploration of science programs, techniques, philosophies, and teaching strategies that are currently being used in the elementary school science classroom. May be taken concurrently with ED 402. Prerequisites: ED 3090 or ED 3100 and all science courses.

ED 4070 Teaching Elementary Social Studies This course is designed to help students understand the role of social studies in the elementary school; gain insight into important considerations in the selection of content, skills, and attitudes; and discover how to guide and assess the learning of children in this field. Planning social studies experiences and ways of working with individuals, groups, and the total class will be emphasized. Multicultural and non-sexist content and strategies will be emphasized. Prerequisites: ED 3090 or ED 3100; and twelve (12) hours of social science courses.

ED 4090 Seminar in Early Childhood Education The seminar will be directly related to the students' early childhood education classroom experiences; it will further the students' practical understanding of research on effective teaching and effective schools, help to refine techniques of effective classroom management and curriculum design and enhance students' sense of their own teaching style. The seminar will build the students' self-image as professionals as they are encouraged to take professional responsibility and to practice professional ethics. Must be taken concurrently with ED 4700.

ED 4100 Seminar in Education The seminar will be directly related to the students' classroom experiences; it will further the students' practical understanding of research on effective teaching and effective schools, help to refine their techniques of effective classroom management and curriculum design, and enhance the students' sense of their own teaching style. The seminar will build the students' self-images as professionals as they are encouraged to take professional responsibility and to practice professional ethics. It is in the seminar that the ongoing Teaching Portfolio will be completed and reviewed by a faculty committee. Must be taken concurrently with ED 4700 or ED 4710 or ED 4750, depending on program.

ED 4300 Creativity in the Elementary Classroom A synthesis of the principles developed in the creative arts as applied to teaching and learning at the elementary school level. Emphasis is placed on the integration of creative processes in elementary school curriculum and instruction, on the teacher as problem-solver, and on the creation of structures, which accommodate individualization of instruction and creative problem solving in children. Prerequisite: Completion of six (6) credit hours in fine arts.

ED 4500 Pre-Internship in Elementary Education This capstone course, required of all students in the Elementary Professional Education minor, will afford students classroom teaching and observation experiences on a regular basis. In addition to the required pre-internship of two half-days per week, students will meet in a seminar with their faculty supervisor. Graded on a credit/no credit (pass/fail) basis. Prerequisites: ED 3790, ED 4010, ED 4070, ED 4300, and MATH 3520, or any/all of these may be taken concurrent with this course.

ED 4600 Integrated Language Arts Seminar This course will focus on synthesizing theories, concepts, and classroom approaches from previous work in the Integrated Language Arts Minor. Students will practice restructuring curriculum objectives, classroom organization, and teaching strategies in order to achieve the maximum integration of the language arts processes in the elementary school. Students will pursue individualized programs culminating in a guided field experience through which students will demonstrate identified program competencies. Student- and faculty-led seminars will be scheduled periodically throughout the course.
ED 4700 Intern Teaching: Early Childhood Only for seniors who have been admitted to teacher education. This internship is required a semester or session prior to the full semester internship. This experience consists of five half-days per week in a fall or winter semester or five full days per week in a spring session in a pre-kindergarten program. Students will synthesize the knowledge, apply the understandings, and practice the skills which they acquired during University course work. They will participate in all phases of the school program where they are assigned. To be undertaken concurrently with ED 409. Graded on a Credit/No Credit basis. Prerequisites: Program requirements must be completed prior to Intern Teaching. 5 hours

ED 4710 Intern Teaching: Elementary/Middle School Only for seniors who have been admitted to teacher education and completed all their professional studies courses. This will be the final field experience consisting of five days per week in an educational setting. Students will synthesize the knowledge, apply the understandings, and practice the skills which they acquired during their University course work. They will participate in all phases of the school program where they are assigned. To be taken concurrently with ED 4100. Prerequisites: All other courses and program requirements must be completed prior to Intern Teaching. Credit/No Credit only. 5, 8, or 10 hours

ED 4750 Intern Teaching: Middle School/Secondary Students devote a minimum of five days per week for one semester to Intern Teaching. They are expected to have experience in both the curricular and extra curricular programs of the school in which they teach. Prerequisite: All other courses and program requirements must be completed prior to Intern Teaching. 5 or 10 hours

ED 5000 In-service Professional Development I This course develops specific professional skills related to current school responsibilities of teachers and other school personnel. Final course outcomes need to have demonstrated application to the classroom/workplace. May be repeated, credit hours may be applied to teacher certification programs with approval of the Teacher Certification office but will not be applicable to graduate programs within the Department of Education and Profession. 1 hour

ED 5010 In-Service Professional Development II This course develops specific professional skills over an extended period of time related to current school responsibilities of teachers and other school personnel. Final course outcomes need to be demonstrated application to the classroom/workplace. May be repeated, but only three credit hours may be applied to graduate programs within the department. Topics included in department program must be approved in advance of registration by the program advisor. 2 to 3 hours

ED 5020 Curriculum Workshop Opportunity provided for teachers, supervisors, and administrators in selected school systems to develop programs of curriculum improvement. This may include short-term offerings to resolve a particular curricular problem, as well as long-range curriculum studies. A wide variety of resources is used for instructional purposes, including several specialists, library and laboratory facilities, field trips, audiovisual materials, and the like. Each offering of 502, Curriculum Workshop, will be given an appropriate subtitle, which will be listed on the student's official transcript. Students may earn up to three hours of credit for any given subtitle. No more than six hours of 5020 may be applied toward a Master's degree. 1 to 6 hours

ED 5050 The Adult Learner This course will provide an in-depth look at the learning adult from age 22 to death with emphasis on human variability, unique learning style, and characteristics of the adult learner. Theories of adult learning, studies of intelligence and memory, and learning capabilities and motivation as prerequisite for high-level well-being and problem solving will be studied. 3 hours

ED 5160 Professional Symposium in Reading This course is designed to be the initial course in the graduate program in reading. It is designed to present the basic concepts concerning the nature of the reading process and the teaching of reading. Emphasis will be placed on reading as a thinking process and on factors affecting reading performance. Special emphasis will be placed on child development; language development; concept development; physical, psychological, and environmental factors affecting the child's learning to read. In addition, the course will provide a brief overview of the delivery systems and procedures used in the U.S. to teach reading. This will involve an historical overview as well as current and potential future practices. 3 hours

ED 5750 Administration of Child Development Centers Examination of day care and preschool regulations and/or requirements and knowledge of administrative materials and duties in providing optimum growth for young children. Includes management, planning, and organizing child development centers. (Cross-listed with FCS 5750.) 3 hours
ED 5970 Reading and Related Language Experiences This course involves a study of the current research on aspects of language which are involved in the process of effective reading. It is intended to provide students with a thorough understanding of the research in language and its application to the reading process. It also is intended to help students understand more fully the place of reading in a total language arts program and to give students an opportunity to make application to practical classroom situations. 3 hours

ED 5980 Selected Reading in Education Designed for highly qualified students who wish to study in-depth some aspect of their field of specialization under a member of the departmental staff. Prerequisite: Written consent of departmental advisor and instructor. 1 to 4 hours

Educational Technology
EDT 3470 Technology for Elementary Education An introduction to the contributions of instructional technology to learning and teaching in elementary education. The course will provide a survey of critical use of technology appropriate for elementary education and will enable students to acquire basic skills in producing and using computers, video, and other instructional technologies in educational applications. 2 hours

EDT 5030 Educational Technology Academy This course is designed to permit students to update knowledge and skills in current educational technology and apply this learning for use in educational programs for students in pre-kindergarten through college programs. Such applications include methods of using computers, digital design, video and audiovisual technologies in literacy development, content area programs, instructional management, and the arts, as well as others appropriate to preservice and inservice professions. Participation in the course presumes subject matter knowledge and basic computer literacy on the part of the students. Final course outcomes include application of material to the classroom/workplace. These ETA offerings bring students with specific needs, instructors with unique expertise and facilities with appropriate resources together for intensive and highly-focused learning experiences. May be repeated. 1 to 3 hours

EDT 5400 Introduction to Computing and Technology for Productivity This course is a basic introduction to computing and technology for productivity software. Designed for the beginning computer user, this course covers necessary information for the student to operate successfully a computer and other technology devices (CD-ROM, laserdisc player, etc.). Operation includes running programs, accessing information, data manipulation, and publication. A variety of computer software programs that enhance personal productivity will be presented. Students will be provided with basic "hands-on" activities with many different software applications. Upon completing this course, the student will have a solid understanding of computer components and terminology. The student will be aware of the various types and purposes of software for learning and productivity and will be able to evaluate educational software for classroom application. 3 hours

EDT 5410 Telecommunications for Teaching and Learning The course focuses on the implementation of telecommunications for teaching and learning. Telecommunication technologies widely used in the field of education and emerging technologies will be presented. Students enrolled in this course will learn to operate various telecommunication tools to support their own personal productivity, teaching, and instruction. Students will also be equipped with skills necessary to review studies pertaining to the application of technology in education. Many of the telecommunication methods presented in this course will be used to deliver the course material. 3 hours

EDT 5420 Teaching with Technology: Design and Development for Learning This course focuses on the design, development, and integration of educational technology methods for teaching, learning, and personal productivity. This course provides an overview of learning theory and instructional design principles related to the development of educational technology programs. A review of the theory of individual learning styles and application of technology will be presented. Upon completion of this course, students will possess knowledge in the planning, delivery, and evaluation of instruction through the implementation of various technologies. Students will design and develop educational technology products (computer based, hypermedia/multimedia, WWW, etc.) based upon learning theory and instructional design principles. 3 hours

EDT 5500 Photography and Multimedia Workshop Intended to sharpen visual perception while improving technical skills, this laboratory course emphasizes the photographic process as a creative and expressive medium of visual communication in educational situations. Using digital photographic equipment, students are expected to produce new photographic images, edit the images using common computer editing tools, and publish the images using common desktop publishing, desktop presentation, and multimedia software for group critique. Each student will be required to find access to
appropriate photographic/multimedia equipment and software. Prerequisite: EDT 5420. May be repeated up to a total of six credits. 1 to 3 hours

**English**

**ENGL 1000 Basic Writing Skills**  A writing course designed to help students develop basic writing skills. Emphasis is on English usage, sentence structure, and paragraph development. Does not count toward English major or minor. Graded on a Credit/No Credit basis. Credit for the course will not apply to the number of credits needed for graduation. 4 hours

**ENGL 1050 Thought and Writing**  A writing course in which the students will work closely with the instructor to develop their sense of language as a means of shaping and ordering their experience and ideas, and to develop imagination, thought, organization, and clarity in their written work. Does not count as credit towards English major or minor. Fulfills the University Intellectual Skills college level writing requirement. Prerequisite: Satisfactory ACT English score, or placement essay, or ENGL 1000. 4 hours

**ENGL 1070 Good Books**  An exploration of good literature, selected from all times and countries experienced in a variety of ways - as fantasy and adventure, as imaginative response to fundamental human experience such as death or evil, as social criticism and analysis, as revelation of character and psychology, as experience of unfamiliar customs and cultures. A course for the general student rather than the student who plans to specialize in the study of literature. Credit towards English major or minor by permission of the department only. 4 hours

**ENGL 1100 Literary Interpretation**  An introduction to the study of literature, aimed at developing abilities to read literature and write about it with skill, sensitivity, and care. Students will read poetry, drama, and prose fiction, and through the writing of several papers will be introduced to terms and methods of formal study of literature. Course required for entry into most upper-level English courses. Prerequisite: At least a "B" in ENGL 1050 or the equivalent. 4 hours

**ENGL 1120 Literary Classics**  Readings in selected literary masterpieces from Homer to the present. The works studied are chosen to introduce students to the rich and diverse literary traditions which represent an invaluable aspect of their heritage. Recommended for the general student as well as for potential English majors or minors; does not, however, count for English major or minor credit. 4 hours

**ENGL 1500 Literature and Other Arts**  Study of literature through its relationship to other arts. The course approaches literature by relating novels, stories, poems, or plays to their representations in other media and art forms, particularly film (including TV), music and song, dramatic representation, and painting. 4 hours

**ENGL 1600 Developing Fluency and Clarity in English: Emphasis on Reading and Writing**  This course is for undergraduates and graduates who are non-native speakers of English and who have sufficient language proficiency to be admitted to the University, but who need to improve their reading and writing skills in order to perform successfully in their academic work. The course will help international students develop fluency and clarity in their writing by responding to varied kinds of prose. Students will learn to write in various academic genres. Particular attention will be paid to understanding and using key organizational patterns of these genres and to textbooks, with an emphasis on information gathering, planning, writing, and revising for clarity. Graded on credit/no credit basis. Prerequisite: Minimum of 500 on TOEFL. 5 hours

**ENGL 1610 Acquiring Fluency and Accuracy in English: Emphasis on Speaking and Listening**  This course will help international students develop fluency in speaking and effectiveness in listening to English by completing a series of tasks designed to develop their grammatical, sociolinguistic, and discourse competence in oral language. Attention will be paid to developing interpersonal interaction skills, both social and classroom, and basic lecture-listening skills. Graded on credit/no credit basis. Prerequisite: Minimum of 500 on TOEFL. 5 hours

**ENGL 2050 Intermediate Writing**  A practical course for freshman or sophomores or international students transferring to Western, who wish to develop their skills in writing. Emphasis is on understanding the conventions and forms appropriate for personal writing, persuasion, and/or research papers and reports. May count as elective credit in English. May not count toward an English major or minor. This course will not fulfill the baccalaureate writing requirement. Prerequisite: Satisfactory completion of ENGL 1050. 4 hours
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<tr>
<th>Course Code</th>
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<th>Description</th>
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<tbody>
<tr>
<td>ENGL 2070</td>
<td>Topics in Literature</td>
<td>Course description varies. May be repeated for credit under different topics. 4 hours</td>
</tr>
<tr>
<td>ENGL 2100</td>
<td>Film Interpretation</td>
<td>Studies in the motion picture as art form.</td>
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<tr>
<td>ENGL 2110</td>
<td>Folklore and Mythology</td>
<td>Exploration of folklore and mythology from around the world and through the ages using poetry, fiction, film, and other materials. 4 hours</td>
</tr>
<tr>
<td>ENGL 2220</td>
<td>Literatures and Cultures of the United States</td>
<td>Through study of literary works (and, when possible, other artistic achievements or cultural artifacts) by members of the varied cultures which comprise the United States of America, this course considers the perspectives and sustaining values of these cultural groups and considers the challenges, problems, and opportunities of a pluralistic American society. 4 hours</td>
</tr>
<tr>
<td>ENGL 2230</td>
<td>Black American Literature</td>
<td>A survey of important black American writers and the historical development of the black image and experience in American literature and culture. 4 hours</td>
</tr>
<tr>
<td>ENGL 2520</td>
<td>Shakespeare</td>
<td>A survey of Shakespeare's art through study of selected tragedies, histories, and comedies. Prerequisite: ENGL 1100 (Theatre majors may substitute THEA 1700). 4 hours</td>
</tr>
<tr>
<td>ENGL 2660</td>
<td>Writing Fiction and Poetry</td>
<td>Study and practice in writing of fiction and poetry, intended to develop the student's understanding of formal techniques and skill in the use of these techniques. 4 hours</td>
</tr>
<tr>
<td>ENGL 3050</td>
<td>Practical Writing</td>
<td>A practical course for juniors and seniors who wish to develop their skills in writing. Emphasis is on understanding the writing forms of non-fictional prose such as research papers and reports; personal writing, and pre-professional writing (for students planning careers in business, social service, industry, law, the arts, or other professions). This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. This course is available only to English Majors and English Minors or by permission of the department. 4 hours</td>
</tr>
<tr>
<td>ENGL 3070</td>
<td>Literature in Our Lives</td>
<td>This course examines the ways that literary works represent and reflect upon human experience and the human condition. It emphasizes the response of the individual reader to both the intellectual content and the aesthetic properties of texts and seeks to develop critical standards as a basis for a life-long engagement with literature; does not count as credit toward English major or minor. 3 hours</td>
</tr>
<tr>
<td>ENGL 3080</td>
<td>Quest for Self</td>
<td>Exploration of the perennial quest for the self through the special perspective provided by literature. The literary perspectives may be supplemented by materials from other arts or disciplines. A non-technical course for the general student rather than the student specializing in the study of literature; does not count as credit towards an English major or minor. 3 hours</td>
</tr>
<tr>
<td>ENGL 3110</td>
<td>Our Place In Nature</td>
<td>Exploration of the human's place in nature through the special perspective provided by literature. The literary perspectives may be supplemented by materials from other arts or disciplines. A non-technical course for the general student rather than the student specializing in the study of literature; does not count as credit towards an English major or minor. 3 hours</td>
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<tr>
<td>ENGL 3120</td>
<td>Western World Literature</td>
<td>Study of works selected from the Western literary tradition, excluding those from Great Britain and the U.S.A. Selections may range from biblical literature and great works of Greece and Rome through classics of the Middle Ages and Renaissance to major works of the present. Works will be studied in English. 3 hours</td>
</tr>
<tr>
<td>ENGL 3130</td>
<td>Asian Literature</td>
<td>Study of works selected from the great literature of Asia, especially the Chinese, Japanese, and Indian traditions. Works will be studied in English. 3 hours</td>
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<tr>
<td>ENGL 3140</td>
<td>African Literature</td>
<td>Study of works selected from the great literature of Africa, including both traditional and contemporary material. Works will be studied in English. 3 hours</td>
</tr>
</tbody>
</table>
ENGL 3150  The English Bible as Literature  Study of selections from the Old and New Testaments and the 
Apocrypha. Some attention will be given to the influence of the English Bible on a few representative writers, musicians, and 
artists, but emphasis will be on the poetic, philosophical, and narrative elements of the Bible itself.  3 hours

ENGL 3200  American Literature I  A survey of American literature from its beginnings to 1880, with attention to 
the diversity of American cultures. Prerequisites: ENGL 1050 (or equivalent); ENGL 1100.  3 hours

ENGL 3210  American Literature II  A survey of American literature since 1880, with attention to the diversity of 
American cultures. Prerequisites: ENGL 1050 (or equivalent); ENGL 1100.  3 hours

ENGL 3300  British Literature I  A survey of British literature from its beginnings through Boswell. 
Prerequisites: ENGL 1050 (or equivalent); ENGL 1100.  3 hours

ENGL 3310  British Literature II  A survey of British literature from the Romantics to the present. Prerequisites:
ENGL 1050 (or equivalent); ENGL 1100.  3 hours

ENGL 3600  Achieving in Academic English: Emphasis on Reading  This course is for undergraduates and 
graduates who are non-native speakers of English and who have sufficient language proficiency to be admitted to the 
University, but who need to improve their reading and writing skills in order to perform successfully in their academic world. 
The course promotes further development in the ability to read academic prose and to write in the genres needed for 
academic success, including the research paper. Attention will be paid to critical reading and editing for grammatical 
correctness in writing. Prerequisite: Minimum of 500 on TOEFL.  5 hours

ENGL 3610  Developing Proficiency in English: Emphasis on Speaking and Listening  For international students 
whose interpersonal speaking and listening skills are satisfactory, this course promotes further development of oral language 
abilities needed for academic success, including group interaction skills. Attention will be paid to developing critical listening 
and oral presentation skills. Prerequisite: Minimum of 500 on TOEFL.  5 hours

ENGL 3620  Readings in Creative Non-Fiction  A course in literary analysis of the form and development of the non-
fiction prose. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing 
requirement of the student's curriculum. Prerequisites: ENGL 1050; ENGL 1100.  3 hours

ENGL 3660  Advanced Fiction Writing  An advanced course in the writing of fiction, with emphasis on class discussion 
and criticism of each student's writing. May be repeated one time for credit. Prerequisite: ENGL 2660 or permission of 
the department.  3 hours

ENGL 3670  Advanced Poetry Writing  An advanced course in the writing of poetry, with emphasis on class discussion 
and criticism of each student's writing. May be repeated one time for credit. Prerequisite: ENGL 2660 or permission of 
the department.  3 hours

ENGL 3680  Playwriting  An introductory course in the writing of drama, with class discussion and criticism of 
each student's writing, and including study of selected examples of drama in print and in production. May be repeated one 
time for credit. Prerequisite: ENGL 2660 or permission of the department.  3 hours

ENGL 3690  Writing in the Elementary School  Focuses on writing development of pre-school through middle school 
children, and on ways one can encourage and respond to student writing, assess writing growth, and use writing as a means of 
learning. Fosters a theoretical understanding of the writing process in part by writing in varied genres and forms. Emphasizes 
writing as an integral component of the entire curriculum.  4 hours

ENGL 3700  Writing Creative Non-Fiction  An introductory course in the writing of creative non-fiction, with class 
discussion and criticism of each student's writing, and including study of selected examples of creative non-fiction in print. 
May be repeated one time for credit. Prerequisites: ENGL 2660 or ENGL 3050 or permission of the instructor .3 hours

ENGL 3710  Structures of Modern English  Examines the structures of the English language and surveys major 
grammatical theories. Emphasizes syntactic analysis of oral and written English to develop an understanding of the diversity 
of forms, meanings, and stylistic choices available in the language.  4 hours

540
ENGL 3720 Development of Modern English Traces the development of modern English from its beginnings to the present, examining historic and linguistic influences on change in both spoken and written English. Explores theories of language development, with emphasis on their practical implications. 4 hours

ENGL 3730 Reading As A Psycholinguistic Process Focuses on the nature of the reading process and the development of reading ability in children. Particular attention is given to how the natural acquisition of literacy parallels the acquisition of oral language, and to the close relationship between the development of reading and writing ability. Emphasizes the application of current research in the elementary classroom. 4 hours

ENGL 3740 Language in the Elementary School This course will deal with the following topics: the history and structure of words, dialects, and interlanguage (i.e., lingua franca, a common language used by speakers of different languages) as cultural phenomena; teaching reading and writing in light of language variations; aspects of grammar most useful to writers; research on teaching grammar; and integrating language study into the elementary curriculum. Prerequisite: ENGL 3690. 3 hours

ENGL 3770 Language and Learning in Multilingual Classrooms This course deals with second language acquisition, both oral and written, as a foundation for understanding how the learning of English can be fostered by elementary classroom teachers when content, language, and literacy are taught and learned together. The course emphasizes strategies for teaching students with limited English proficiency while immersed them in literacy-rich classrooms with an integrative inquiry approach to learning. Prerequisite: ENGL 3690. 3 hours

ENGL 3820 Literature for the Young Child An exploration of human and literary values in the best of children's works for the very young through age nine. Emphasis is on critical sensitivity and techniques necessary for interpreting and evaluating works representative of the major forms of children's literature. Discussion will focus on how literature is first learned through adult-child interaction and how interaction creates changes that are influenced by time period and culture as well as the personal dynamics inherent in the oral tradition. Visual reading through picture books will be examined as well as the evaluation of good picture book literature. Developmental issues related to a child's reading capability and narrative skills will be considered through an examination of transitional reader (chapter books) and novels. Poetry, both in its oral form and its written form, will be considered as will be mythology and folklore: its versions, variants, and adaptations (both in book and film form). Prerequisite: ENGL 1100 or sophomore status. 4 hours

ENGL 3830 Literature for the Intermediate Reader An exploration of human and literary values in the best of children's works for preadolescents. Emphasis is on critical sensitivity and techniques necessary for interpreting and evaluating works representative of the major forms of children's literature for the older reader. Discussion will focus on narrative forms and on how the more experienced reader comes to prose and poetry. Novels will be explored both in terms of literary structure and content and in terms of what makes a piece of literature work for children. Genres such as historical fiction, realistic fiction, nonfiction, fantasy, and survival literature will be considered. Ever growing complexity in structure and content will be evaluated as they relate to child's biological, psychological, and mental development, and in the context of cultural and historical change. How media influence literature will be explored as well as the changing population of child-readers and what that means for book production. Prerequisite: ENGL 1100 or sophomore status. 4 hours

ENGL 3840 Adolescent Literature This course focuses on an analysis of literature for adolescents from a variety of critical and culturally diverse perspectives. It emphasizes the adolescent experience as reflected in literature, the history of adolescent literature and media, and the distinguishing features of classical and contemporary works. Prerequisite: ENGL 1100. 3 hours

ENGL 4100 Special Topics in Literature A study in historical perspective of selected literary works of the English speaking world or international literature in translation. May be repeated for credit as long as the topics are different. Prerequisite: ENGL 1100. 4 hours

ENGL 4150 Practical Literary Criticism Practical applications of critical theory, with some attention to the history of this genre of literary writing from Plato to post-structuralism. In addition to New Criticism, special attention will be paid to more recent developments such as reader-response criticism, feminist criticism, and other contemporary critical modes. Strongly recommended for all students planning to pursue graduate study. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisites: At least two courses at the 3000-level that count toward the English major. 4 hours
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<th>Credit Hours</th>
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<tbody>
<tr>
<td>ENGL 4160</td>
<td>Women in Literature</td>
<td>A study of literature of different periods and cultures to identify the images of women and to interpret the search for self as experienced by women protagonists and women writers.</td>
<td>ENGL 1100.</td>
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<tr>
<td>ENGL 4400</td>
<td>Studies in Verse</td>
<td>A historical and formal study of poetry, emphasizing the development of poetic techniques, major verse forms and styles, and their relation to theories of poetry. Attention shall be paid to the critical and theoretical bases of interpretation. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisites: Two courses at the 3000-level that count toward English major.</td>
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<tr>
<td>ENGL 4420</td>
<td>Studies in Drama</td>
<td>Studies in the major styles and forms of drama. Attention shall be paid to the critical and theoretical bases of interpretation. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisites: Two courses that count toward the English major at the 3000-level.</td>
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<tr>
<td>ENGL 4440</td>
<td>Studies in the Novel</td>
<td>The study of the development and diversity of the novel as a literary form. Emphasis will be on the novel from the eighteenth- to the early twentieth-century. Attention shall be paid to the critical and theoretical bases of interpretation. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisites: Two courses that count toward the English major at the 3000-level.</td>
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<tr>
<td>ENGL 4520</td>
<td>Shakespeare Seminar</td>
<td>Intensive study of selected aspects of Shakespeare's poetic and dramatic art. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisite: ENGL 1100 or 2520.</td>
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<tr>
<td>ENGL 4620</td>
<td>Advanced Writing</td>
<td>Practice in writing articles, essays, biographical and critical prose, with emphasis on development of the student's individual style and elimination of obstacles to clear and vital expression.</td>
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<tr>
<td>ENGL 4640</td>
<td>Professional Writing</td>
<td>Practice in developing the forms and techniques of writing, editing, and researching required in business, industry, and government. Students should take this course as their capstone experience in practical writing. Prerequisites: Two writing courses.</td>
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<tr>
<td>ENGL 4720</td>
<td>American Dialects</td>
<td>A study of regional and social varieties of American English from sociolinguistic perspectives, focusing on the forces which influence different types of language variation. Examines issues of linguistic bias, and offers a multi-cultural perspective on the role of language in daily life.</td>
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<tr>
<td>ENGL 4790</td>
<td>Writing in the Secondary School</td>
<td>Focuses on the continued development of student writers in grades 7 to 12, and on ways one can encourage and respond to student writing, assess writing growth, and use writing as a means of learning. Fosters a theoretical understanding of the writing process, in part by writing in varied genres and forms. Emphasizes writing as an integral component of the entire curriculum. Prerequisites: Two 3000-level English courses that count toward the major.</td>
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<td>4</td>
</tr>
<tr>
<td>ENGL 4800</td>
<td>Teaching Literature in the Secondary Schools</td>
<td>A study of techniques and theories of teaching literature to young adults. Does not count as credit toward the major. Prerequisites: ED 3020 Teaching and Learning in the Secondary School and two 3000-level English courses that count toward the major.</td>
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<td>4</td>
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<tr>
<td>ENGL 4840</td>
<td>Multi-Cultural American Literature for Children</td>
<td>A course designed to develop an understanding of the cultural diversity of the American experience through multi-cultural oral and written literature for young people. Attention will be paid to developing criteria for selecting and evaluating literature which reflects diversity within the American heritage. Prerequisites: 16 hours of course work in English, including ENGL 3820 or 3830.</td>
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<td>4</td>
</tr>
<tr>
<td>ENGL 4950</td>
<td>Internship/Field Work</td>
<td>Open to juniors and seniors with a 3.0 GPA, this course enables advanced students to gain practical writing experience in the working world while earning academic credit. Specific arrangements are made in consultation with the Director of Undergraduate Studies. May be repeated; no more than four hours total credits. Prerequisite: Writing majors or minors.</td>
<td></td>
<td>1 to 4 hours</td>
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</tbody>
</table>
ENGL 4960  English Honors Seminar  Special studies in selected topics. Open only to majors working for honors in English, or by permission of the instructor.  4 hours

ENGL 4970  Studies in English: Variable Topics  Group study of special topics in literature, film, English language, and writing. Many of these special courses are organized around special events or speakers on campus or in the community, or in response to special needs or interests of students. Some topics are announced in the schedule of classes; some are added during the semester. Further information and full listing of topics may be obtained from the English Department, sixth floor Sprau Tower.  1 to 3 hours

ENGL 5220  Studies in American Literature  Study of a movement or a recurrent theme in American literature, such as romanticism, realism, naturalism, humor, racial issues. The prerequisites to 5000-level courses are: 18 hours of English courses, including eight or more hours at the 3000-4000-level, and second semester junior status; exemption only by permission of Director of Undergraduate Studies  3 hours

ENGL 5221  Studies in American Literature  Study of a movement or a recurrent theme in American literature, such as romanticism, realism, naturalism, humor, racial issues. The prerequisites to 5000-level courses are: 18 hours of English courses, including eight or more hours at the 3000-4000-level, and second semester junior status; exemption only by permission of Director of Undergraduate Studies  4 hours

ENGL 5222  Studies in American Literature  Study of a movement or a recurrent theme in American literature, such as romanticism, realism, naturalism, humor, racial issues. The prerequisites to 5000-level courses are: 18 hours of English courses, including eight or more hours at the 3000-4000-level, and second semester junior status; exemption only by permission of Director of Undergraduate Studies  5 hours

ENGL 5223  Studies in American Literature  Study of a movement or a recurrent theme in American literature, such as romanticism, realism, naturalism, humor, racial issues. The prerequisites to 5000-level courses are: 18 hours of English courses, including eight or more hours at the 3000-4000-level, and second semester junior status; exemption only by permission of Director of Undergraduate Studies  6 hours

ENGL 5224  Studies in American Literature  Study of a movement or a recurrent theme in American literature, such as romanticism, realism, naturalism, humor, racial issues. The prerequisites to 5000-level courses are: 18 hours of English courses, including eight or more hours at the 3000-4000-level, and second semester junior status; exemption only by permission of Director of Undergraduate Studies  7 hours

ENGL 5225  Studies in American Literature  Study of a movement or a recurrent theme in American literature, such as romanticism, realism, naturalism, humor, racial issues. The prerequisites to 5000-level courses are: 18 hours of English courses, including eight or more hours at the 3000-4000-level, and second semester junior status; exemption only by permission of Director of Undergraduate Studies  8 hours

ENGL 5226  Studies in American Literature  Study of a movement or a recurrent theme in American literature, such as romanticism, realism, naturalism, humor, racial issues. The prerequisites to 5000-level courses are: 18 hours of English courses, including eight or more hours at the 3000-4000-level, and second semester junior status; exemption only by permission of Director of Undergraduate Studies  9 hours

ENGL 5227  Studies in American Literature  Study of a movement or a recurrent theme in American literature, such as romanticism, realism, naturalism, humor, racial issues. The prerequisites to 5000-level courses are: 18 hours of English courses, including eight or more hours at the 3000-4000-level, and second semester junior status; exemption only by permission of Director of Undergraduate Studies  10 hours

ENGL 5228  Studies in American Literature  Study of a movement or a recurrent theme in American literature, such as romanticism, realism, naturalism, humor, racial issues. The prerequisites to 5000-level courses are: 18 hours of English courses, including eight or more hours at the 3000-4000-level, and second semester junior status; exemption only by permission of Director of Undergraduate Studies  11 hours

ENGL 5229  Studies in American Literature  Study of a movement or a recurrent theme in American literature, such as romanticism, realism, naturalism, humor, racial issues. The prerequisites to 5000-level courses are: 18 hours
of English courses, including eight or more hours at the 3000-4000-level, and second semester junior status; exemption only by permission of Director of Undergraduate Studies  12 hours

ENGL 5230  Studies in American Literature  Study of a movement or a recurrent theme in American literature, such as romanticism, realism, naturalism, humor, racial issues. The prerequisites to 5000-level courses are: 18 hours of English courses, including eight or more hours at the 3000-4000-level, and second semester junior status; exemption only by permission of Director of Undergraduate Studies  13 hours

ENGL 5231  Studies in American Literature  Study of a movement or a recurrent theme in American literature, such as romanticism, realism, naturalism, humor, racial issues. The prerequisites to 5000-level courses are: 18 hours of English courses, including eight or more hours at the 3000-4000-level, and second semester junior status; exemption only by permission of Director of Undergraduate Studies  14 hours

ENGL 5232  Studies in American Literature  Study of a movement or a recurrent theme in American literature, such as romanticism, realism, naturalism, humor, racial issues. The prerequisites to 5000-level courses are: 18 hours of English courses, including eight or more hours at the 3000-4000-level, and second semester junior status; exemption only by permission of Director of Undergraduate Studies  15 hours

ENGL 5233  Studies in American Literature  Study of a movement or a recurrent theme in American literature, such as romanticism, realism, naturalism, humor, racial issues. The prerequisites to 5000-level courses are: 18 hours of English courses, including eight or more hours at the 3000-4000-level, and second semester junior status; exemption only by permission of Director of Undergraduate Studies  16 hours

ENGL 5234  Studies in American Literature  Study of a movement or a recurrent theme in American literature, such as romanticism, realism, naturalism, humor, racial issues. The prerequisites to 5000-level courses are: 18 hours of English courses, including eight or more hours at the 3000-4000-level, and second semester junior status; exemption only by permission of Director of Undergraduate Studies  17 hours

ENGL 5235  Studies in American Literature  Study of a movement or a recurrent theme in American literature, such as romanticism, realism, naturalism, humor, racial issues. The prerequisites to 5000-level courses are: 18 hours of English courses, including eight or more hours at the 3000-4000-level, and second semester junior status; exemption only by permission of Director of Undergraduate Studies  18 hours

ENGL 5300  Medieval Literature  Readings in the medieval literary tradition. Some Middle English works will be studied in the original; works in Old English and continental literature will be mainly in translation.  3 hours

ENGL 5320  English Renaissance Literature  Readings in representative writers of the period 1500-1660.  3 hours

ENGL 5340  Restoration and 18th-Century Literature  British Literature 1660-1800. Readings in representative writers of the period, focusing on the diversity of literary forms in the period.  3 hours

ENGL 5360  Romantic Literature  Readings in poetry and criticism, with emphasis on such writers as Blake, Burns, Dorothy Wordsworth, William Wordsworth, Coleridge, Scott, Byron, Mary Shelley, P.B. Shelley, and Keats.  3 hours

ENGL 5370  Victorian Literature  Readings emphasizing such writers as Carlyle, Mill, Dickens, Thackeray, George Eliot, Tennyson, Robert Browning, Elizabeth Barrett Browning, and Arnold.  3 hours

ENGL 5380  Modern Literature  British and American literature. Readings in representative writers in the period 1890-1945, not exclusively in  3 hours

ENGL 5390  Post-colonial Literature  Readings in representative writers from colonial and post-colonial cultures.  3 hours

ENGL 5400  Contemporary Literature  Readings in representative writers who have come to prominence chiefly since  3 hours
ENGL 5550 Studies in Major Writers Study of the works of classical, European, British or American writers. Limited to one or two authors. 3 hours

ENGL 5660 Creative Writing Workshop A workshop and conference course in the writing of poetry, fiction, or drama, with emphasis on refinement of the individual student's style and skills. May be repeated for credit. Prerequisites: Six hours of creative writing, graduate standing, or permission of the department. 4 hours

ENGL 5740 Grammar in Teaching Writing Dealing with issues and methods in the teaching of grammar, this course for teachers focuses on using grammar to develop content, style and voice, and skill in revising and editing writing. Prerequisites: 18 hrs of English course work, including 8 or more hours at the 3000- or 4000-level, and second semester junior status. 4 hours

ENGL 5820 Studies in Children's Literature A study in depth of significant themes, movements, types in children's literature. Prerequisite: ENGL 3820 or 3830 or permission of the department. 3 hours

ENGL 5830 Multi-Cultural Literature for Adolescents Critical analyses of literature read by young adults, with special attention paid to American and world literatures that reflect the diversity of the increasingly global community. 3 hours

ENGL 5970 Studies in English: Variable Topics Group study of special topics in literature, film, English language, and writing. Many of these special courses are organized around special events or speakers on campus or in the community, or in response to special needs or interests of students. Some topics are announced in the schedule of classes; some are added during the semester. Further information and full listing of topics may be obtained from the English Department, sixth floor Sprau Tower. 1 to 3 hours

ENGL 5980 Readings in English Individual reading project available to advanced students by special permission from the appropriate departmental advisor (undergraduate or graduate) and the staff member who will supervise the study. Normally, permission is granted only to students who have well thought-out projects dealing with authors or materials not being covered currently in the schedule. Permission is usually not granted to students who want to use the course simply to get one or two hours credit to complete an English major or minor. 1 to 4 hours

College of Engineering and Applied Sciences

ENGR 1001 Introduction to Engineering Design An introduction to engineering design process and the engineering and engineering technology disciplines. Topics include engineering design process, teamwork, written and oral communications, engineering ethics, and impact of engineering solutions on society. 1 hour

ENGR 1002 Introduction to Engineering Analyses Introduction to Engineering Analyses and exploration of the career opportunities and demands of the engineering and engineering technology professions. Topics include problem-solving, using computer spreadsheet program for engineering analyses, teamwork, communications, and career opportunities and demands of the engineering and engineering technology professions. 1 hour

ENGR 2020 Service Learning Engineering Design I Using the engineering design process to complete a service learning design project. Students will be part of a project team working to provide materials, activities, and training for teaching Science, Technology, Engineering, and Mathematics (STEM) topics in K-12 school settings, or to meet other identified educational needs in the local community. Prerequisites: IME 1020; or ID 2430 or permission of instructor. 1 hour

ENGR 3030 Service Learning Engineering Design II Continuation of ENGR 2020 with increasing responsibilities related to defining the project, interactions with clients, project management, and analysis of multiple design solutions. Prerequisites: (ID 2470 and Junior standing), or (ENGR 2020 and Junior standing), or permission of instructor. 1 hour

ENGR 4040 Service Learning Engineering Design III Continuation of ENGR 303 with increasing responsibilities related to defining a project, interactions with clients, project management, project budgeting, and analysis and evaluation of multiple design solutions. Prerequisites: (ID 4330 and Junior standing), or (ENGR 3030 and Junior standing, or permission of instructor. 1 hour
**Environmental Studies**

ENVS 1100  Nature and Society  This course is an interdisciplinary introduction to the study of environmental studies designed for majors and minors in the program. Through a survey of environmental topics, students will examine changing human relationships to the nonhuman world, diverse approaches to environmental problems, and environmental literature from the humanities to the sciences. The course is reading and writing intensive, and also includes a required weekend camping trip.  

4 hours

ENVS 2150  Environmental Systems and Cycles  This course presents an overview of the fundamental physical, biological, and geochemical processes governing the movement of energy and matter in the environment, and the constraints imposed by these natural systems on human activities. Topics include the properties and use of energy resources, synthetic chemical and their biological effects, the chemistry of natural and polluted water, food production and population, acid rain, ozone depletion, and global climate change. Prerequisite: CHEM 1000 or CHEM 1100.  

3 hours

ENVS 2250  Environmental Ecology  This course focuses upon the study of living systems of various sizes and degrees of complexity. Emphasis is on how individual organisms, natural populations, biotic communities, and ecosystems vary, how they are interconnected, and how human activities influence the complex interrelationships within and among them. Prerequisites: Either BIOS 1120 or BIOS 1510; ENVS 1100 or ENVS 2150, or with approval of a program advisor.  

3 hours

ENVS 2260  Field Environmental Ecology  An introduction to the major natural ecosystems of southwest Michigan, and modern ecological methods used in their study. Exercises and activities will be conducted largely in the field, primarily at the Pierce Cedar Creek Institute. Course content will complement lecture material presented in ENVS 2250. Prerequisite: ENVS 2250 or concurrent enrollment.  

1 hour

ENVS 3000  Environment, Technology, and Value  An introduction to the physical and biological bases of the environment and the historical, anthropological relation of Homo Sapiens within those parameters, the impacts of the rise of modern industrial societies and human populations with an examination of the driving values causing and caused by these developments, the environmental movement and the alternative projected futures. At the discretion of a program advisor, ENVS 3000 may be substituted for ENVS 1100 for those students wishing to take an environmental studies major or minor. Students may not enroll in ENVS 3000 after successfully completing ENVS 1100.  

4 hours

ENVS 3200  Major Environmental Writings  This course uses selected readings of classical works in the environmental field, together with current works of significant import, to introduce students to the wisdom and the variety of voices speaking on behalf of the environment and environmentally responsible courses of human action. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisite: ENVS 1100.  

3 hours

ENVS 3400  Environmental Policy  This course explores why environmental policy is necessary and how environmental policy has been made, is being made, and might in the future be made in the United States. The emphasis is on environmental policy and regulation at the national level, but regional, state, and local approaches/initiatives will also be considered. In addition to considering the policy process (the how), we will also review the state of environmental policy (legislation and effectiveness) and explore the policy evaluation process (the tools and techniques policy makers use to make better decisions - cost-benefit analysis, risk analysis, and environmental impact assessment). A substantial part of the course will also be devoted to considering emerging alternatives that are based on the principles of sustainability and the challenges involved in institutionalizing them. Prerequisite: ECON 2010 or GEOG 2440.  

4 hours

ENVS 3600  Environment and Culture  A global cross-cultural exploration of human-environment interactions. This course will examine a variety of different technological/economic systems ranging from small-scale foraging and horticultural societies to large-scale, complex and stratified societies. Special themes each semester will address different environmental problems and how they have been solved - or not - historically and contemporarily. Such themes might address: the origins and contemporary dimensions of the population debate, the role of "values" in sustainable societies, or controversies between indigenous peoples and environmentalists.  

3 hours

ENVS 4010  Selected Environmental Topics  An intensive, focused study of an environmental topic such as solid waste management and resource recovery, energy management, environmental law, or environmental communications. Topic
to be announced in the Schedule of Classes. This course may be repeated for credit with a second topic. Prerequisite: ENVS 1100. 3 hours

ENVS 4100 Appropriate Technologies and Sustainability In the light of the debates on sustainability, the course analyzes how technologies and technological systems have interacted with and influenced social change in both industrial countries and the Third World. Criteria for assessing the appropriateness and sustainability of various technologies and technological systems in different settings will be discussed and mini-assessments will be conducted. Prerequisite: ENVS 1100. 3 hours

ENVS 4200 Internship The environmental internship gives students the opportunity to gain practical experience in a particular area of environmental activity, and to work with professionals. Students will gain "hands on" knowledge and add an important non-academic dimension to their resumes. Prerequisite: Approval of a program advisor. 1 to 3 hours

ENVS 4300 Environmental Projects This course is designed for students who wish to carry on advanced interdisciplinary work in Environmental Studies under the direction of a faculty member. Work will be geared to a single project in which there is outside investigation, research, and/or workshop experience. Students selecting this course will work on projects especially designed for their programs. They will be asked to identify a problem, outline an investigatory approach, and consider paths to solving the problem. Prerequisites: Consent of instructor and approval of a program advisor. 1 to 4 hours

ENVS 4400 Field Experience This course is a vehicle to provide academic credit for students participating in legitimate off-campus environmental field programs and foreign exchange programs. The course is repeatable for up to eight hours of academic credit. Prerequisite: Approval of a program advisor. 1 to 4 hours

ENVS 4500 Senior Seminar in Environmental Studies A team-taught, integrated capstone experience involving a semester-long environmental problem-solving/planning simulation. Students will be evaluated in terms of their ability to function individually and with their colleagues in a simulated professional work environment. As the capstone course, this should normally be the last course taken from the program. Prerequisite: ENVS 3600 or approval of a program advisor. 3 hours

ENVS 5000 Advanced Environmental Topics An intensive, focused study of a current environmental issue. The role of interdisciplinary research in addressing such issues will be explored through examples drawn both from the different disciplinary backgrounds of the students and especially from the current research of the faculty instructor. Course may be repeated under different topics. Topics will be announced in the Schedule of Course Offerings. Prerequisite: Approval of a program advisor. 3 hours

Educational Studies
ES 2000 Introduction to American Education This course is designed to explore some of the major educational issues that have provoked public debate and institutional reform in America. The purpose of the course is to achieve an understanding of these issues and the functions of education through the use of historical, sociological and philosophical concepts. The course provides an opportunity for pre-education students to explore their interest in education and teaching. This course is cross-listed with ED 2000. 3 hours

ES 3950 School and Society This course is concerned with the nature and direction of American education in its changing social context. The course focuses on major issues affecting the advancement of education in a culturally diverse, democratic society. Course content includes inquiry as to how social, historical, political, philosophical, economic, and legal factors influence educational policy and practice. The role of individuals in the change process in education is examined. An interdisciplinary approach is used. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. This course is cross-listed with ED 3950. Prerequisites: Minimum of 70 earned semester credit hours. 3 hours

Family and Consumer Sciences
FCS 1000 Career Seminar Orientation to special career opportunities in various majors, featuring guest speakers. Specific sections per area of interest. 1 to 2 hours

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<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Description</th>
<th>Credits</th>
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<tbody>
<tr>
<td>FCS 1240</td>
<td>Apparel Construction II</td>
<td>Basic construction techniques for apparel products. Addresses how to handle fabrics prior to sewing, and skills commonly used in the construction of clothing. Test available for those desiring placement in upper level courses.</td>
<td>3 hours (2 to 3)</td>
</tr>
<tr>
<td>FCS 1260</td>
<td>The Fashion Industry</td>
<td>An introduction to the manufacturing and merchandising of apparel. This course includes the business, environment, movement, and market centers of fashion. An emphasis on designers, specialty fashion retailers, trends and auxiliary services is explored.</td>
<td>3 hours (3 to 0)</td>
</tr>
<tr>
<td>FCS 1500</td>
<td>Introduction to Interior Design</td>
<td>Basic study of the elements and principles of designing and furnishing interiors.</td>
<td>3 hours (2 to 3)</td>
</tr>
<tr>
<td>FCS 1550</td>
<td>Design Principles</td>
<td>Introduction to basic principles and elements of design and color fundamentals, with application particularly in the fields of fashion and textiles.</td>
<td>3 hours</td>
</tr>
<tr>
<td>FCS 1560</td>
<td>Design Fundamentals</td>
<td>A focused introductory study of the basic elements and principles of design for the interior design major. Emphasis will be placed on concept development, color theory and presentation skills.</td>
<td>3 hours (2 to 4)</td>
</tr>
<tr>
<td>FCS 1570</td>
<td>Sketching for Interior Designers</td>
<td>Development of freehand drawing skills pertinent to interior designers by emphasizing non-mechanical perspective, controlled line quality and presentation. Prerequisite: FCS 156.</td>
<td>3 hours (1 to 6)</td>
</tr>
<tr>
<td>FCS 1650</td>
<td>Culinary Skills</td>
<td>Teach basic cooking skills with emphasis on modern trends and techniques for home as well as foodservice operations. Basic food sanitation principles, menu planning, use of kitchen tools/equipment, measurement techniques, serving size and yield information, recipe costing, planning and evaluating food budgets. Basic techniques of food preparation and service are covered emphasizing competency development in culinary skills.</td>
<td>3 hours</td>
</tr>
<tr>
<td>FCS 2020</td>
<td>Field Experience</td>
<td>On-the-job experience under supervision of department with cooperating organizations. Written materials and performance appraisal required. Prerequisite: FCS 1000 for Family Studies majors. This course is graded on a credit/no credit basis. Department majors only.</td>
<td>1 to 3 hours</td>
</tr>
<tr>
<td>FCS 2050</td>
<td>Topics in Family and Consumer Sciences</td>
<td>Individual topics in five/ten/fifteen week formats, ranging in 1 to 3 hours of credit. Student may elect up to 6 hours of credit if topics vary. Topics to be announced.</td>
<td>1 to 3 hours</td>
</tr>
<tr>
<td>FCS 2090</td>
<td>Consumer Education</td>
<td>A study of the information available to consumers with emphasis on personal decision making in money management and product and services choices. Includes overview of consumer protection and public policy as it affects the family.</td>
<td>3 hours</td>
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<tr>
<td>FCS 2100</td>
<td>Human Sexuality</td>
<td>A study of the bio-psychosocial factors of human sexuality, emphasizing an understanding of sexuality as a social construction. Topics include: reproduction and birth, family planning, and contraception; sexually transmitted infections; sexual responses and dysfunction; emotional and physical intimacy; the range of sexual values and behaviors; and legal, ethical, and public policy implications related to human sexuality.</td>
<td>3 hours</td>
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<tr>
<td>FCS 2140</td>
<td>Child Development</td>
<td>A study of the development of children (including prenatal, infancy, early and middle childhood) and their families, and the adjustments required to meet children's changing physical, cognitive, and psychosocial needs. Hands-on experience (20 to 26 hours arranged) with children in a structured environment is required.</td>
<td>3 hours</td>
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<tr>
<td>FCS 2150</td>
<td>Adolescent Development</td>
<td>A study of the development of adolescents, their families, and adjustments required to meet their changing physical, cognitive, and psychosocial needs. Special emphasis is placed on identity, social, moral, and sexual development of adolescents.</td>
<td>3 hours</td>
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<tr>
<td>FCS 2200</td>
<td>Textiles</td>
<td>Basic textile course emphasizing fibers, yarns, fabric constructions, dyes and printing, and finishes. These five components are studied for their contribution to the characteristics and performance of a textile fabric, and its use and care.</td>
<td>3 hours (3 to 0)</td>
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<tr>
<td>Course Code</td>
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<tr>
<td>FCS 2220</td>
<td>Flat Pattern Design I</td>
<td>A study of the drafting techniques employed in the flat pattern method for designing clothing.</td>
<td>FCS 1240.</td>
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<tr>
<td>FCS 2240</td>
<td>Apparel Construction II</td>
<td>Continuation of basic construction techniques for apparel products, including skills, pattern alteration and fitting. Emphasis on self-directed individual projects with more difficult fabrics and construction techniques. May be repeated once. FCS 1240.</td>
<td>3 hours (2 to 3)</td>
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<tr>
<td>FCS 2225</td>
<td>Computer Applications</td>
<td>An introduction to the essentials of microcomputer usage. The student will gain application skills in word processing, spreadsheets, databases and operating systems. The impact of computer usage in society and ethical computer behavior will also be covered as well as terminology, electronic communications, and hardware and system components. Credit cannot be earned for both FCS 2250 and either BIS 1020 or 1100, SOC 1820, PEPR 1490, or CS 1050.</td>
<td>3 hours</td>
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<tr>
<td>FCS 2260</td>
<td>Fashion/Retail Buying</td>
<td>Fundamentals of merchandising mathematics, its relationship to buying, and use in the fashion/retail industry. Includes elements of profit and loss statements, purchase discounts, dating, markup, markdown, turnover, and open-to-buy. Also includes sources of buying information, and responsibilities of buyers in various types of firms. Completion of department’s computer usage requirement.</td>
<td>FCS 2250 or CS 1050.</td>
</tr>
<tr>
<td>FCS 2490</td>
<td>Residential Architectural Design</td>
<td>The study of architectural plans and principles of residential structures. Plans produced and studied include floor plans, plot plans, foundation plans, electrical plans elevations and all necessary details and specifications.</td>
<td>CMD 1490, FCS 1500.</td>
</tr>
<tr>
<td>FCS 2500</td>
<td>Interiors CADD Applications</td>
<td>Introduction to computer-aided design and drafting for interior design majors.</td>
<td>FCS 1500, FCS 2250.</td>
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<tr>
<td>FCS 2510</td>
<td>Period Interiors I</td>
<td>Influences and characteristics in period decoration and furniture of historical interiors and exteriors from antiquity up to English Victorian.</td>
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<tr>
<td>FCS 2520</td>
<td>Period Interiors II</td>
<td>Influences and characteristics in period decoration and furniture of historical interiors and exteriors from Early American through contemporary.</td>
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<tr>
<td>FCS 2540</td>
<td>Interior Design Materials</td>
<td>A study of products and finishing materials for the interior environment which considers basic materials, manufacturing processes and the generic characteristics of goods specified by the interior designer. FCS 1500, CMD 1490.</td>
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<td>FCS 2550</td>
<td>Lighting for Interiors</td>
<td>Considers light as an element of design and investigates its role in designing interiors. Material covered will emphasize the practicalities of appropriate fixture location and specification, blueprint reading and budgets. FCS 2490, FCS 2540.</td>
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<tr>
<td>FCS 2590</td>
<td>Studio I</td>
<td>Creation of artistic interiors with appropriate materials, space planning, preparation of graphic documentation, renderings and purchasing data for completing the design process. FCS 2490, FCS 2540.</td>
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<tr>
<td>FCS 2600</td>
<td>Nutrition</td>
<td>A study of the essential nutrients and their function in the human body.</td>
<td>CHEM 1100/1110 or CHEM 1510/1520.</td>
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<tr>
<td>FCS 2660</td>
<td>Personal Nutrition</td>
<td>A study of the effect of personal nutrition on overall health.</td>
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<tr>
<td>FCS 3050</td>
<td>Professional Job Search Strategies</td>
<td>Extensive investigation of basic elements involved in a job search, including job resume, letter of application, career resources and establishing contacts, and questions and kinesics in the job interview. Junior standing.</td>
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</table>
FCS 3140 Infant and Toddler Development: Addresses theories related to early development with special emphasis placed on systems theory. Students will gain an awareness of cognitive, physical, and psychosocial development of infants and toddlers within our society. This course will address children's development from conception (prenatal factors) up to age three. Prerequisite: FCS 2140. 3 hours

FCS 3150 Global Ecology of the Family: Study of families in the global environment, using social construction theory. Includes an examination of the following factors and influences on families: religion, ethnicity, education, economics, socio-political, family structure and dynamics, gender roles, meals/food preferences, access to healthcare, housing and geographic location, mass-media, relationships with other people (friendships, community and networking systems), and issues related to globalization and tribalism. A social constructionist perspective guides explanation of families from a variety of world cultures. 3 hours

FCS 3180 Intimate Relationships: Friends, Family, and Marriage: Exploration of research, literature, and family issues related to formation and maintenance of interpersonal relationships in adolescence and adulthood. Includes study of communication and conflict negotiation strategies for marriage and other relationships. 3 hours (3 to 0)

FCS 3200 Visual Merchandising: Specific development of display fundamentals in composition, lighting, color, signing, motion, ideas, organization and management, installation, budget, tools, props, materials, mannequins, store planning, point of purchase, exhibits, showrooms, and special promotion. Prerequisite: FCS 1550. 3 hours (3 to 0)

FCS 3220 Flat Pattern Design II: A study of advanced drafting techniques, including computer-aided designing, employed in the flat pattern method for designing clothing. Prerequisite: FCS 2220. 3 hours (5 to 0)

FCS 3260 History of Fashion: Survey of the development of costume throughout history and its relationship to contemporary fashion. 3 hours (3 to 0)

FCS 3290 Promotion in the Merchandising Environment: Communication principles and strategies important to the promotion of fashion products in the merchandising environment. Prerequisites: FCS 1260 and MKTG 2500. 3 hours (3 to 0)

FCS 3300 Entrepreneurship in Family and Consumer Sciences: The course provides students with economic, cultural, political, sociological, and psychological perspectives on the creation and evolution of entrepreneurial ventures. It will provide a broad, practice-based experience in the process of creating and managing a small business in family and consumer science professions with a focus on service-based businesses. This course is approved as a writing-intensive course which fulfills the baccalaureate-level writing requirement of the student's curriculum. Prerequisite: FCS major, junior status, or permission of instructor. 3 hours

FCS 3500 Textiles for Interiors: Evaluation and analysis of carpets, drapery and upholstery fabrics, and decorative fabric products with regard to quality, selection, performance, and maintenance for home and office. Special attention devoted to material estimating and installation. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisites: FCS 1500, FCS 1560, FCS 220. 3 hours (3 to 0)

FCS 3510 Studio II Introduces the design of the commercial environments. Prerequisites: FCS 2500, FCS 2550, FCS 2590, FCS 3500. 3 hours (1 to 6)

FCS 3520 Professional Practices: An analysis of the professional procedures and practices used in the interior design industry. A survey of the diversified career opportunities in both residential and commercial fields. Prerequisite: FCS 3510. 3 hours (3 to 0)

FCS 3550 3D Computer Visualization: Integrate computer 3D visualization into the design studio ideation process. Students will learn how to construct, work, and design in three-dimensional space. They will create and edit 3D objects and apply rendering, lighting, and material-mapping techniques. Prerequisites: FCS 2500 and FCS 3510. 3 hours

FCS 3590 Studio III: Continued exploration of the design of commercial environments with an emphasis on medium to large scale office interiors. Prerequisite: FCS 3510. 3 hours (1 to 6)
FCS 3600 Lifespan Nutrition This course emphasizes application of nutrition principles to the stages of the life cycle in a cultural context. Skills in assessing and meeting nutrition needs of individuals and families are developed. Prerequisite: FCS 2600. 3 hours

FCS 3680 Quantity Foods Course emphasizes quantity food purchasing techniques, safety and sanitation, and quantity foods preparation in residence hall kitchens, school lunchrooms, and other quantity foods institutions. Prerequisites: FCS 1650, FCS 2600. 4 hours (3 to 3)

FCS 4050 Travel/Study Seminar Student participation in departmentally sponsored travel/study program in U.S. and/or abroad. Written assignments and planned itinerary. Maximum 2 to 3 foreign, 1 to 2 domestic, not to exceed 4 in total. Prerequisite: Department approval. 1 to 4 hours

FCS 4100 Teaching Family Life Education This course introduces family life education principles and concepts; program planning and implementation; and ways to evaluate family life education materials, student progress, and program effectiveness. Emphasis is placed on developing a sensitivity to diverse personal and community values and a pluralistic understanding of families. Prerequisites: Successful completion of all required FCS 1000-, 2000-, and 3000-level courses; Senior standing. 3 hours

FCS 4130Later Life Family Relationships The study of family relationships and social roles of people in later life families. Exploration of issues related to the post-parental and aging family system and implications for the development of practice and policy. Prerequisite: FCS 3180 or approval. 3 hours

FCS 4150 Effective Parenting Study of the relationships between the child, the child's development, the process of parental development, school, and family relationships. Special attention to systems theory as it applies to the family. Prerequisite: FCS 2140. 3 hours

FCS 4220 Product Development The study of garment manufacturing, including the decision making involved in producing apparel. 3 hours

FCS 4290 Internship Off-campus, supervised experience. Specific sections per area of interest. Prerequisites: Department junior or senior; FCS 2020 or permission of instructor. Graded on a Credit/No Credit basis. 2 to 6 hours

FCS 4300 Merchandising Seminar Capstone course for TEX majors. Students will integrate and apply principles and theories from textile and apparel, marketing and management courses to the contemporary fashion merchandising environment. Prerequisites: FCS 1260, FCS 2260, and MKTG 2500, MGMT 3000. 3 hours

FCS 4510 Studio IV Continues investigating the design of larger scaled business/commercial interiors with an emphasis on the total design process in developing complex architecturally oriented projects. Prerequisite: FCS 3590. 4 hours (1 to 6)

FCS 4590 Studio VCapstone course in investigation and execution of special problems and projects in the field of interior design. Prerequisite: FCS 4510. 4 hours (1 to 6)

FCS 4600 Medical Nutrition Therapy I A focus on the development of individual nutrition care plans using the techniques of nutrition assessment, interpretation of laboratory data, and calculation of energy, protein, and fluid requirements. Medical Nutrition Therapy (MNT) will be discussed for selected disorders. Also included is drug-nutrient interactions and associated medical terminology. Case studies allowing integration of MNT principles are a prominent feature of the course. Prerequisites: FCS 2600, BIOS 2400, CHEM 3700/3710. Corequisite: FCS 4630. 4 hours (3 to 2)

FCS 4610 Medical Nutrition Therapy II This course is a continuation of FCS 4600 and examines the Medical Nutrition Therapy for disorders of the liver, biliary, renal, cardiovascular, endocrine, and pulmonary systems. HIV/AIDS, critical care, and eating disorders are also discussed. Case studies allowing integration of MNT principles are a prominent feature of the course. Prerequisite: FCS 4600. Corequisite: FCS 4640. 4 hours (3 to 2)
FCS 4620  Community Nutrition  This course will utilize online technology to engage students in a study of the structure of community nutrition programs including the roles of government, health care, economics, and public policy. Prerequisites: FCS 2600 and FCS 3600.  3 hours (3 to 0)

FCS 4630  Medical Nutrition Therapy Laboratory I  Skill development in nutritional assessment via performing anthropometric measurements, biochemical analysis, physical exam, and diet history. Nutrition counseling and interviewing, as well as documentation and charting are also discussed. Students are also introduced to parenteral and enteral products, practice calculating individual formulations, and become familiar with feeding tubes, pumps, and catheter care. Corequisite: FCS 4600.  1 hour

FCS 4640  Medical Nutrition Therapy Laboratory II  A focus on further development and application of skills needed for Medical Nutrition Therapy of liver and gallbladder disease, diabetes, cardiovascular disease, renal disease, cancer, stress/hypermetabolism, eating disorders and weight management. Corequisite: FCS 4610.  1 hour

FCS 4660  Institutional Management  Study and application of multiple systems involved in the management of food service operations in a variety of settings. Prerequisite: FCS 2600.  4 hours (4 to 0)

FCS 4680  Advanced and Experimental Foods  Understanding the physical and chemical properties of foods by use of objective and subjective testing methods. This course is approved as a writing intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisites: CHEM 1100/1110, FCS 1650.  4 hours (3 to 3)

FCS 5100  Teaching Sexuality Education  Teaching Sexuality Education is designed as a teaching methods course to prepare family life educators, secondary education instructors, and other human service professionals for the implementation of sexuality education in school-base curricula and/or in a variety of community settings.  3 hours

FCS 5200  Insurance Education Seminar  Fundamental principles of consumer insurance; overview of insurance availability; family insurance issues involving automobiles and homes (property and casualty insurance); methods of teaching insurance education in diverse curricula, review and analysis of insurance policies; and careers in insurance and the insurance industry. Variable credit: research in insurance education.  1 to 2 hours

FCS 5220  Topics in Family and Consumer Sciences  A study of the current issues impacting the areas of study in Family and Consumer Sciences: dietetics and human nutrition, family life education and family and consumer sciences, textile and apparel technology, or career and technical education. Students may elect up to six (6) hours if topics vary. Topics to be announced. Prerequisite: Seniors and graduate students only.  1 to 3 hours

FCS 5240  Socio-Psychological Aspects of Dress  Study of dress and adornment in human interaction. Considers the body in social and cultural contexts, dress in various stages of human development and in individual and group behavior. Uses an interdisciplinary approach to dress-related research.  3 hours (3 to 0)

FCS 5250  The Adolescent in Development  The study of individuals between 10 and 22 years of age, the changes that characterize these years, and the role of the family and school in supporting and enhancing development.  3 hours

FCS 5350  Communication Skills for Working with Families Across the Lifespan  Laboratory study designed to develop interpersonal helping skills in delivery of family life education. The location of family life education within the range of helping professions is examined.  3 hours

FCS 5650  Problems in Nutrition  A discussion of current problems in nutrition. Not open to dietetics majors. Prerequisite: FCS 2600 or equivalent.  3 hours (3 to 0)

FCS 5680  Gender, Culture, and Families  Study of the implications of gender and cultural orientation for family, work, social interactions and therapeutic interventions. Includes an examination of sexism and racism in the media, advertising, educational institutions, and social policies.  3 hours
FCS 5750 Administration of Child Development Centers Examination of day care and preschool regulations and/or requirements, and knowledge of administrative materials and duties in providing optimum growth for young children. Includes management, planning, and organizing child development centers. (Cross-listed with ED 5750.) 3 hours

FCS 5900 Project/Problems in Family and Consumer Sciences Directed independent project in specialized curricula within Family and Consumer Sciences. Prerequisite: Department approval. 1 to 4 hours

FCS 5980 Independent Study in Family and Consumer Sciences Directed independent advanced study in subject matter area not otherwise treated in departmental courses. Prerequisite: Department approval required prior to enrollment. 1 to 6 hours

Finance
FIN 3100 Introduction to Financial Markets A survey of financial markets and intermediaries with emphasis on their structure, social justification, and current status. This course provides additional background for advanced study in finance and a practical foundation for those students interested in an exposure to the financial system. Prerequisite: ACTY 2100. 3 hours

FIN 3200 Business Finance Presents a basis for understanding the financial management function of the business enterprise. Considers financial principles and techniques essential for planning and controlling profitability and liquidity of assets, planning capital structure and cost of capital, and utilizing financial instruments and institutions for capital raising. Prerequisites: ACTY 2100; MATH 2160 or 3660 or equivalent. 3 hours

FIN 3300 Real Estate Fundamentals Supplies the basis for comprehension of the basic economic characteristics and the organization and techniques used in the real estate business. Treats real estate resources, marketing, financing, valuation, and trends. 3 hours

FIN 3310 Real Estate Finance Considers the field of real estate finance from the viewpoint of sources of funds, various real estate contracts, valuation techniques, appraisals of residential and income properties and the various aspects of risk analysis in real estate. Prerequisites: FIN 3200 and FIN 3300, or consent of instructor. 3 hours

FIN 3410 eFinance The global electronic marketplace is causing a dramatic change in financial practices. Thus, it is necessary to understand the implications of these changes on the economic structure of financial markets and more specifically how these changes are affecting all areas of finance: corporate, investments, markets and institutions, international, personal financial planning, insurance and real estate. This course provides a framework for meeting the challenges posed by this new technology. Students demonstrate proficiency through technology-related projects, exams and team presentations. Prerequisite: FIN 3200. 3 hours

FIN 3420 Entrepreneurial Finance This course provides an understanding of the financial decision-making process facing entrepreneurs in small business firms. The course is conducted on a lecture-case discussion basis. Among the topical areas covered are the following: Financial sources available, working capital management, capital budgeting, assessment of risk and valuation techniques. These and other areas are treated from the viewpoint of the entrepreneur in a small business setting. Prerequisite: FIN 3200. 3 hours

FIN 3450 Computer Applications in Finance Apply commonly used computer software and data systems to finance. Examples of the computer software used are Excel, Expo, Minitab, SAS, and Word. Financial information is obtained from web sites or financial databases such as Compustat and CRSP. Some of the finance problems studied are creating cash budgets and loan amortization tables, estimating beta and forecasting financial needs. Students demonstrate computer proficiency through projects, exams and team presentations. Prerequisite: FIN 3200. 3 hours

FIN 3510 Investment Analysis A survey of the securities markets from the viewpoint of the novice investor. This course includes a study of market operations, trading techniques, special investment vehicles such as options and warrants, and a consideration of the investment objectives and practices of institutional investors. Prerequisite: FIN 3200 or consent of instructor. 3 hours
FIN 3600  Risk and Insurance  A comprehensive course which considers the nature and orientation of insurance risks and their management. Major business and personal risks are analyzed and their insurance treatment evaluated, as are the functional aspects of insurer operations. The impact of insurance on public policy is also considered.  Prerequisite: FIN 3200.  3 hours

FIN 3710  Personal Financial Planning  This course covers the various elements of the financial planning process. Topics include Risk Management, Investment Planning, Tax Planning, Retirement Planning and Estate Planning, as well as technological innovations in the financial services industry.  Prerequisite: FIN 3200.  3 hours

FIN 3720  Estate Planning  The course examines legal, financial and practical considerations in the creation, management and conservation of an estate. Various types of property interests (joint tenancy, tenancy in common, community property) are reviewed. The use of revocable and irrevocable trusts, gifts, powers of attorneys, retirement and custodial accounts are discussed. The influence of federal estate and gift and state taxation rules on estate planning techniques is examined.  Prerequisite: FIN 3200.  3 hours

FIN 3730  Retirement Planning and Employee Benefits  This course covers all the major retirement-related issues. Retirement plan design, social security, Medicare and similar plans are studied. In addition, group life, health, and disability insurance, non-qualified deferred compensation, and other commonly-provided employee plans are examined. Prerequisite: FIN 3200.  3 hours

FIN 4120  Global Financial Markets  This course covers the functions and operations of global financial markets. Securities markets, along with commercial and investment banking, will be studied. Consideration will be given to issues in international debt, equity, and derivative securities markets. Policy implications for investors as well as corporations and governments are included. Prerequisites: FIN 3100 and FIN 3200.  3 hours

FIN 4140  Management of Financial Institutions  This course is devoted to in-depth analysis of the operations of selected financial institutions with emphasis on management decision-making processes. Case analysis and analytical problems are included in the course content. Prerequisite: FIN 3100.  3 hours

FIN 4250  Short Term Financial Management  An analytical approach to the study of short term financial management. In connection with Treasury Management Association this course is the Certified Cash Manager Associate Program (CCMA). An emphasis is placed on the working capital topics specifically addressed in this program. In addition to the practical emphasis of the CCMA approach the course will include the theoretical underpinnings of short term financial management utilizing cases and lectures to fully cover financial decision making in the area of working capital management, financial analysis, and forecasting. Prerequisite: FIN 3200.  3 hours

FIN 4260  Corporate Finance: Theory and Practice  An analytical approach to the study of the concepts and theories underlying the financial decisions of corporations and business enterprises. In addition to theoretical framework, the course includes cases covering financial decision making processes in the areas of capital budgeting, long-term financing decisions, financial structure, cost of capital, dividend policy, merger, corporate restructuring and valuation. Prerequisite: FIN 3200.  3 hours

FIN 4320  Real Estate Investments  The effect of various forms of taxation, market conditions and governmental policies as they affect the investor's spendable income are reviewed.  Prerequisites: FIN 3200 and FIN 3300 or consent of instructor.  3 hours

FIN 4330  Real Estate Appraisal  A study of the sources of real estate value, the techniques for estimating property value, and the effective use of appraisal information.  Prerequisites: FIN 3200 and FIN 3300 or consent of instructor.  3 hours

FIN 4370  Real Estate Management  Management of income producing properties as an agent of the owner. Consideration of professional standards, business promotion, leasing, insurance and maintenance.  Prerequisite: FIN 3200.  3 hours
FIN 4420 International Finance A study of contemporary problems in international finance. The course examines the international money markets, working capital considerations and capital budgeting problems as faced by the multinational corporation. Prerequisite: FIN 3200 or consent of instructor. 3 hours

FIN 4480 Internships in Finance Under the direction of a faculty advisor, students obtain employment experience with industrial, commercial, and financial enterprises (commercial banks, brokerage firms, etc.), with insurance companies or firms with an insurance division or department, or with a real estate firm or enterprises with a real estate department or division. Students are required to file periodic reports to the advisor. In addition, the firm's executives evaluate them. Available only to students majoring in finance or minoring in finance, insurance, or real estate. No more than 3 hrs. can be used as credit toward a major or minor. Written consent of instructor and department chair is required. (May be substituted for BUS 3900 Business Internship.) 1 to 5 hours

FIN 4530 Securities Analysis An analysis of stocks and bonds as investment vehicles. The course is designed as a sophisticated analysis of valuation techniques with a view towards aiding the student to bridge the gaps between techniques used by the academician and the practitioner. Prerequisite: FIN 3510. 3 hours

FIN 4630 Risk Management and Insurance This course covers the function of risk management and the responsibilities of risk managers. The sources of risk information are examined, the business risks analyzed and the alternative methods of handling risks evaluated. Criteria for selection of proper insurance coverages and selection of carriers and intermediaries are reviewed. Prerequisite: FIN 3600 or consent of instructor. 3 hours

FIN 4940 International Business Seminar A foreign study seminar designed for qualified and capable undergraduate students, graduate students, teachers and business executives. The seminar introduces participants to a firsthand knowledge of business operations abroad through on-site inspection of foreign manufacturing, marketing, financial, and governmental organizations, supplemented by coordinated faculty lectures and assigned reading. Students completing such a seminar may receive credit in the Departments of Accountancy, Business Information Systems, Finance and Commercial Law, Management, or Marketing, if approved by the head of the department prior to registration for the seminar. Students may receive six hours credit in any combination of departments as described, provided the seminar is planned with that combination in mind. No student will receive credit under the course plan indicated here except for work done in seminars planned and conducted or approved by the Haworth College of Business. 1 to 6 hours

FIN 4980 Readings and Research in Finance Directed individual study of finance or legal problems which are not treated in departmental course offerings. Prerequisite: Written consent of instructor and department chair is required. 1 to 3 hours

French

FREN 1000 Basic French I Fundamentals of French with audiolingual emphasis. French cultural readings. 4 hours

FREN 1010 Basic French II Continuation of 1000. Prerequisite: FREN 1000 or equivalent. 4 hours

FREN 2000 Intermediate French I The development of spoken and written expression in the French language with an emphasis on grammar review. Prerequisite: FREN 1010 or two years of high school French, or equivalent. 4 hours

FREN 2010 Intermediate French II The continued development of spoken and written expression in the French language through readings and discussions of civilization and culture materials. Prerequisite: FREN 2000 or equivalent. 4 hours

FREN 2750 Francophone Culture This course, taught in English, is an introduction to various aspects of the culture of non-European countries and regions in which the French language plays a significant role. It will offer a critical and historical perspective on the cultural and social effects of colonialism and decolonialism. This course does not count toward a French major or minor. 3 hours

FREN 3160 Introduction to Advanced French Studies A review of French structure, form and use; focus on the development of communicative competence and on grammatical difficulties encountered by non-native users. Emphasis on
the development of academic writing and speaking skills in preparation for content courses. Prerequisites: FREN 2000 and 2010 or equivalent. 4 hours

FREN 3170 French Conversation Exercises to develop ease and accuracy in the use of everyday French. Emphasis on oral aspects of the language. Prerequisite: FREN 2010 or equivalent. 4 hours

FREN 3200 French Phonetics Study and practice to correct typical difficulties encountered by students of French with Anglo-American patterns of pronunciation; also to study the teaching of French patterns. Prerequisite: FREN 2000 or equivalent. (FREN 3200 may be taken concurrently with FREN 2010.) 3 hours

FREN 3220 Life and Culture in France A study of French civilization based on historical, geographical, literary considerations and art and how those factors illustrate the character and traditions of French people from the medieval period through the present day. Prerequisite: FREN 3160. 3 hours

FREN 3230 Life and Culture in the Francophone World An introduction to French-speaking culture outside France, as seen primarily through literary texts. Students will become acquainted with various aspects of life in French-speaking communities both past and present. Prerequisite: FREN 3160. 3 hours

FREN 3240 French Language and Society: Business in France Course on contemporary French language and society as they relate to commerce, including business communications and practices in France. Intensive practice of written and oral French. Taught in French. Prerequisite: FREN 3160. 3 hours

FREN 3250 Close Reading In French Prose and verse readings of intrinsic literary and cultural merit, with emphasis on strategies for literary analysis. Prerequisite: FREN 3160. 3 hours

FREN 3260 Introduction to the Study of French Linguistics A general survey of the different fields of French linguistics, both theoretical (e.g., phonology, syntax) and applied (acquisition, sociolinguistics, dialectology). Prepares student for more specialized studies. Prerequisite: FREN 3160. 3 hours

FREN 3440 Summer Study in France A summer study program of French language, literature and culture. The course consists of formal study at a French university with regularly scheduled lectures and discussions in the French language. University study is supplemented by an organized tour of Paris with full explanations by an instructor of all points visited. Each student submits a term paper investigating one phase of his/her experience. Prerequisite: FREN 2000 or equivalent or permission of instructor. 7 hours

FREN 4520 Reading and Writing in French Study of a limited number of literary texts as a contextual framework for review of French grammatical structures and practice in composition. Prerequisites: FREN 3160, FREN 3250 .3 hours

FREN 4530 Themes in French/ Francophone Culture Intensive development of communicative competence in French, oriented around the investigation and discussion of a theme or themes culturally relevant to French or Francophone societies (e.g., revolution past and present, decolonialisation, gender issues). Prerequisite: FREN 3160. 3 hours

FREN 4770 Foreign Study Student participation in a departmentally approved program of study abroad. Repeatable for credit up to 32 credit hours. Prerequisite: Prior permission of departmental advisor and chairperson. Variable

FREN 4900 Studies in French Linguistics Topics vary according to area and will be announced. May be repeated for credit. Prerequisite: FREN 3160, FREN 3260 or permission of instructor. 3 hours

FREN 5000 Elementary French for Reading Proficiency Intensive grammar and elementary reading for translation and research purposes. The course is primarily for the graduate who has had little or no study in the language. However, undergraduates who desire a thorough reading knowledge may also apply. Undergraduates must secure permission of department. No oral work. This course does not count toward a major or minor in French. 5000-level courses may be taken only by advanced undergraduate students. Advanced undergraduate students are defined as those who have satisfactorily completed a minimum of four courses, or equivalent, applicable toward a major or minor in any one language. Each course, however, may have more specific and/or additional prerequisites. 4 hours
FREN 5010 Intermediate French for Reading Proficiency
Readings in the language at intermediate and advanced levels for translation and research purposes. Special attention will be given to students' major fields. Completion of FREN 5010 with a minimum of "B" constitutes graduate proficiency in the language. Undergraduates must secure permission of the Department. This course does not count toward a major or minor in French. 5000-level courses may be taken only by advanced undergraduate students. Advanced undergraduate students are defined as those who have satisfactorily completed a minimum of four courses, or equivalent, applicable toward a major or minor in any one language. Each course, however, may have more specific and/or additional prerequisites. 4 hours

FREN 5020 French for Graduate Study
French instruction for graduate students enrolled in a degree program who need knowledge of French for their field of study. Students will sit in appropriate level course for their learning. May be repeated for credit. May not be taken by undergraduate students in any field. Prerequisites: Approval of department of student's graduate program and approval of Department of Foreign Languages. 5000-level courses may be taken only by advanced undergraduate students. Advanced undergraduate students are defined as those who have satisfactorily completed a minimum of four courses, or equivalent, applicable toward a major or minor in any one language. Each course, however, may have more specific and/or additional prerequisites. 3 to 4 hours

FREN 5100 Studies in French and Francophone Culture
An intensive study of selected aspects of French and Francophone culture. Course varies according to topic and may be repeated for credit with permission of advisor. Representative topics might include Women in French Society, The French Tradition in Quebec, Francophone Cinema. Prerequisites: FREN 3160 and 3220 or 3230 or 3250. 5000-level courses may be taken only by advanced undergraduate students. Advanced undergraduate students are defined as those who have satisfactorily completed a minimum of four courses, or equivalent, applicable toward a major or minor in any one language. Each course, however, may have more specific and/or additional prerequisites. 3 hours

FREN 5200 Topics in French Linguistics and Language Science
The advanced study of a language or a group of languages from a scientific point of view, such as the function and status of languages in society, the comparative history of different language families or the manipulation of language for pragmatic needs across cultures. May be offered as ARAB/CHIN/FREN/GER/ GREK/ITAL/JPNS/LAT/ RUSS 5200. Prerequisites: Completion of 4 courses in area of specialization. 5000-level courses may be taken only by advanced undergraduate students. Advanced undergraduate students are defined as those who have satisfactorily completed a minimum of four courses, or equivalent, applicable toward a major or minor in any one language. Each course, however, may have more specific and/or additional prerequisites. 3 hours

FREN 5280 French Literature from the Middle Ages to the Revolution
The study of selected literary texts from the Middle Ages to the end of the eighteenth century. Prerequisites: FREN 3160, 3250. 5000-level courses may be taken only by advanced undergraduate students. Advanced undergraduate students are defined as those who have satisfactorily completed a minimum of four courses, or equivalent, applicable toward a major or minor in any one language. Each course, however, may have more specific and/or additional prerequisites. 3 hours

FREN 5290 French Literature from the Revolution to the Present
The study of selected literary texts from the late eighteenth century to the present. Prerequisites: FREN 3160, 3250. 5000-level courses may be taken only by advanced undergraduate students. Advanced undergraduate students are defined as those who have satisfactorily completed a minimum of four courses, or equivalent, applicable toward a major or minor in any one language. Each course, however, may have more specific and/or additional prerequisites. 3 hours

FREN 5500 Independent Study in French
Directed individual study of a specific topic in a French literary or linguistic area. Departmental approval required for admission. Repeatable for credit. Prerequisites: One 5000-level course in the major; a minimum grade point average of 3.0 in the major. Not open to minors. 5000-level courses may be taken only by advanced undergraduate students. Advanced undergraduate students are defined as those who have satisfactorily completed a minimum of four courses, or equivalent, applicable toward a major or minor in any one language. Each course, however, may have more specific and/or additional prerequisites. 1 to 3 hours

FREN 5600 Advanced Readings in French
Topics of literary, cultural, or linguistic merit will be analyzed. Topics will vary from semester to semester. May be repeated for credit. Prerequisites: FREN 3160, 3250. 5000-level courses may be taken only by advanced undergraduate students. Advanced undergraduate students are defined as those who
have satisfactorily completed a minimum of four courses, or equivalent, applicable toward a major or minor in any one language. Each course, however, may have more specific and/or additional prerequisites. 3 hours

First Year Experience
FYE 2100 First-Year Experience The First-Year Experience seminar is designed to help students develop a sense of responsibility for their own education and learning. This seminar will introduce students to University resources and will provide support during the first semester of transition to the University. Taught in a small group setting, students will interact with a faculty member and a student leader three times a week. The FYE 2100 seminar will include weekly class meetings, sharing a common reading experience, a project-based assignment, written assignments, and attendance at selected University events. The importance of writing skills, communication skills, and study skills will be emphasized. FYE 2100 will be offered during Fall and Spring semesters and is restricted to freshmen. The course may not be repeated and students will receive a letter grade for this course. 2 hours

Geography
GEOG 1000 World Ecological Problems and Man (Science credit) Geographers have long been concerned with studying the interactions between human beings and the environment. The major focus of these investigations today is concerned with misuse of the environment, which has led to the present day environmental crisis. The introductory course combines scientific and non-technical appraisals of processes and problems dealing with the question of environmental quality. Therefore, humanity will be studied in the physical as well as the social setting. Though major issues may vary for developing and developed nations, topics concerned with population pressure, pollution, and urbanization will be among those considered. 4 hours

GEOG 1020 World Geography Through Media and Maps This course presents an introduction to the geography of the earth. This includes the earth as the home of humans, major urban concentrations, descriptive physical characteristics of continents and countries, political subdivision, and general man-land relationships which reflect cultural preferences. Information delivery will be through textual material with a major concentration of carefully selected audiovisual and map study activities to enhance investigating the character of distant places. 3 hours

GEOG 1050 Physical Geography (Science credit) A study of the physical environmental systems of our earth. The course examines the seasonal and latitudinal distribution of solar energy; analyzes the many elements of weather, climate, vegetation, and soils; and finally considers the earth's major landforms and the processes which shape them. Though each topic is treated separately, this course demonstrates the basic relationships among these topics and points out the human implications in all physical earth systems. Map use and laboratory work is an integral part of this course. 4 hours

GEOG 1900 Earth Science for Elementary Educators I This is a laboratory-Based course specifically designed for prospective elementary teachers. The objectives of the course are to aid students in developing meaningful and functional understanding of key earth science concepts and their interrelations; to provide students with open-ended problem solving environments that facilitate insight in the nature of science as an intellectual activity; explore alternate conceptions of scientific phenomena; to help students develop more positive attitudes about science and increase their confidence in their ability to do science. 3 hours

GEOG 2040 National Park Landscapes (Science credit) Introduction to the physical and human landscapes of the national park system. Consideration of those natural and human processes which have produced the distinctive features of the national parks. Evolution of the national park concept, policies, and problems. 3 hours

GEOG 2050 Human Geography An introduction to those aspects of geography concerned with the efforts of humans to cope with the environment. Included are population and settlement forms, the utilization of resources, the impact of technology on human occupancy of the earth, and the origin and dispersal of cultural elements among the various world realms. 3 hours

GEOG 2250 Introduction to Meteorology and Climatology (Science credit) A non-mathematical analysis of atmospheric behavior. The fundamental physical laws affecting the elements of weather - solar radiation, temperature, moisture, pressure, and winds are examined during the first half of the course. Weather systems and forecasting, atmospheric optics, climatic change, and regional climates are examined during the second half of the course. Laboratory meetings
dealing with instrumentation and weather map analysis are an integral part of the course. Prerequisite: GEOG 105 or equivalent. 4 hours

GEOG 2440 Economic Geography This course reviews the spatial processes and patterns for primary production, transportation, manufacturing and energy, service functions, trade and economic development. 3 hours

GEOG 2650 Map, Chart and Air Photo Reading (Science credit) Introductions to the fundamental principles that link maps and nature: scale, surface transformations of earth relief and round planet; selection, simplification, and symbolization of data; reference grids and orientation. Methods of map reading, analysis, and interpretation are practiced on maps of different kinds and scales. Air photos and other remotely sensed images and their application are also introduced. 3 hours

GEOG 3030 Geographic Inquiry Students will be introduced to geography as a field of study, research and professional opportunity. Students will have an opportunity to investigate social and environmental problems through data collection, analysis, interpretation, and graphic and written presentation. The emphasis throughout will be on the application of inquiry models to geographic problems. For Geography majors and minors and Tourism and Travel majors. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisites: For Geographic Information Science concentration, STAT 3660; for all other Geography major concentrations, STAT 2160, STAT 2260 or equivalent. 4 hours

GEOG 3060 Atmospheric Environment and Society (Science credit) The study of the atmospheric environment as it interacts with humans and society. Special emphasis is given to the following: the role of weather and climate in affecting the successful outcome of plans and economic decisions; the dynamics of changing climates and their role in affecting the course of history; human physiological and psychological responses to weather and climate; weather forecasting and its value to society; and the hazards to life, health, and property posed by severe weather. Students should expect to achieve a sufficient understanding of the atmospheric environment so that they may make informed decisions involving weather topics. 3 hours

GEOG 3090 Studies in Regional Geography An investigation of topics in physical and human geography of selected areas within major world regions. Regional concentration will vary from semester to semester, with the region being indicated at time of enrollment. Prerequisite: consent of department advisor and instructor. 2 to 3 hours

GEOG 3100 Principles of Tourism I Introduction to tourism planning and investment, the airlines industry and airport nomenclature in relation to tourism, tourism marketing, tourism impacts, and tourism site development. Students apply concepts and materials to a course project such as a themed, guided tour in the United States. For Tourism majors only. 4 hours

GEOG 3110 Geography of Michigan An introduction to the physical and cultural patterns in Michigan with emphasis upon an understanding of the distribution of population, resources, and forms of economic activity. Attention is also focused upon relevant current State problems. 3 hours

GEOG 3500 Conservation and Environmental Management (Science credit) A critical evaluation of the management of selected natural resources with primary focus on the United States. Conflicts between environmental and economic interests are examined in both historical and contemporary contexts. 3 hours

GEOG 3560 Introduction to City and Regional Planning Intended to provide the student with an introduction to planning thought and professional practice; examination of the evolution from traditional physical land-use planning to the comprehensive planning process which incorporates physical, social, and economic elements; consideration of the impact of planners and planning movements of the 19th and early 20th centuries such as the "New Towns" programs; relationship of planning to zoning; the emergence of regional administrative units and regional planning programs. 3 hours

GEOG 3610 Population: The Crowding World Population distribution and settlement patterns are examined geographically. Population topics include mapping and analysis, theories of population change, and types of migration. Emphasis is also placed on functions and structure of urban and rural settlements in selected world regions. 3 hours

GEOG 3800 United States and Canada A study of the physical environment north of the Rio Grande followed by an analysis of the spatial structure of the area's population and economy. The basis for the regional differentiation of the USA
and Canada is considered, followed by a region-by-region analysis of each of these unique integrations of physical and cultural phenomena. 3 hours

GEOG 3810  South America  Regional study of the nations of South America with attention to the interrelationships of the physical and cultural environments. Historical background necessary for the interpretation of the present political, social, and economic conditions is included. 3 hours

GEOG 3820  Mexico and the Caribbean  Systematic review of the physical and cultural environments of Mexico, Central America and the West Indies. Economic, social and political issues will be examined from a spatial viewpoint. 3 hours

GEOG 3830  Western and Southern Europe  Intensive regional study of those European nations. The physical elements (climate, landforms, resources, etc.) are examined and the derivative cultural elements are identified. Emphasis is placed upon the social and economic activities of contemporary Western and Southern Europe. 3 hours

GEOG 3840  The Post-Soviet States  A geographical appraisal of the newly independent republics. Topics covered include: location and geographical setting, the physical environment, population, ethnic and nationality issues, economic development, and problems of environmental deterioration. 3 hours

GEOG 3850  The Pacific Realm  Selected studies of the relationships between human beings and the environment in Australia, New Zealand, Melanesia, and Polynesia. 3 hours

GEOG 3860  Sub-Saharan Africa: Man, Environments, Resources  Survey of the principal physical and political patterns of Africa south of the Sahara, followed by studies of the significant elements of the major realms and states, e.g., population distribution, patterns of subsistence and commercial agriculture, status of mineral and power resource development, transportation routes, regional development programs. 3 hours

GEOG 3870  The Middle East and North Africa  Study of the diversity and uniformity - both physical and cultural to - of the Middle East and Africa north of (and including) the Sahara. Special attention is given to aridity problems, economic development, petroleum, Arab reunification movements, and the impact of the Muslim World on the current political scene. 3 hours

GEOG 3890  Monsoon Asia  Systematic survey of the physical and human (socio-economic) environments of the southeastern rim of Asia (Pakistan in the west to Japan in the east). Geographical background necessary to interpret present conditions is included. 3 hours

GEOG 3900  China, Japan, and Korea: Lands and Cultures  An introduction to the contemporary landscapes, cultures, and economies of the countries of East Asia, specifically China, Japan, and Korea. A basic survey of the interactions over time between the physical environments of East Asia and the cultures, the political conditions, the economies, and societies of these three main nations. 3 hours

GEOG 4080  Principles of Tourism II  Examination of the linkages between geography and tourism, the marketing of travel, and tourism and hospitality products. The course covers tourism and marketing research methods, marketing strategies, marketing planning, and marketing plan implementation with a focus on issues of tourism development. Students apply concepts and materials to a course research project related to tourism providers in west Michigan. The student studies global environments and transportation systems to analyze tourism and travel trends and opportunities. An examination of resort areas, tourist frequency patterns to various resorts, cultural opportunities, and perception of places through travel brochures and literature are included in the course. Theoretical assumptions underlying perceptions of place and mental maps of tourism and travel preferences are examined. For Tourism and Travel majors only. Prerequisite: GEOG 3100. 4 hours

GEOG 4120  Professional Practice  Provision for an advanced student to benefit by supplementary practical experiences in a particular branch of geography, either by assisting faculty engaged in research or by working in a departmentally-approved off-campus agency. Specific assignments are arranged in consultation with departmental advisors during the semester preceding that in which the student expects to enroll in 4120. The student may enroll for one additional semester, but no student will be allowed more than six hours total credit for 4120. For Geography majors and minors, and Tourism and Travel majors only. Prerequisites: Junior standing and consent of Department Chair. 2 to 6 hours
GEOG 4440  Professional Development  This is a capstone course focusing on professional career expectations, skills, standards and ethics, portfolio development, website creation and management, and issues in career development. Prerequisite: GEOG 3030. To be taken Senior year. For majors in the Geography Department only.  2 hours

GEOG 4600  Geography/Social Studies Teaching in Middle and High School  This is a pre-service course designed to enable students to meet professional expectations and requirement necessary for teaching geography/social studies in middle and high schools. The teaching methodologies that enhance social science inquiry are the focus. Content standards for the Michigan Social Studies Framework are applied. Meets secondary methods requirements in geography and political science. An alternate methods course to secondary history. Fulfills the requirement for the social studies group minor. Prerequisite: GEOG 4600 must be taken concurrently or following enrollment in ED 3010 and 3020.  3 hours

GEOG 5010  Introduction to Geographic Information Systems  Introduction to basic principles of Geographic Information Systems (GIS) with applications to a variety of problems using established data sources and repositories. Includes fundamental principles of cartographic design and communication. A first course in a curricular sequence developing GIS professional expertise. Prerequisite: Completion of departmental computer literacy proficiency. Prerequisites applicable to all 5000-level courses in Geography include 14 credit hours of geography, or consent of advisor and/or instructor  4 hours

GEOG 5210  Studies in Climatology and Meteorology  (Science credit)  Studies at an advanced level in meteorology and climatology. Topics of current interest to atmospheric scientists are examined in depth. Regional climatic phenomena and their relation to atmospheric circulation patterns are also investigated. Prerequisite: GEOG 2250 or consent of department. Prerequisites applicable to all 5000-level courses in Geography include 14 credit hours of geography, or consent of advisor and/or instructor  3 hours

GEOG 5440  Studies in Economic Geography  Presents world patterns of agriculture, manufacture, or transportation which link global production and consumption. In any term, the course focuses upon one of these three economic sectors. *<p>Prerequisites: GEOG 2050 and GEOG 2440 or consent of department. </p>*

Agriculture. Describes and analyzes the distribution of major crops and livestock, and their combinations in common farming operations. The spatial organization of agriculture through time is analyzed for selected areas.

Industry. Evaluates the general distribution and locational factors associated with selected industries, giving particular attention both to models of industrial location and to the empirical interrelation of economic, technological, and political elements affecting the locational decision.

Transportation. Emphasizes the historical evolution of transport systems in developed and developing nations, transport factors in location theory, techniques of transport analysis, the urban transport problem, and competitive and complementary characteristics of transport modes in differing political systems.*

Prerequisites applicable to all 5000-level courses in Geography include 14 credit hours of geography, or consent of advisor and/or instructor  2 to 3 hours

GEOG 5450  Studies in Human Geography  Each course listed under this general title is a concentrated study of one of the principal subdivisions of human geography. The scope and principal themes of each specialized field are reviewed, with consideration given to current research on selected problems. Prerequisite: GEOG 3030, or GEOG 2050 or GEOG 2440, or by consent of instructor. Course may be repeated for credit.

1. Cultural Geography. Techniques of spatial analysis applicable to the study of humans and their environment. The place of origin, diffusion, and present distribution of selected cultural patterns will be traced with emphasis given to cultural traits which strongly influence human occupancy of the earth's surface.

2. Historical Geography. Studies of geographic and related features which have combined to influence the course of historical development. This course will concentrate on a particular region and/or period of time during each semester in which it is offered. Each specialization will be designated in the class schedule.

3. Political Geography. General survey of the principles and the applied aspects of political geography; primary emphasis on the physical and cultural resource bases and conflicts of national states, the assessment of location, boundary delimitation and the territorial sea, politically-organized territories within the administrative hierarchy, and electoral geography.  2 to 3 hours

GEOG 5530  Water Resources Management  Examination of water resources management with an emphasis on the effects of water uses and runoff on water quality and quantity. Topics include: water resource systems, estimating consumptive and non-consumptive water uses, and runoff with computer models, and multiple socio-economic and hydrological factors in water resources management. Prerequisite: Junior, senior, or graduate student standing.  3 hours

561
GEOG 5540 Outdoor Recreation: Resources and Planning (Science Credit) Examination of extensive, resource-based outdoor recreation (such as parks, wilderness, wild rivers, hunting and fishing, hiking, etc.) with emphasis upon recreational planning. Topics include supply and demand for outdoor recreation, identification of present and future recreational needs, policy considerations, administration of recreational land uses, and various problems associated with outdoor recreation. Readings, discussion, and student-designed and executed individual studies provide professional orientation. 3 hours

GEOG 5550 Contemporary Issues in Resources Management (Science credit) Examination of selected contemporary natural resource and environmental problems, such as questions of natural resource adequacy, environmental pollution, energy shortages, political and economic problems related to resource management, and individual studies of local environmental problems. Prerequisite: GEOG 3500 or consent. Prerequisites applicable to all 5000-level courses in Geography include 14 credit hours of geography, or consent of advisor and/or instructor 3 hours

GEOG 5560 Studies in Urban and Regional Planning Each of the courses listed under this number focuses on a major aspect of planning, including a review of the objectives of the planning process, legislation pertaining to planning operations, and methods of field and library investigation required for analysis and policy formulation in matters related to planning. 1. Urban Planning and Zoning. A survey of American planning thought and practice: the background of planning and zoning in American municipalities; traditional and contemporary approaches to the comprehensive plan; elements of land use and transportation planning; the legal foundations of zoning; and the organization of the planning agency. 2. Regional Planning. Organization and plans of regional development programs. 3. Public Lands and Parks. Specific programs and policies relating to the preservation and/or development of government-controlled lands. Prerequisites: GEOG 3560, Graduate standing, or consent of Department. Prerequisites applicable to all 5000-level courses in Geography include 14 credit hours of geography, or consent of advisor and/or instructor 3 hours

GEOG 5570 Environmental Impact Assessment Alteration of the natural and human environment for perceived economic and social benefits often has significant adverse consequences. Recognition of this problem is reflected in federal, state, and local laws and regulations requiring environmental impact statements. The course provides an introduction to the analysis and preparation of environmental impact assessments. Prerequisites: Senior standing or instructor's permission. Prerequisites applicable to all 5000-level courses in Geography include 14 credit hours of geography, or consent of advisor and/or instructor 3 hours

GEOG 5630 Surveying Techniques The theory and application of geographic techniques and instruments of field investigations: collection and analysis of field data, preparation and presentation of materials. The course is based primarily upon field operations. The purpose is to introduce students to the capabilities and limitations of traditional surveying techniques and the Global Positioning System (GPS). Students will gain a basic understanding of how satellite-based navigation systems operate and they will put into practice through a series of field exercises. Prerequisite: GEOG 5010. Prerequisites applicable to all 5000-level courses in Geography include 14 credit hours of geography, or consent of advisor and/or instructor 4 hours

GEOG 5660 Field Geography The theory and application of geographic techniques and instruments of field investigations: collection and analysis of field data, preparation and presentation of materials. The course is based primarily upon field observations. Prerequisite: GEOG 2650 Prerequisites applicable to all 5000-level courses in Geography include 14 credit hours of geography, or consent of advisor and/or instructor 2 to 4 hours

GEOG 5670 Spatial Analysis This course provides an introduction to techniques for spatial data analysis in geographical research. Topics include: experimental design and sampling; spatial data visualization and exploration; analysis of clusters and point patterns; global and local indicators of spatial autocorrelation; basic concepts of geostatistics; and an introduction to spatial data analysis. The main focus will be on data description and exploration. Prerequisites: GEOG 5010 GEOG 3030 or prior coursework in descriptive and inferential statistics. Prerequisites applicable to all 5000-level courses in Geography include 14 credit hours of geography, or consent of advisor and/or instructor 4 hours

GEOG 5680 Quantitative Methodology The application of quantitative concepts and methods to the solution of geographic problems. Critical review of research in quantitative geography, ranging from the use of common statistical techniques to alternate methods of model formation and the analysis of spatial problems. Prerequisite: GEOG 5670 or the consent of department. Prerequisites applicable to all 5000-level courses in Geography include 14 credit hours of geography, or consent of advisor and/or instructor 3 hours
GEOG 5690 Intermediate Geographic Systems  Principles and applications of Geographic Information Systems (GIS). Examines the nature and accuracy of spatially referenced data, as well as methods of data capture, storage, retrieval, visualization, and output. Emphasis is placed on developing solutions to problems involving spatial entities and attributes by employing logical conceptual analysis using the tools provided by a typical geographic information system. Prerequisite: GEOG 5010. Prerequisites applicable to all 5000-level courses in Geography include 14 credit hours of geography, or consent of advisor and/or instructor. 4 hours

GEOG 5700 Cities and Urban Systems  Study of processes and forms of urban settlement highlighting problems relating to (1) political and geographical realities of urbanized regions, (2) factors in city growth (or decline), (3) the sizes, functions, and geographical distribution of cities, and (4) population patterns in contemporary cities. Activities are designed to provide the student with experience in the use of source materials and methods of analysis utilized in urban geography. Prerequisites applicable to all 5000-level courses in Geography include 14 credit hours of geography, or consent of advisor and/or instructor. 3 to 4 hours

GEOG 5820 Remote Sensing of the Environment  An introduction to the concepts and foundations of air photo and satellite image interpretation, photogrammetry, and digital image processing. Students are exposed to the physical principles that underlie electromagnetic radiation and its interactions with the earth-atmosphere system through a series of discussions, required readings, and lab exercises. Students who successfully complete this course should be able to understand the capabilities and limitations of photographic and digital imagery obtained from aircraft and space-borne platforms. Prerequisites applicable to all 5000-level courses in Geography include 14 credit hours of geography, or consent of advisor and/or instructor. 4 hours

GEOG 5970 Readings in Geography  Designed for highly qualified majors and graduate students who wish to study in depth some aspect of their field of specialization under a member of the departmental staff. Repeatable for credit. Prerequisite: Consent of department advisor and instructor. Prerequisites applicable to all 5000-level courses in Geography include 14 credit hours of geography, or consent of advisor and/or instructor. 1 to 3 hours

Geosciences

GEOS 1000 Earth Studies  Students are introduced to the origin of the solar system and the earth-moon system with emphasis on humankind's place in the universe. Students will investigate the materials and processes that shape the earth and the Geologic hazards that affect our lives. Mineral, water, and energy resources will be considered in the context of their occurrence and limitations. Plate tectonics and the origin and evolution of life will be used to frame the course. 3 lectures and a 2-hour lab period. Fulfills General Education Area 6. 4 hours

GEOS 1290 Physical Geology Laboratory  A laboratory experience covering minerals and rocks, and the interpretation of topographic and Geologic maps. Prerequisite: Minimum 3 hours of nonlaboratory Geology. 1 hour

GEOS 1300 Physical Geology  A study of the common rocks and minerals and the Geologic processes acting upon these materials that form the structure and surface features of the earth. Three lectures and a two-hour laboratory period. Fulfills General Education Area 6. 4 hours

GEOS 1310 Historical Geology  Geologic time, evolution of prehistoric life, and principles of earth history with case examples from North America. Prerequisite: GEOS 1300 or GEOS 1000. 4 hours

GEOS 1320 Integrated Earth System Studies  The course will view the whole earth as a single system and focus on the interrelations and interactions among different subsystems and changes that occur in these with time. Topics covered will include basic laws of physics and chemistry that operate on the earth, evolution, biogeochemical cycles, global changes (natural and anthropogenic) and human interactions with the environment. Construction of models of systems will be explored to determine possible impact of a change on the system as a whole. Prerequisites: GEOS 1300 and GEOS 1310. 3 hours

GEOS 1440 Environmental Earth Science  A study of the earth from an environmental perspective. Origin of the earth and solar system, physical and chemical structure of the earth, chronology, and the use of the scientific method to advance this understanding. Focus on the hydrosphere, atmosphere, biosphere, and lithosphere and their interactions. Fulfills General Education Area 7. 3 hours

563
GEOS 2000 Evolution of Life - A Geological Perspective
A consideration of the diversity of life through time with emphasis on the Geological constraints on evolution. Evolutionary processes and patterns of selected fossil groups from single-celled organisms to the vertebrates. Co-evolution of plants and animals, and mechanisms of extinction will be discussed. Fulfills General Education Area 6. 4 hours

GEOS 2900 Earth Science for Elementary Educators II
This laboratory-Based course is a continuation of GEOG 1900 and is specifically designed for prospective elementary teachers. The objectives of the course are to aid students in developing meaningful and functional understanding of key earth science concepts and their interrelations; to provide students with open-ended problems solving environments that facilitate insight in the nature of science as an intellectual activity; to explore alternate conceptions of scientific phenomena; to help students develop more positive attitudes about science and increase their confidence in their ability to do science. 3 hours

GEOS 3010 Minerals and Rocks
A one semester course covering hand specimen mineralogy and petrology; includes introduction to crystallography, physical and chemical properties of minerals, and rock description and genesis. Will not count toward a major in Geology. Prerequisites: GEOS 1000 or 1300 and 1310, a course in college-level chemistry, or consent of instructor. 4 hours

GEOS 3120 Geology of the National Parks and Monuments
A study of the origin of Geologic features and the development of landscapes through Geologic time in selected National Parks and Monuments. Students will be expected to read extensively in the available literature. Fulfills General Education Area 7. 3 hours

GEOS 3220 Ocean Systems
The ocean system encompasses over seventy percent of the world's surface, and comprises one of the largest resources that the peoples of the world hold in common. This course will explore our understanding of this complex system, and the evolution of technology on which this understanding is based. The costs and benefits of the past, present, and future use of the world ocean will be considered in the context of competing values and interests. 3 hours

GEOS 3350 Mineralogy
Introduction to crystallography, crystal chemistry, and determinative mineralogy. Physical and chemical properties, occurrence, uses and determination of about 100 minerals. Lecture 3 hours a week. Laboratory 3 hours a week. Prerequisites: GEOS 1000 or GEOS 1300; CHEM 1100 and 1110; or consent of instructor. 4 hours

GEOS 3360 Optical Mineralogy
Principles and methods of optical crystallography. Study of minerals and rocks in thin sections. Prerequisite: GEOS 3350 or consent of instructor. 3 hours

GEOS 4300 Structural Geology
Development of rock structures and mechanics of rock deformation. Structural interpretation of Geologic maps, cross-sections, and aerial photographs. Prerequisites: GEOS 1310; GEOS 3010 or GEOS 3350; MATH 1180; or consent of instructor. 3 hours

GEOS 4320 Geomorphology
Detailed consideration of the earth's surficial processes including transformation of fluvial, glacial, mass-wasting, eolian, and coastal landforms. Laboratory exercises involve interpretation of topographic maps, Geologic maps, and air photographs. Three-day field trip required. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisites: GEOS 1310; GEOS 3010 or GEOS 3350; PHYS 1070 and 1080 or PHYS 1130 and 1140; CHEM 1100 and 1110; and MATH 1180 or MATH 2000. 3 hours

GEOS 4330 Invertebrate Paleontology
Morphology, classification, evolution, and stratigraphic distribution of major invertebrate fossil groups. Prerequisite: GEOS 1310 or consent of instructor. 4 hours

GEOS 4340 Problems in Geology
Intensive reading and research on a topic in Geology under the direction of a member of the Geology faculty. Prerequisites: 16 hours in Geology and permission of department. 1 to 3 hours

GEOS 4350 Sedimentation and Stratigraphy
Processes, characteristics, and relationships among fluvial, deltaic, strand plain, lagoon, shelf, and slope terrigenous depositional systems. Laboratory includes textural analysis, sedimentary structures, paleocurrent analysis, electric logs, subsurface maps, and application of statistical and computer methods to the solution of sedimentologic problems and basin analysis. Course includes a three-day field trip. This course is approved as a
writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum.

Prerequisites: GEOS 1310; GEOS 3010 or GEOS 3350. 4 hours

GEOS 4380 Field Studies in Geology Field observations and introduction to geologic mapping. Aspects of landscape evolution, rock-forming processes, and rock deformation will be studied. Emphasis will be on how observations are combined to make geologic interpretations and how the geologic history and evolution of a region can be interpreted from field data. Prerequisite: GEOS 3010 or consent of instructor. 3 hours

GEOS 4390 Geologic Mapping Field observations and geologic mapping. Rock-oriented mapping projects will be completed under supervision that requires observations and synthesis of rock descriptions, structural analyses, stratigraphic interpretations, and compilations of the geologic history of assigned study areas. Prerequisites: GEOS 3010 or GEOS 4400; GEOS 4300; or consent of instructor. 3 hours

GEOS 4400 Petrology and Petrography Classification, origin, and description of igneous, sedimentary, and metamorphic rocks. Laboratory study of rocks and thin sections. Prerequisites: GEOS 3360; CHEM 1100 and 1110. 3 hours

GEOS 4600 Geologic Communications A seminar designed to introduce students to the oral presentation of Geologic information. Students will critique talks given in the weekly departmental seminar and make one oral presentation to a group of students and faculty. 1 hour

GEOS 5020 Problems in Geology and Earth Science Individual problems involving topical reading and/or research problems in earth sciences. May be repeated for credit. Prerequisites: GEOS 1300, GEOS 3000, GEOS 3010, GEOS 4400, and consent of department. The prerequisites to 5000-level courses are: junior status and 12 hours of course work in Geosciences or consent of instructor. There may be specific prerequisites to individual courses 1 to 3 hours

GEOS 5030 Environmental Consulting Practice An introduction to the principles and practices that are peculiar to environmental consulting. Emphasis is placed on the legal, business, and practical considerations needed to conduct a consulting practice. This course is not to be counted toward the 60 credits beyond the Master's in the Ph.D. program. Prerequisite: Graduate standing in Geology or earth science. The prerequisites to 5000-level courses are: junior status and 12 hours of course work in Geosciences or consent of instructor. There may be specific prerequisites to individual courses. 2 hours

GEOS 5060 Introduction to Soils Properties of natural and engineered soils. Interactions between soils and plants, microorganisms, water, atmosphere, and contaminants. Soil uses, remediation, and conservation. Prerequisites: GEOS 3010 or GEOS 3350, MATH 1220 or MATH 1700, and CHEM 1100/1110; Corequisite is MATH 1230 or MATH 1710. The prerequisites to 5000-level courses are: junior status and 12 hours of course work in Geosciences or consent of instructor. There may be specific prerequisites to individual courses. 3 hours

GEOS 5090 Surface Water Hydrology Hydrology describes the waters of the earth, their occurrence, circulation and distribution, and their reaction with the environment. Emphasis is on quantitative aspects of surface water. Topics include, stream flow precipitation, evapotranspiration, hydrographs, runoff, probability analysis and modeling. Prerequisite: MATH 123 or MATH 1710. The prerequisites to 5000-level courses are: junior status and 12 hours of course work in Geosciences or consent of instructor. There may be specific prerequisites to individual courses. 3 hours

GEOS 5120 Principles of Hydrogeology The study of surface and ground water with special emphasis on its occurrence, movement, and relation to the Geologic environment. Prerequisites: GEOS 3010 or GEOS 3350; MATH 1220 or MATH 1700. MATH 1230 or MATH 1710 may be taken concurrently. The prerequisites to 5000-level courses are: junior status and 12 hours of course work in Geosciences or consent of instructor. There may be specific prerequisites to individual courses. 3 hours

GEOS 5140 Isotope Hydrology Principles of isotope fractionation. Experimental techniques in isotope mass spectrometry. Carbon, oxygen, and hydrogen isotope systematics in the hydrologic cycle. Application of stable isotope techniques to study ground water - surface water interaction. Use of nitrogen isotope measurements in understanding round water nitrogen cycling and fate of nitrate load. Introduction to developments in the application of chlorine isotopes in hydrology. The course will include a seminar style approach requiring summarizing of recent research papers. Prerequisite:
Instructor's consent. The prerequisites to 5000-level courses are: junior status and 12 hours of course work in Geosciences or consent of instructor. There may be specific prerequisites to individual courses. 3 hours

GEOS 5150 Applied Hydrology Application of hydrogeologic theory to water supply networks. Topics include: well installation, well testing, aquifer testing, and distribution systems. Prerequisite: GEOS 5120. The prerequisites to 5000-level courses are: junior status and 12 hours of course work in Geosciences or consent of instructor. There may be specific prerequisites to individual courses. 3 hours

GEOS 5160 Geochronology and Global Change Application of the concepts of nuclear physics and chemistry to Geological problems. Topics to include absolute and relative dating, formation of the elements, global change and causes of global change. Prerequisites: GEOS 3350 and basic knowledge of Chemistry, Physics, and Math. The prerequisites to 5000-level courses are: junior status and 12 hours of course work in Geosciences or consent of instructor. There may be specific prerequisites to individual courses. 3 hours

GEOS 5200 Economic Geology Origin, occurrence, and utilization of metallic and non-metallic mineral deposits, and mineral fuels. Lecture 3 hours a week. Prerequisite: GEOS 3010 or GEOS 3350. The prerequisites to 5000-level courses are: junior status and 12 hours of course work in Geosciences or consent of instructor. There may be specific prerequisites to individual courses. 3 hours

GEOS 5210 Geological and Environmental Remote Sensing The course provides rigorous (70% of student's efforts) hands-on-exercises on the applications of remote sensing techniques in geological and in environmental sciences. The hands-on exercises are primarily based on case studies that were published in peer-reviewed articles, data downloaded from our receiving station, and/or data collected by the students using hand-held VNIR spectroradiometer. In the process of solving the lab exercise, the students will master image processing techniques. The fundamentals of remote sensing will be covered as well, since the student can not start dealing with applications unless he or she knows the fundamentals. Throughout the course, the students will work with a wide-range of space-borne data sets including CORONA, Landsat MSS, Landsat TM, SPOT, ASTER, SIR-C, SRTM, A VIRIS, ASAR, and ERS. The prerequisites to 5000-level courses are: junior status and 12 hours of course work in Geosciences or consent of instructor. There may be specific prerequisites to individual courses. 4 hours

GEOS 5230 Hazardous Waste Operation and Emergency Response Training in safety procedures for working on hazardous sites. Training in the safe handling of hazardous materials which might be encountered during drilling, soil sampling, or water sampling. Review of State and Federal regulations. Use of personal protection equipment. Satisfies OSHA 40 hour training requirements. Prerequisite: GEOS 5120. The prerequisites to 5000-level courses are: junior status and 12 hours of course work in Geosciences or consent of instructor. There may be specific prerequisites to individual courses. 1 hour

GEOS 5240 Remediation Design and Implementation Principles and techniques for the remediation or cleanup of ground water and soils contamination. Introduction to pump and treat systems, bioremediation, soil vapor extraction, air sparging, and others. Choosing the appropriate system and sizing it for economical application to a specific site. Field trips required. Prerequisite: GEOS 5120. The prerequisites to 5000-level courses are: junior status and 12 hours of course work in Geosciences or consent of instructor. There may be specific prerequisites to individual courses. 1 hour

GEOS 5250 Surface Geophysics An introduction to the use of those surface geophysical methods used in the investigation of ground water. Includes shallow seismic electrical methods, and ground-penetrating radar. Prerequisite: GEOS 5120. The prerequisites to 5000-level courses are: junior status and 12 hours of course work in Geosciences or consent of instructor. There may be specific prerequisites to individual courses. 1 hour

GEOS 5260 Principles and Practices of Aquifer Testing Introduction to the methods of aquifer testing with emphasis on step drawdown pump-tests, forty-hour pumping test with recovery, slug tests and bail tests, data processing, using computer software, water level recorders, data loggers, and water level measuring equipment. Prerequisite: GEOS 5120. The prerequisites to 5000-level courses are: junior status and 12 hours of course work in Geosciences or consent of instructor. There may be specific prerequisites to individual courses. 1 hour

GEOS 5270 Principles of Well Drilling and Installation An introduction to hollow-stem auger drilling and well installation, rotary drilling with mud and air, cable tool drilling, monitoring well design, sample collection and description;
cuttings, split spoon, and Shelby tube, borehole geophysics, and installation and development of wells. Prerequisite: GEOS 5120. The prerequisites to 5000-level courses are: junior status and 12 hours of course work in Geosciences or consent of instructor. There may be specific prerequisites to individual courses. 1 hour

GEOS 5280 Principles and Practices of Ground-water Sampling and Monitoring An introduction to state-of-the-art techniques for sampling, monitoring, and evaluating ground water systems and surface water interactions. Includes quality control and assurance procedures, ground-water sampling equipment and procedures, field hydrochemical equipment and procedures, and vadose zone sampling of water and gas. Prerequisite: GEOS 5120. The prerequisites to 5000-level courses are: junior status and 12 hours of course work in Geosciences or consent of instructor. There may be specific prerequisites to individual courses. 1 hour

GEOS 5300 Plate Tectonics and Earth Structure Major tectonic features and internal structure of the earth in relation to plate tectonics, critical examination of the tenants of plate tectonics. Prerequisites: GEOS 3010 or GEOS 3350; GEOS 4300 or consent of instructor. The prerequisites to 5000-level courses are: junior status and 12 hours of course work in Geosciences or consent of instructor. There may be specific prerequisites to individual courses. 3 hours

GEOS 5350 Numerical and Spatial Data Analysis in the Geosciences Application of various of elementary statistical methods (including elementary geostatistics) and computer-based software applications (including Arcview GIS) to the management, analysis, and display of multidimensional, sold earth, geosciences data through completion of a special project using established geological data sources or original, research project data. Prerequisites: MATH 1600, GEOG 3750. The prerequisites to 5000-level courses are: junior status and 12 hours of course work in Geosciences or consent of instructor. There may be specific prerequisites to individual courses. 3 hours

GEOS 5360 Glacial Geology A study of the mechanics of glacier movement, processes of glacial erosion and deposition, and the distribution of glacial features in space and time. Special emphasis will be placed on the glacial Geology of the Great Lakes area. Prerequisite: GEOS 3010 or GEOS 3350. The prerequisites to 5000-level courses are: junior status and 12 hours of course work in Geosciences or consent of instructor. There may be specific prerequisites to individual courses. 3 hours

GEOS 5400 Igneous and Metamorphic Petrology Advanced discussion of origins and positions of igneous and metamorphic rocks in light of recent experimental evidence and concepts of global tectonics. Prerequisite: GEOS 4400 or equivalent. The prerequisites to 5000-level courses are: junior status and 12 hours of course work in Geosciences or consent of instructor. There may be specific prerequisites to individual courses. 4 hours

GEOS 5450 Hazardous Waste Remediation Content includes chemical, physical, and biological processes affecting contaminants in the subsurface. Topics include environmental regulations, remediation, site characterization, contaminant characterization, detailed engineering and management considerations related to the design and operation of hazardous waste remediation systems involving water pollution, air pollution, solid waste, and groundwater pollution. Prerequisites: MATH 1220 or MATH 1700 and corequisite MATH 1230 or MATH 1710; CHEM 1120/1130. The prerequisites to 5000-level courses are: junior status and 12 hours of course work in Geosciences or consent of instructor. There may be specific prerequisites to individual courses. 3 hours

GEOS 5550 Introduction to Geochemistry An introduction to high and low temperature geochemistry. Topics to be discussed include cosmochemistry, crystal chemistry, thermodynamics and kinetics, aqueous geochemistry, stable and radiogenic isotope geochemistry, organic geochemistry, and biogeochemistry. Three hours lecture per week with weekly problem sets. Prerequisites: GEOS 3350, CHEM 1120/1130. The prerequisites to 5000-level courses are: junior status and 12 hours of course work in Geosciences or consent of instructor. There may be specific prerequisites to individual courses. 3 hours

GEOS 5600 Introduction to Applied Geophysics Seismology, gravity, geomagnetism, electrical resistivity, and heat measurements applied to the determination of the internal structure of the earth. Two lectures and three hours of practical laboratory-introduction to geophysical instrumentation. Prerequisites: GEOS 3010 or GEOS 4400; GEOS 4300; MATH 1220 or MATH 1710; two semesters of college physics; or consent of instructor. The prerequisites to 5000-level courses are: junior status and 12 hours of course work in Geosciences or consent of instructor. There may be specific prerequisites to individual courses. 3 hours
GEOS 5610 Reflection Seismology  Reflection seismology and related techniques as applied to petroleum exploration and deep crustal exploration. Theoretical background, data collection, data processing and interpretation will be discussed. Prerequisites: GEOS 5600, MATH 1230 or MATH 1710. The prerequisites to 5000-level courses are: junior status and 12 hours of course work in Geosciences or consent of instructor. There may be specific prerequisites to individual courses. 3 hours

GEOS 5620 Gravity and Magnetic Exploration  Gravity and Magnetic methods applied to tectonic, mineral exploration, hydroGeologic and crustal studies. Theoretical background, instrumentation, surveying techniques, data reduction, processing, and computer modeling and interpretation will be discussed. Two lectures and three hours of laboratory, problem solving, and field exercises. Prerequisites: GEOS 5600, MATH 1230 or MATH 1710. The prerequisites to 5000-level courses are: junior status and 12 hours of course work in Geosciences or consent of instructor. There may be specific prerequisites to individual courses. 3 hours

GEOS 5630 Electrical Methods  Resistivity sounding and profiling, induced polarization, spontaneous potential, electromagnetic methods using natural and artificial fields. Two lectures and 3 hr. laboratory with field studies and laboratory modeling. Prerequisites: GEOS 5600, MATH 1230 or MATH 1710, and (PHYS 4400 recommended). The prerequisites to 5000-level courses are: junior status and 12 hours of course work in Geosciences or consent of instructor. There may be specific prerequisites to individual courses. 3 hours

GEOS 5640 Field Geophysics  Field studies utilizing seismic gravity and magnetic, electromagnetic, georadar, and electrical resistivity methods for glacial geology and ground-water, engineering, and environmental problems in the Kalamazoo area. Course also includes field work at local sites. Prerequisite: GEOS 5600 or consent of instructor. The prerequisites to 5000-level courses are: junior status and 12 hours of course work in Geosciences or consent of instructor. There may be specific prerequisites to individual courses. 3 hours

German

GER 1000 Basic German I  Fundamentals of German with audiolingual emphasis. German cultural readings. Does not count toward a major or a minor. 4 hours

GER 1010 Basic German II  Continuation of 1000. Prerequisite: GER 1000 or equivalent. Does not count toward a major or a minor. 4 hours

GER 2000 Intermediate German I  The development of spoken and written expression in the German language with an emphasis on grammar review. Prerequisite: GER 1010 or two years of high school German, or equivalent. 4 hours

GER 2010 Intermediate German II  The continued development of spoken and written expression in the German language through readings and discussions of civilization and culture materials. Prerequisite: GER 2000 or equivalent. 4 hours

GER 3160 German Composition  Emphasis upon increasing the student's command of written German. Prerequisite: GER 2010 or equivalent. 3 hours

GER 3170 German Conversation  Emphasis upon increasing the student's command of spoken German. Prerequisite: GER 2010 or equivalent. 3 hours

GER 3220 German Life and Culture  Investigates cultural aspects necessary for an understanding of Germany. Historic, geographic, social and religious factors are treated. Prerequisite: GER 2010 or equivalent. 3 hours

GER 3250 Introduction to the Study of German Literature  An appreciation of German literature through reading and critical interpretation of selected works of various literary types. Prerequisite: GER 2010 or equivalent. 3 hours

GER 3400 Introduction to Germanic Linguistics  Introduction to the study of Germanic languages from a scientific perspective, considering the linguistic form and sociolinguistic function. Examination of the differences between major Germanic Language (English and German) and exploration of minor languages (e.g., Dutch, Scandinavian). Prerequisite: GER 2010 or equivalent. 3 hours
GER 4520  Advanced German Composition  Intensive practice in composition and stylistics directed towards appreciation of literary and other written expression in German with work in free composition at an advanced level. Prerequisites: GER 3160 and 3170. 3 hours

GER 4530  Advanced German Conversation  Intensive training in conversational German with emphasis on colloquial language and idiom. Prerequisites: GER 3160 and 3170. 3 hours

GER 4770  Foreign Study  Student participation in departmentally approved program of study abroad. Repeatable for credit up to 32 credit hours. Prerequisite: Prior permission of departmental advisor and chairperson. Variable

GER 5000  Elementary German for Reading Proficiency  Intensive grammar and elementary reading for translation and research purposes. The course is primarily for the graduate student who has had little or no study in the language. However, undergraduates who desire a thorough reading knowledge may also apply. Undergraduates must secure permission of Department. No oral work. This course does not count toward a major or minor in German. 5000-level courses may be taken only by advanced undergraduate students. Advanced undergraduate students are defined as those who have satisfactorily completed a minimum of four courses, or equivalent, applicable toward a major or minor in any one language. Each course, however, may have more specific and/or additional prerequisites 4 hours

GER 5010  Intermediate German for Reading Proficiency  Readings in the language at intermediate and advanced levels for translation and research purposes. Special attention will be given to students' major fields. Completion of GER 5010 with a minimum of "B" constitutes graduate proficiency in the language. Undergraduates must secure permission of the Department. This course does not count toward a major or minor in German. 5000-level courses may be taken only by advanced undergraduate students. Advanced undergraduate students are defined as those who have satisfactorily completed a minimum of four courses, or equivalent, applicable toward a major or minor in any one language. Each course, however, may have more specific and/or additional prerequisites 4 hours

GER 5020  German for Graduate Study  German instruction for graduate students enrolled in a degree program who need knowledge of German for their field of study. Students will sit in appropriate level course for their learning. May be repeated for credit. May not be taken by undergraduate students in any field. Prerequisites: Approval of department of student's graduate program and approval of Department of Foreign Languages. 5000-level courses may be taken only by advanced undergraduate students. Advanced undergraduate students are defined as those who have satisfactorily completed a minimum of four courses, or equivalent, applicable toward a major or minor in any one language. Each course, however, may have more specific and/or additional prerequisites 3 to 4 hours

GER 5200  Topics in German Linguistics and Language Science  The advanced study of a language or a group of languages from a scientific point of view, such as the function and status of languages in society, the comparative history of different language families or the manipulation of language for pragmatic needs across cultures. May be offered as ARAB/CHIN/FREN/GER/GREK/ITAL/JPNS/LAT/RUSS 52000. Prerequisites: Completion of 4 courses in area of specialization. 5000-level courses may be taken only by advanced undergraduate students. Advanced undergraduate students are defined as those who have satisfactorily completed a minimum of four courses, or equivalent, applicable toward a major or minor in any one language. Each course, however, may have more specific and/or additional prerequisites 3 hours

GER 5280  Survey of German Literature  A comprehensive study of German literature from its beginning through Romanticism. Prerequisites: GER 3160, 3170, 3220, 3250 or permission of instructor. 5000-level courses may be taken only by advanced undergraduate students. Advanced undergraduate students are defined as those who have satisfactorily completed a minimum of four courses, or equivalent, applicable toward a major or minor in any one language. Each course, however, may have more specific and/or additional prerequisites 3 hours

GER 5290  Survey of German Literature  A comprehensive study of German literature from German Realism to the present. Prerequisites: GER 3160, 3170, 3220, 3250 or permission of instructor. 5000-level courses may be taken only by advanced undergraduate students. Advanced undergraduate students are defined as those who have satisfactorily completed a minimum of four courses, or equivalent, applicable toward a major or minor in any one language. Each course, however, may have more specific and/or additional prerequisites 3 hours

GER 5500  Independent Study in German  Directed individual study of a specific topic in German literary or linguistic area. Departmental approval is required for admission. Repeatable for credit. Prerequisites: One 5000-level course in the major; a minimum grade point average of 3.0 in the major. Not open to minors. 5000-level courses may be
taken only by advanced undergraduate students. Advanced undergraduate students are defined as those who have satisfactorily completed a minimum of four courses, or equivalent, applicable toward a major or minor in any one language. Each course, however, may have more specific and/or additional prerequisites 1 to 3 hours

GER 5590 History of the German Language Survey of the development. Prerequisites: 6 hours of 3000-level German or above. 5000-level courses may be taken only by advanced undergraduate students. Advanced undergraduate students are defined as those who have satisfactorily completed a minimum of four courses, or equivalent, applicable toward a major or minor in any one language. Each course, however, may have more specific and/or additional prerequisites 3 hours

GER 5600 Studies in German Literature Topic varies according to genre, author, or period and will be announced. Each of these courses carries separate credit, although all are listed under 560. Thus, a student may take any or all of the offerings at various times. Prerequisites: GER 3160, 3170, 3220, 3250 or permission of instructor. Representative topics which may be treated in this area include: The Novelle - Survey of the development with representative selections. Lyric Poetry - Survey of the development with significant selections. Nineteenth Century Drama to -Primarily Kleist, Grillparzer, Hebbel, and Hauptmann. Twentieth Century Drama - Representative selections. 5000-level courses may be taken only by advanced undergraduate students. Advanced undergraduate students are defined as those who have satisfactorily completed a minimum of four courses, or equivalent, applicable toward a major or minor in any one language. Each course, however, may have more specific and/or additional prerequisites 3 hours

Greek
GREK 1000 Basic Greek I Fundamentals of classical Greek; readings emphasize Greek thought, culture, and civilization. 4 hours

GREK 1010 Basic Greek II Continuation of 1000. Prerequisite: GREK 1000 or equivalent. 4 hours

GREK 5020 Greek for Graduate Study Greek instruction for graduate students enrolled in a degree program who need knowledge of Greek for their field of study. Students will sit in appropriate level course for their learning. May be repeated for credit. May not be taken by undergraduate students in any field. Prerequisites: Approval of department of student's graduate program and approval of Department of Foreign Languages. 3 to 4 hours

GREK 5200 Topics in Greek Linguistics and Language Science The advanced study of a language or a group of languages from a scientific point of view, such as the function and status of languages in society, the comparative history of different language families or the manipulation of language for pragmatic needs across cultures. May be offered as ARAB/CHIN/FREN/GER/ GREK/ITAL/JPNS/LAT/ RUSS 5200. Prerequisites: Completion of 4 courses in area of specialization. 3 hours

GREK 5500 Independent Study in Greek Directed, individual study of a specific topic in ancient Greek literature. Repeatable for credit. Prerequisite: GREK 1010 and departmental approval. 1 to 3 hours

History
HIST 1000 Early Western World Survey of the major political and cultural developments in the ancient near east, Greece, Rome, and medieval Europe to approximately 1500. 3 hours

HIST 1010 Modern Western World Survey of major developments in Western civilization from the Renaissance to the present. 3 hours

HIST 1030 History and Current Events Historical background of selected contemporary issues and news events. 3 hours

HIST 1450 Heroes and Villains in the Middle Ages An introduction to medieval history and culture that focuses on the people of the Middle Ages, especially those who were particularly admired or vilified. The course explores how their lives were shaped by the society in which they lived, and how legends about them have influenced values and ideals down to the present. Students may not receive credit for both HIST 1450 and MDVL 1450. 3 hours
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Description</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIST 1900</td>
<td>Historians in the Modern World</td>
<td>A survey of the historical professions and the academic preparation needed to enter them. Introduction to basic research, analytical, and presentation skills in the discipline.</td>
<td>3</td>
</tr>
<tr>
<td>HIST 2100</td>
<td>American History to 1877</td>
<td>General survey of United States history from colonial times to the late nineteenth century.</td>
<td>3</td>
</tr>
<tr>
<td>HIST 2110</td>
<td>American History since 1877</td>
<td>General survey of United States history with emphasis on the twentieth century American experience.</td>
<td>3</td>
</tr>
<tr>
<td>HIST 2120</td>
<td>American Culture</td>
<td>Major concepts in American life as seen from the perspective of literature, the arts, and mass media, and the role of these forms of communication on the development of public historical consciousness.</td>
<td>3</td>
</tr>
<tr>
<td>HIST 2980</td>
<td>Directed Reading in History</td>
<td>May be repeated to a maximum of three semester hours. Prerequisite: Department approval.</td>
<td>1-3</td>
</tr>
<tr>
<td>HIST 3000</td>
<td>Arts and Ideas: Ancient/Medieval</td>
<td>Survey of the history and interplay of intellectual and artistic developments in the West from ancient through medieval times.</td>
<td>3</td>
</tr>
<tr>
<td>HIST 3010</td>
<td>Modern Arts and Ideas</td>
<td>Survey of the history and interplay of intellectual and artistic creativity from the Renaissance to the present. Covers all major areas of material culture.</td>
<td>3</td>
</tr>
<tr>
<td>HIST 3020</td>
<td>World History to 1500</td>
<td>Introduction to World History to 1500, intended for students of all majors. By &quot;world history&quot; is meant not the sum history of the world's separate societies and culture, but major chapters in the history of the interaction between them. We will examine the ways in which societies contacted one another, the ways they influenced one another, and the ways new societies emerged, including the roles played by migration, trade, war, empire, technology, epidemic, and religious and cultural diffusion.</td>
<td>3</td>
</tr>
<tr>
<td>HIST 3030</td>
<td>World History since 1500</td>
<td>Introduction to World History to 1500, intended for students of all majors. By &quot;world history&quot; is meant not the sum history of the world's separate societies and culture, but major chapters in the history of the interaction between them. We will examine the ways in which societies contacted one another, the ways they influenced one another, and the ways new societies emerged, including the roles played by migration, trade, war, empire, technology, epidemic, and religious and cultural diffusion.</td>
<td>3</td>
</tr>
<tr>
<td>HIST 3060</td>
<td>Technology and Culture</td>
<td>Major technological developments throughout history, and interaction between technological change and culture. Survey of ancient and medieval technology, the industrial revolution, and the twentieth century, including aspects of technology and culture outside the Western tradition.</td>
<td>3</td>
</tr>
<tr>
<td>HIST 3100</td>
<td>Topics in History</td>
<td>May be repeated under different topics.</td>
<td>1-3</td>
</tr>
<tr>
<td>HIST 3110</td>
<td>American Diplomatic History</td>
<td>History of American foreign relations from the American Revolution to the present, emphasizing diplomacy of the twentieth century.</td>
<td>3</td>
</tr>
<tr>
<td>HIST 3140</td>
<td>American Minorities</td>
<td>Surveys of the historical experiences of American ethnic groups such as Black Americans, Native Americans, and major European, Asian, and Hispanic communities. Topics listed in Schedule of Course Offerings. May be repeated under different topics. Topics may be cross-listed with BAS 3000 or BAS 3010.</td>
<td>3</td>
</tr>
<tr>
<td>HIST 3150</td>
<td>Popular Art and Architecture in America</td>
<td>Popular themes in American history as shown in paintings, buildings, cartoons, and commercial art. Extensive use of local illustrations adaptable to elementary and secondary teaching.</td>
<td>3</td>
</tr>
<tr>
<td>HIST 3160</td>
<td>Women in United States History</td>
<td>Women's legal and social status, work, daily life, and participation in major events and processes in United States history; variety of women's experience due to class, race, region, ethnicity, and religion. Survey of the women's movement and emergence of feminist perspectives.</td>
<td>3</td>
</tr>
<tr>
<td>HIST 3180</td>
<td>American Environmental History</td>
<td>Impact of environmental conditions on American historical and cultural development; changing attitudes toward environmental issues.</td>
<td>3</td>
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</tbody>
</table>
HIST 3200 American Military History Survey of major events and developments in North American and United States military history from the eighteenth century to the present. 3 hours

HIST 3220 The American West A study of the exploration and settlement of the North American continent. Topics include Indian relations, utilization of land and resources in the fur trade, mining, and cattle ranching, and the establishment of law and order on the frontier. 3 hours

HIST 3240 Everyday Life in America Introduction to the study of artifacts and the built environment in understanding everyday life in America. Artifacts as social and cultural documents in the American experience and sources for examining culture. 3 hours

HIST 3260 Native American History and Culture Survey of history and culture of American Indians from earliest times to the present; emphasis on cultural achievements and diversity, myths and prejudices of non-Indian Americans, and Indian-government interaction. 3 hours

HIST 3270 U.S./Spanish Borderlands: History and Culture In the sixteenth century, the Spanish explored and colonized what became the southern tier of the United States, interacting with diverse indigenous groups in multiple ways. The movement of French and Anglo-Americans into areas of Spanish control in the eighteenth century, and later political and economic changes such as Texas independence, Manifest destiny, and the growth of ranching added new dimensions. Discussion of export agriculture and manufacturing, twentieth century immigration, and contemporary class and ethnic relations along the US/Mexico border bring the course to current issues. 3 hours

HIST 3280 African-American History and Culture Survey of history and culture of African-Americans from colonial times to the present; emphasis on cultural achievements and diversity, myths and prejudices of non-African-Americans, struggle for civil and human rights, and the dilemmas of integration versus separate identity. Brief survey of United States in a pan-Diaspora context. 3 hours

HIST 3290 Michigan History Political, economic and social development of Michigan with emphasis on its relation to the history of the United States. 3 hours

HIST 3300 Canadian History and Culture A survey of Canada from the sixteenth century to the present. Special attention to the sources of Anglo-French discord and Canada's changing relationship with the United States. 3 hours

HIST 3320 Global History 1885—1945 Themes in global history and global interdependence from the late nineteenth century to the cataclysm of World War II. Topics include globalization of technology, commerce, communication and human expectations; economic integration and international cooperation; the dichotomy of nationalism and ethnicity and the emergence of a world culture; the world at war. 3 hours

HIST 3330 The World since 1945 Examination of the major developments of the second half of the twentieth century and the dichotomies of continuity and revolutionary change they present. 3 hours

HIST 3360 Women in European History Examination of the condition of women in various periods of European history, with particular attention to women's changing status and experiences in the family and workplace. Study of various institutions, associations, and activities in which women expressed themselves becomes the basis for conclusions about women's contributions to European history and culture. 3 hours

HIST 3490 Ancient Near East Ancient history of Near Eastern lands which also figure prominently in biblical accounts. Archaeology, prehistory, and the cradles of civilization in Mesopotamia and the Nile Valley. Survey of ancient Sumerian, Babylonian, Egyptian, Hittite, Phoenician, and Hebrew cultures, as well as the emergence of the Assyrian, Neo-Babylonian, and Persian empires. 3 hours

HIST 3500 Ancient Greece and the Hellenistic World Origins of the ancient Greeks and their role in the Aegean civilizations of Crete, Troy, and Mycenae; the Homeric age, and development of the polis. Examination of the contrasting city-states of Athens and Sparta, as well as the unique cultural achievements and legacy of Hellenism; Alexander the Great and the Hellenistic world. 3 hours
<table>
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<tr>
<th>Course Code</th>
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</thead>
<tbody>
<tr>
<td>HIST 3510</td>
<td>Ancient Rome</td>
<td>Roman history from earliest beginnings to the decline and fall of the Roman empire. The early Italic, Etruscan, and Greek cultures of ancient Italy prior to the emergence of Rome; rise of the Roman republic and conquest of the Mediterranean; civil wars, development of the empire and its ultimate collapse; cultural achievements of the age.</td>
<td>3 hours</td>
</tr>
<tr>
<td>HIST 3600</td>
<td>The Medieval World: Society and Culture</td>
<td>Society and culture of medieval Europe with emphasis on everyday life, material culture, and ways of knowing. Impact of medieval Europe on the formation of modern European states and systems; brief survey of comparative medieval conditions in other regions, and the impact of &quot;medievalism&quot; on popular culture.</td>
<td>3 hours</td>
</tr>
<tr>
<td>HIST 3620</td>
<td>History of England</td>
<td>Development of national culture in England and the British Isles to approximately the end of the eighteenth century; evolution of constitutional and legal structure; emergence of England as a competitor for European and world hegemony.</td>
<td>3 hours</td>
</tr>
<tr>
<td>HIST 3630</td>
<td>History of Modern Britain</td>
<td>The course surveys modern British history from the early eighteenth century to the late twentieth century. It traces the transformation of British economic, political, and social life, and the gradual expansion of the formal political sphere. The course addresses the influence of the British Empire on this process. Students will be introduced to key primary and secondary sources.</td>
<td>3 hours</td>
</tr>
<tr>
<td>HIST 3640</td>
<td>Modern Europe: Culture and Society</td>
<td>Social and cultural history of Europe in the late nineteenth and twentieth centuries with emphasis on the post-World War II period: reconstruction; era of the Cold War; the dilemma of economic integration and cultural fragmentation; Europe in the wider world; modern European cultural life.</td>
<td>3 hours</td>
</tr>
<tr>
<td>HIST 3660</td>
<td>Russia Yesterday and Tomorrow</td>
<td>Historical survey of Russia and the regions included in the former Soviet Union. Emphasis on the Russian cultural core and its potential for the reformulation of the Russian republic. Consideration of the ideals and realities of the Soviet Union, and the triumph of culture over ideology in its collapse.</td>
<td>3 hours</td>
</tr>
<tr>
<td>HIST 3680</td>
<td>History of European Nations</td>
<td>Surveys of selected European national histories. Emphasis on the growth of national consciousness and national cultures as both positive and destructive forces. Topics listed in Schedule of Course Offerings. May be repeated under different topics.</td>
<td>3 hours</td>
</tr>
<tr>
<td>HIST 3700</td>
<td>History of Latin America</td>
<td>Sources of the traditions of Latin American societies and national cultures, and the response of Latin America to the challenges of the twentieth century.</td>
<td>3 hours</td>
</tr>
<tr>
<td>HIST 3740</td>
<td>History of the Caribbean</td>
<td>This course surveys Caribbean history from the time of European contact to the latter half of the twentieth century. It addresses key themes in Caribbean history, namely the impact of colonialism and slavery and the nature of post-emancipation adjustments. The format of the course will be lecture and discussion.</td>
<td>3 hours</td>
</tr>
<tr>
<td>HIST 3750</td>
<td>East Asian Societies and Cultures</td>
<td>Social and cultural history of East Asian civilizations with emphasis on source readings of social, political, and philosophical thought. The course covers China, Japan, Korea, and Vietnam. Students will study the ways in which peoples in East Asia have made their livings, organized their societies, expressed their world views, and shaped their diverse cultures.</td>
<td>3 hours</td>
</tr>
<tr>
<td>HIST 3760</td>
<td>Modern East Asia</td>
<td>The recent history of China, Japan, and Korea: tradition, reform, and revolutionary movements; ideologies and techniques of modernization; national ambitions and international relations.</td>
<td>3 hours</td>
</tr>
<tr>
<td>HIST 3790</td>
<td>World War II in American and Japanese History</td>
<td>This course presents parallel versions of the issues and events of World War II in Japan and the United States. The two nations are treated separately within their own domestic and international contexts. The war is placed in the broadest possible perspective to include not only the road to and from Pearl Harbor, but also the meaning and impact of the war on the social, political, and intellectual life in the two countries through the 20th century.</td>
<td>3 hours</td>
</tr>
<tr>
<td>HIST 3840</td>
<td>Islamic Civilization</td>
<td>Surveys the origins and development and Islamic societies from the rise of Islam in the seventh century to modern times. Emphasis on the Islamic Middle East (Arab world, Iran, Turkey), with additional units on South and Southeast Asia and Sub-Saharan Africa.</td>
<td>3 hours</td>
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</tbody>
</table>
HIST 3850 Modern Middle East The Middle East since the collapse of the Ottoman Empire at the close of World War I. Emphasis is upon the history of the Arab-Israeli conflict, which may be seen as thematic of the clash of the major forces shaping the modern Middle East, including Arab nationalism, Zionism, and colonialism. 3 hours

HIST 3880 Introduction to African Civilization Overview of major aspects of African history and civilization from earliest times to the present. Emphasis upon elements which contribute to the uniqueness of the African experience. The course is cross-listed with AFS 3880. 3 hours

HIST 3900 Advanced Historical Skills This course builds research, interpretive, editing, and written and oral communication skills necessary for advanced course work in history, and required of history professionals in all fields. Students will learn to interpret and conduct substantive historical research and communicate results to diverse audiences. Specific course readings and assignments may vary in geography, chronology, and topic. HIST 3900 is approved as a baccalaureate-level writing course, and is required of all history majors. Prerequisite: HIST 1900. 3 hours

HIST 4000 Topics in History Selected topics in historical studies. Topics announced in Schedule of Course Offerings. May be repeated under different topics. 1 to 3 hours

HIST 4040 Introduction to Public History Origins and objectives of public history as a philosophy of history and as a discrete field of study and research. Examination of social, economic, political and cultural changes pertinent to the field. Characteristics and interrelationships of the major components of public history including historic preservation, museology, education, environmental concerns, public policies and information sciences. 3 hours

HIST 4060 Archives Administration Theory, techniques, and practice in the development and administration of archives and archival materials. 3 hours

HIST 4080 Museum Studies History, philosophy, organization and administration of general history, science, technology and art museums. Discussion of collecting theory, conservation and security, display and interpretation, and the role of museums in culture and education. 3 hours

HIST 4100 Historic Preservation Development, conservation, and interpretation of historic sites and districts: documenting historic sites; registration procedures; preservation law; funding sources; history of the preservation movement; social and political issues in urban rehabilitation. 3 hours

HIST 4120 Local History Techniques Sources and techniques of local historians and their application to research. Emphasis on various primary sources such as manuscript collections, oral history, genealogy, archaeological and ethnographic data. Topics may be listed in Schedule of Course Offerings. May be repeated under different topics. 1 to 3 hours

HIST 4140 Topics in Military History Topics in military history from ancient times to the present. Topics announced in Schedule of Course Offerings. May be repeated under different topics. 1 to 3 hours

HIST 4160 Topics in Great Lakes History Topics listed in Schedule of Course Offerings. May be repeated under different topics. 1 to 3 hours

HIST 4200 Colonial America The American colonies as part of the British empire; their founding, and their political, social, and economic development to the eve of the American Revolution. 3 hours

HIST 4210 The New Nation: American Revolution and Independence Causes and consequences of the American Revolution; early experiments at national integration; social and cultural developments from approximately 1770 to 1820. 3 hours

HIST 4220 Antebellum America Society and culture of the United States in the 19th century before the Civil War. 3 hours

HIST 4240 The Civil War and Reconstruction Examines the origins of the Civil War, the reasons for Northern victory and Southern defeat, and the conflicts over Reconstruction policy and the status of Black Americans. 3 hours
<table>
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<tbody>
<tr>
<td>HIST 4250</td>
<td>United States, 1877—1919</td>
<td>Causes and consequences of industrialization and urbanization in the period, and concurrent revolutions in agriculture, transportation and communications; the Progressive movement; ideas, arts, and culture of the era.</td>
<td>3 hours</td>
</tr>
<tr>
<td>HIST 4260</td>
<td>United States 1920—1940</td>
<td>Social, economic, and political characteristics of the 1920s; economic collapse and onset of the Great Depression; the Roosevelt New Deal; arts and culture of the era.</td>
<td>3 hours</td>
</tr>
<tr>
<td>HIST 4270</td>
<td>United States 1940—1960</td>
<td>The United States in World War II and the 1950s; major social, cultural, and economic aspects of the era; emergence of the United States as a superpower.</td>
<td>3 hours</td>
</tr>
<tr>
<td>HIST 4280</td>
<td>United States since 1960</td>
<td>Major domestic developments and international challenges since the Kennedy presidency.</td>
<td>3 hours</td>
</tr>
<tr>
<td>HIST 4300</td>
<td>American Maritime History</td>
<td>This course will examine America's historic relationship with marine and freshwater environments. It will consider the economic, cultural, political, and naval uses of these bodies of water by Americans from 1700 to the present. Viewing maritime history as the documentation and interpretation of water-situated movement (people, commodities), networks (intercultural contact, economic/political linkage), culture (maritime communities), and resource use (fisheries, leisure activities), this course will assess these factors within three frameworks: 1) the American mariner's world; 2) the American maritime community along shore; 3) American society at-large.</td>
<td>3 hours</td>
</tr>
<tr>
<td>HIST 4320</td>
<td>Women in America to 1870</td>
<td>Women's historical experiences from the early 16th century to 1870; focus on women's relationships to the economy, the family, politics, changing concepts of gender and ideals of womanhood; variations in experience by class.</td>
<td>3 hours</td>
</tr>
<tr>
<td>HIST 4330</td>
<td>Women in America Since 1870</td>
<td>Continuation of HIST 4320.</td>
<td>3 hours</td>
</tr>
<tr>
<td>HIST 4340</td>
<td>Native Americans to 1783</td>
<td>Introduction to themes and issues in Native history from earliest contact to 1783. Topics include contact and conflict, depopulation, Native-European relations, cultural change and continuity.</td>
<td>3 hours</td>
</tr>
<tr>
<td>HIST 4350</td>
<td>Native Americans Since 1783</td>
<td>Introduction to themes and issues in Native history from 1783 to the present day. Topics include Federal-Indian relations, removal, evolution of federal Indian policy, and contemporary native society.</td>
<td>3 hours</td>
</tr>
<tr>
<td>HIST 4360</td>
<td>Topics in African-American History</td>
<td>Major themes and topics in African-American history in North America and the Caribbean. Topics listed in Schedule of Course Offerings. May be repeated under different topics.</td>
<td>3 hours</td>
</tr>
<tr>
<td>HIST 4370</td>
<td>American Working Class History</td>
<td>This course will explore the history of the American working class from its emergence during the first industrial revolution through the present. It will examine the history of working people's experiences in their workplaces and communities. Special attention will be given to the history of workers in Michigan and the upper Midwest.</td>
<td>3 hours</td>
</tr>
<tr>
<td>HIST 4390</td>
<td>Topics in United States History</td>
<td>Examination of major social, economic, intellectual and cultural themes and issues in United States history. Topics announced in Schedule of Course Offerings. May be repeated under different topics.</td>
<td>1 to 3 hours</td>
</tr>
<tr>
<td>HIST 4400</td>
<td>Imperial Rome</td>
<td>Rome from the close of the republic to the zenith of the imperial age, with emphasis on the first century of the empire.</td>
<td>3 hours</td>
</tr>
<tr>
<td>HIST 4410</td>
<td>Early Christianity</td>
<td>History of the Christian church and community from its inception to its triumph in the Western and Eastern Roman empires; emphasis on the relationships between church and state.</td>
<td>3 hours</td>
</tr>
<tr>
<td>HIST 4420</td>
<td>Byzantine Civilization</td>
<td>The fusion of Western Roman, Hellenistic, Christian, and diverse cultural traditions into a unique Byzantine phenomenon. Coverage from Constantine the Great to the capture of Constantinople by the Ottoman Turks in 1453.</td>
<td>3 hours</td>
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</table>
HIST 4430  The Crusades  A survey of the history of the crusades from Pope Urban II's call to arms in 1095 until the fifteenth century. Focus on the high tide of the crusading movement during the Twelfth century. Emphasis on military history, the formation of the crusading ideology, and the cultural and political interactions between the medieval West and the worlds of Orthodox Byzantium and Islam.  3 hours

HIST 4440  Early Medieval History  Evolution of medieval institutions and culture from the collapse of Rome to approximately the twelfth century.  3 hours

HIST 4450  Later Medieval History  The maturation and flourishing of medieval civilization from approximately the twelfth century to the disintegration of medieval unity in the Renaissance. Emphasis on social and political institutions and intellectual developments.  3 hours

HIST 4460  Renaissance Europe  Political, intellectual, and artistic developments in Renaissance Europe, and the process of dissolution of the medieval world-view in the fourteenth and fifteenth centuries.  3 hours

HIST 4470  The Reformation  The collapse of European religious unity in the sixteenth century; religious wars, the appearance of regional churches, and Roman Catholic renewal; early traces of scientific and intellectual revolutions; arts and culture of the era.  3 hours

HIST 4500  Europe in the Seventeenth and Eighteenth Centuries  Major social, political, intellectual and cultural developments from the Thirty Years War through the Enlightenment.  3 hours

HIST 4520  French Revolution and Napoleon  Background, major events and phases of the French Revolution; Napoleon and the French empire; impact of the revolution on Europe and the rest of the world.  3 hours

HIST 4560  Europe 1815—1871  Europe from the Congress of Vienna to the Franco-Prussian War. Emphasis on the struggle between conservative and liberal forces and the growth of modern nationalism and national unity; economic and social impact of industrialization; arts and culture of the era.  3 hours

HIST 4570  Europe 1871—1919  Continued growth of nationalism and national rivalries; the golden age of European imperialism. Evolution of alliance patterns; background and major military and political events of World War I; economic and social impact of the second industrial revolution; arts and culture of the era.  3 hours

HIST 4580  Europe 1919—1945  Aftermath and political settlement of World War I; Europe of the 1920s; the rise of Fascism and economic collapse; the assault on ethnic and religious minorities and on democratic government; background and major events of World War II; arts and culture of the era.  3 hours

HIST 4600  Europe since 1945  Recovery and reconstruction following World War II; the East-West conflict; roles and objectives of major European states and blocs in international affairs; the movement toward European unity.  3 hours

HIST 4620  Great Ages in English History  Period studies in the history of England: Anglo-Saxon, medieval, Tudor-Stuart, Victorian and twentieth century. Topics listed in Schedule of Course Offerings. May be repeated under different topics.  3 hours

HIST 4630  British Empire  This course explores various themes in the history of the British empire from the sixteenth century to the late twentieth century; possible topics may include nationalism and decolonization; race and gender; cultural transformations. The format will be discussion and lectures.  3 hours

HIST 4650  Russia to 1855  History of Russia from medieval times to the beginning of the reign of Tsar Alexander II and the close of the Crimean War.  3 hours

HIST 4660  Russia since 1855  History of Russia since the mid-nineteenth century. Political, social, economic and cultural developments presaging the revolutions of 1905 and 1917; evolution of the Soviet state.  3 hours
HIST 4670  Topics in Iberian History  Period studies in the history of Spain: medieval, early modern, and modern. Topics listed in Schedule of Course Offerings. May be repeated under different topics. 3 hours

HIST 4680  Topics in European History  Topics listed in Schedule of Course Offerings. May be repeated under different topics. 1 to 3 hours

HIST 4710  Latin America  Period or regional studies in the history of Latin America: colonial, modern, Andes, Amazon, Mexico, Caribbean, etc. Topics listed in Schedule of Course Offerings. May be repeated under different topics. 3 hours

HIST 4720  The Modern Caribbean  This course explores various themes in the history of the Caribbean; possible topics may include slavery and abolition; gender; race and nationalism in the twentieth century; rebellion and revolution. The format will be lecture and discussion. 3 hours

HIST 4760  Traditional China  History of China from the earliest beginnings of Chinese civilization to the collapse of the Ming Dynasty in the seventeenth century. 3 hours

HIST 4770  Modern China  Last of the great traditional Chinese dynasties and its response to the challenge of outside forces and ideas; early industrialization and sociopolitical change in the nineteenth century; the revolution of 1912 and the struggle for dominance ending in Communist victory in 1949; China's struggle to modernize and define its place in the twentieth century. 3 hours

HIST 4780  Traditional Japan (to 1860)  This course traces the history of Japanese civilization from its origins to the beginning of the 19th century. It examines the evolution of the idea of "Japan" in distinction to "China" and "the West" and demonstrates how the definition of "Japan" and "Japanese" changed throughout the period. This course will explore not only political history, but also the social history of Japan. 3 hours

HIST 4800  Topics in Asian History  Topics listed in Schedule of Course Offerings. May be repeated under different topics. 1 to 3 hours

HIST 4810  Japanese History Through Film and Literature  This course utilizes Japanese film and fiction in order to foster an understanding of important social, cultural, and political developments in Japanese history. While the representations in these films and fictional accounts may not accurately reflect the reality of the times they represent, students in the course will gain an understanding of some aspects of Japanese society and history, as well as how modern Japanese artists and audiences depict the past. The course also explores how the films and literature of modern Japan reveal the changing Japanese social and political attitudes in recent times. 3 hours

HIST 4850  Medieval Islam  The rise of Islam and the Arab conquests; the fusion of Muslim, Hellenistic, and Indo-Persian cultural influences in classical Islamic civilization; political, social, religious, and intellectual history from the seventh century to the Mongol conquests in the thirteenth century. 3 hours

HIST 4860  Africa and the Slave Trade  This course will examine Africa and the Atlantic Slave Trade from the 15th to the 19th centuries. Course is cross-listed with AFS 486. 3 hours

HIST 4880  History of West Africa  Major themes of West African history from medieval times to the present, including development of states and empires; regional, Saharan and trans-Atlantic trade; economic transformations; the influence of Islam and other religious institutions; and the dynamics of traditional West African civilization. 3 hours

HIST 4890  Topics in African History  Topics listed in Schedule of Course Offerings. May be repeated under different topics. 1 to 3 hours
HIST 4940 Teaching Methods for Secondary Schools  Theories and techniques for the effective teaching of history at the secondary level. Evaluation and selection of reading assignments and instructional materials; methods of measuring cognition of historical concepts; course organization and learning activities for students of varying backgrounds and abilities; use of interactive media; the role of history in social science and humanities education, and of historians as curriculum leaders. Prerequisites: Senior status; ED 4060 with "C" or better or ED 4060 as corequisite. 3 hours

HIST 4950 Internship  Professional internship experience in museums, historical administration, historic preservation, editing, applied research, etc. Grading format is credit/no credit. Prerequisite: Department approval. 3 to 9 hours

HIST 4960 Senior Seminar  Interpretive and theoretical issues. Preparation of a major paper. Topics listed in Schedule of Course Offerings. Prerequisites: Senior status and History major only. 3 hours

HIST 4980 Directed Research  Individualized research and production of a written project supervised by a faculty member. Registration requires a research proposal approved by a faculty member and the Department Chair. Prerequisites: Senior status and History major only. 3 hours

HIST 4990 Senior Thesis  Research, preparation and defense of a supervised research project. Registration requires approval by two faculty supervising project and the Department Chair. Honors students may substitute HNRS 499 (Honors College Thesis) with appropriate approval. May be taken for a letter grade or on a credit/no credit basis. Prerequisites: Senior status and History major only. 3 to 6 hours

HIST 5000 Studies in History  Topics announced in Schedule of Course Offerings. May be repeated under different topics. Undergraduates with junior status may enroll in 5000-level History courses 1 to 3 hours

HIST 5150 Topics in Public History  Selected topics in aspects of public history including museology, historic preservation and cultural resource management, historical administration, information science, and applied research. Topics listed in Schedule of Course Offerings. May be repeated under different topics. Prerequisite: Department approval. Undergraduates with junior status may enroll in 5000-level History courses. 1 to 3 hours

HIST 5170 Topics in Economic and Social History  Selected topics in the history of economic and social conditions and change such as the development of world trade and world economy, development and modernization, urbanization, social and political movements, demography and migration, family structure, etc. Topics announced in Schedule of Course Offerings. May be repeated under different topics. Undergraduates with junior status may enroll in 5000-level History courses. 1 to 3 hours

HIST 5190 Topics in Intellectual and Cultural History  Selected topics in the history of ideas, literary and artistic expression, intellectual and cultural character of various periods and civilizations, examination of historical conditions through philosophy and the arts, etc. Topics announced in Schedule of Course Offerings. May be repeated under different topics. Undergraduates with junior status may enroll in 5000-level History courses. 1 to 3 hours

HIST 5300 Studies in Early American History  Topics listed in Schedule of Course Offerings. May be repeated under different topics. Undergraduates with junior status may enroll in 5000-level History courses. 3 hours

HIST 5350 Studies in Recent American History  Topics listed in Schedule of Course Offerings. May be repeated under different topics. Undergraduates with junior status may enroll in 5000-level History courses. 3 hours

HIST 5500 Studies in Medieval History  Topics listed in Schedule of Course Offerings. May be repeated under different topics. Undergraduates with junior status may enroll in 5000-level History courses. 3 hours

HIST 5650 Studies in Modern European History  Selected approaches to European history since the Renaissance. Topics listed in Schedule of Course Offerings. May be repeated under different topics. Undergraduates with junior status may enroll in 5000-level History courses. 3 hours
HIST 5850  Studies in Asian and African History  Topics listed in Schedule of Course Offerings. May be repeated under different topics. Undergraduates with junior status may enroll in 5000-level History courses.  3 hours

HIST 5900  Proseminar  Research and writing on selected themes. Topics may be listed in Schedule of Course Offerings. May be repeated under different topics. Undergraduates with junior status may enroll in 5000-level History courses.  3 hours

HIST 5910  Topics in Theory and Practice  Selected theoretical, technical, and interpretive issues in the field of history: interaction with methodologies of other social science and humanities disciplines; innovative forms and techniques of documentation and data collection; major historical interpretations currently before the academic world and the public. Topics listed in Schedule of Course Offerings. May be repeated under different topics. Prerequisite: Graduate students only. Undergraduates with junior status may enroll in 5000-level History courses.  1 to 3 hours

HIST 5920  Computers in Historical Research  Computer applications to historical and related research projects including manuscript analysis techniques, text-oriented databases, museum and historical agency database and registration systems, simulations, etc. Survey of applications in closely related disciplines. Course may be repeated under different topics which will be listed in the Schedule of Course Offerings. Undergraduates with junior status may enroll in 5000-level History courses.  1 to 3 hours

HIST 5950  History Writing Workshop  Practicum in the writing of history: editing and publishing; preparation of written materials for lay readers and audiences outside the discipline. May be repeated to a maximum of six semester hours. Undergraduates with junior status may enroll in 5000-level History courses.  1 to 3 hours

HIST 5960  Local History Workshop  Practicum in research techniques for problems in local and small community history, including oral tradition, genealogy, and interdisciplinary method. May be repeated to a maximum of six semester hours. Prerequisite: Department approval. Undergraduates with junior status may enroll in 5000-level History courses.  1 to 3 hours

**Holistic Health Care**

HOL 1000  Choices in Living  The course will focus on the relationship between individual choices, social responsibilities and optimal human functioning. Students will be educated in current theories and techniques of values clarification, motivation, and behavior change. Health and social issues relevant to young adults and throughout the life cycle will be examined. This course is designed for undergraduate students in all majors and is especially valuable for students interested in health and human services professions.  3 hours

HOL 2000  Choices in Global Living  This course considers the concept of "health" at both the individual and global level by exploring the connection between an individual's lifestyle choices and their impact on the larger world of work and service. The theory of holism, along with related theories (multiculturalism, sustainability, and ecological systems) are considered across a variety of disciplines in order to examine current initiatives that are occurring in order to improve the human condition.  3 hours

HOL 3000  Exploring Practices in Integrative Health Care  This course is a general survey of holistic health practices and issues, with a focus on the variety of alternative and complementary modalities that are present in integrative health care settings. Students will complete an assessment of the values and attitudes which underpin their current health practices, as well as examining the values and issues that shape our current health care models. They will explore and critically evaluate a variety of holistic health services and their application. The format for the course will be a combination of lectures, experiential activities, and student presentations.  3 hours

HOL 3300  Holism and the Environment  This course is designed to increase awareness of environmental problems and their connection to our own health - physically, mentally and spiritually. We will examine the connections between individual lifestyle choices and the effects those choices have on the earth. The intentions of the course are to assist participants in the exploration of human interactions with nature on a global and historical level as well as an individual level. The impacts of our lifestyles on the earth (e.g., sustainable agriculture, deep ecology, and voluntary simplicity) will be
explored. The format for the course will be a combination of experiential activities, video presentations, meditation, readings, discussions and much time spent immersing ourselves in nature.

HOL 3960 Learning, Work, and Lifestyles: Holistic Perspectives This course is designed as an academic and experiential exploration of "whole person" approaches to learning, work and lifestyle choices. Using the lens of holism, it explores individual learning styles, meaningful work theories and practices, as well as personal, communal and global lifestyle options. Students will have an opportunity to deepen their understanding of how they make decisions regarding these dimensions of life, the physical, mental and spiritual interconnection of these decisions and how this has an impact on their health/healing. The format of this course will combine experiential activities, journaling, small group discussions, guest speaker presentations, and video-audio presentations.

HOL 4400 Issues and Ethics in Holistic Health This course provides an in-depth exploration of the key issues and ethics that arise when considering health at an individual, interpersonal, and global level. The course provides students with critical-thinking skills and decision-making skills in order to effectively assess scientific information in the field of holistic health. The course format includes lectures, small-group discussions of case examples, experiential exercises, and a final paper in which students apply the principles of holistic health to their major field of study. Prerequisites: HOL 1000 and HOL 2000.

HOL 4700 Relationship-Centered Skills This course provides students with a holistic approach to interpersonal process and communication in order to prepare them to function effectively in health care and relationship-centered settings. Students are exposed to theory and practice in the following areas: key principles of effective communication, holistic approaches to interpersonal process, and relationship-centered approaches to providing health and human services. This course is intended for students pursuing either the minor in holistic health or one of the majors in health and human services.

HOL 5300 Special Topics in Holistic Health Variable topic, variable credit course for consideration of current and special interests in holistic health. Specific topics, number of credit hours and prerequisites, if any, will be announced each time the course is scheduled. May be repeated for credit with different topics.

HOL 5310 Introduction to Holistic Health The primary purpose of this course is to provide an introduction to the philosophies, theories, and concepts involved in holistic health care. It is meant to serve both as a general educational experience for persons wishing to become familiar with holism and essential basic instruction for persons wishing to apply for admission to the graduate certificate program in Holistic Health Care. Prerequisite: Senior or graduate status.

HOL 5320 Holistic Approaches to Relationships The purpose of this course is to provide an understanding of relationship development. In order to do this, students will acquire knowledge in self-concept formation, social systems theory, values development, and communication models. A major emphasis in the course will be on how to assist people in establishing and maintaining healthy relationships.

HOL 5330 Holism and Community A course designed to help students better understand the dynamics of community and the potential for holistic growth and health through the investment of self in a common and purposeful experience with others.

HOL 5340 Holistic Health and Spirituality This course helps students better understand the spiritual dimensions of each individual and the relationship of spirituality to the meaning of health. Various spiritual traditions, philosophies and practices will be explored with the primary emphasis on the implications of these teachings for everyday living. The course will address the role of spirituality in the therapeutic process for health care professionals and resources available for practitioners and educators. The format for the course will include lecture, discussion, experiential activities and audio/video presentations.

HOL 5350 Holistic Approaches to Stress This course will focus on the nature, sources and symptoms of stress, and provide a holistic approach for the management of stress. The relationship between stress and personality, lifestyle, health and illness will be explored. In addition, the reasons for, and management of, professional and organizational burnout will be presented.
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<tr>
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<tbody>
<tr>
<td>HOL 5360</td>
<td>Counseling Skills for Health Professionals</td>
<td>This course is designed to provide basic information on the counseling process and techniques as they apply to health care settings. This course is designed for health care professionals in allied health professions and not for majors in counselor education and counseling psychology or social work.</td>
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</tr>
<tr>
<td>HOL 5370</td>
<td>Health and Humor</td>
<td>This course will focus on the physical, intellectual, emotional and spiritual dimensions of laughter, humor and play. We will explore recent discoveries and research regarding their role in human physical and mental health. Students will learn about the social significance of humor and play, what makes people laugh and why, the role of happiness, and will learn ways to increase happiness and playfulness, use laughter and humor as a stress management technique, and build a basis for appropriate use of humor in helping others.</td>
<td>3</td>
</tr>
<tr>
<td>HOL 5500</td>
<td>Introduction to Holism and Expressive Arts</td>
<td>This course is a survey of expressive arts therapies used to facilitate the healing process and will deepen the student's understanding of the role of creative expression in health and healing. The use of arts therapies to promote health, reduce stress, and complement the traditional treatment of physical and mental illness will be discussed. Topics covered will be visual arts, sound/music, movement/dance, writing/poetry, and drama/psychodrama. The format for the course will be a combination of experiential creative activities, guest lectures, and video and audio presentations. No artistic experience or background required.</td>
<td>3</td>
</tr>
<tr>
<td>HOL 5510</td>
<td>Holistic Approaches to Healing Through Visual Art</td>
<td>This course introduces a holistic approach to the use of visual art in healing: how to choose and present appropriate art experiences; spontaneous and directed theme art activities, resources, and materials; guides for interpreting art; and ethics. A variety of activities such as drawing, painting, clay, sand tray, collage, mandalas, and masks will be explored. The format for the course is a combination of experiential activities, lectures, video, and slide presentations. The course is designed to give students and professionals in the counseling, social work, psychology, health care, occupational therapy, art, and other fields some practical tools and considerations for using art for health and healing with others or for personal growth. No artistic talent is required. The format for the course will be a combination of lectures, discussion, experiential activities, and audio and video presentations. Students enrolled in social work, counseling psychology, occupational therapy, nursing, physical education, and dance will especially benefit from this course. No movement or dance experience is required.</td>
<td>3</td>
</tr>
<tr>
<td>HOL 5520</td>
<td>Healing through Movement</td>
<td>This course is a survey of the use of movement for health and healing. Several movement and dance specialty areas are covered in order to explore personal growth, creativity, balance, stress reduction, spirituality, and cultural perspectives on healing of self and others. Body awareness, breathing, and communication will be emphasized throughout the exploration of movement modalities, such as Authentic Movement, Contact Improvisation, Creative Movement, Feldenkrais, Interplay, Labyrinth Walking, Progoff Journal Writing, Ta'i Chi Chuan, Dances of Universal Peace, and Movement Therapy.</td>
<td>3</td>
</tr>
<tr>
<td>HOL 5550</td>
<td>Successful Aging-Holistic Perspectives</td>
<td>This course will focus on holistic factors of aging and lifestyle choices that enable people to preserve and even enhance wellness and vitality in later life. Current images and myths of aging will be explored and research studies that outline holistic ways to delay, prevent, or positively treat common chronic diseases will be presented along with programs and policies that enable older people to practice positive aging strategies. This course will highlight the qualities of older people who remain physically active, intellectually engaged, emotionally involved, spiritually connected, and vital throughout their years.</td>
<td>3</td>
</tr>
<tr>
<td>HOL 5700</td>
<td>Field Education in Holistic Health</td>
<td>This registration is designed to give the student a total learning experience during which the student can apply some of the knowledge and information obtained in the health and human services academic setting and further develop and refine his/her professional skills with the guidance and assistance of those professionals currently working in the health and human service area. Credit/No Credit only. Prerequisite: Consent of instructor.</td>
<td>1 to 6 hours</td>
</tr>
<tr>
<td>HOL 5980</td>
<td>Readings in Holistic Health</td>
<td>This course provides individualized, independent study and reading under guidance of a faculty member. Initiative for planning topic for investigation and seeking the appropriate faculty member comes from the student, with consultation from the advisor. Prerequisite: Consent of instructor.</td>
<td>1 to 4 hours</td>
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**Health, Physical Education and Recreation**

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<tr>
<th>Course Code</th>
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<th>Description</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>HPER 1000</td>
<td>Health for Better Living</td>
<td>The focus of this introductory health course is to assist students in achieving an awareness of optimal physical, mental, and social health in a changing environment. Guest lectures from the community will</td>
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</table>
present some of the topics considered important to the health of modern people. Preference is given to freshmen and sophomores.

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<tbody>
<tr>
<td>HPER 1040</td>
<td>Skills and Instruction of Non-Traditional Physical Activities</td>
<td>The purpose of this course is to provide opportunities, experiences, and assignments that will allow the student to develop the skills and knowledge necessary to plan and present non-traditional physical activities in a K-12 physical education setting. Activities such as team handball, orienteering, Bunca Ball, Pickleball, Ultimate Frisbee, and Speedball will be included. 1 hour</td>
</tr>
<tr>
<td>HPER 1060</td>
<td>Recreational Dance</td>
<td>Investigation of folk, square, and social forms of dance with a concentration on overlapping dance skills.                                                     1 hour</td>
</tr>
<tr>
<td>HPER 1070</td>
<td>Skills and Instruction of Weight Training</td>
<td>The purpose of this course is to provide opportunities, experiences, and assignments that will allow the student to develop the skills and knowledge necessary to plan and present weight training in a 7 to 12 physical education setting. 1 hour</td>
</tr>
<tr>
<td>HPER 1080</td>
<td>Skills and Instruction of Tumbling</td>
<td>The purpose of this course is to provide opportunities, experiences, and assignments that will allow the student to develop the skills and knowledge necessary to plan and present tumbling in a K-12 physical education setting. 1 hour</td>
</tr>
<tr>
<td>HPER 1100</td>
<td>Athletic Taping and Bracing Technique</td>
<td>This course is designed to introduce basic contemporary taping and wrapping techniques and the use of protective equipment in preventing and protecting the competitive athlete and the physically active. 1 hour</td>
</tr>
<tr>
<td>HPER 1110</td>
<td>Healthy Living</td>
<td>This course is designed to provide students with the information and skills that are necessary for positive health decision making. Students will be introduced to concepts associated with healthy decision making, negative health consequences of poor decisions (e.g., substance abuse, HIV/AIDS, sexually transmitted diseases, depression, lifestyle related diseases, stress, eating disorders, etc.), and skill building strategies. 2 hours</td>
</tr>
<tr>
<td>HPER 1120</td>
<td>Skills and Instruction of Tennis</td>
<td>The purpose of this course is to provide opportunities, experiences, and assignments that will allow the student to develop the skills and knowledge necessary to plan and present tennis in a K-12 physical education setting. 1 hour</td>
</tr>
<tr>
<td>HPER 1130</td>
<td>Skills and Instruction of Indoor Racquet Sports</td>
<td>The purpose of this course is to provide opportunities, experiences, and assignments that will allow the student to develop the skills and knowledge necessary to plan and present badminton and racquetball in a K-12 physical education setting. 1 hour</td>
</tr>
<tr>
<td>HPER 1200</td>
<td>Skills and Instruction of Golf</td>
<td>The purpose of this course is to provide opportunities, experiences, and assignments that will allow the student to develop the skills and knowledge necessary to plan and present golf in a K-12 physical education setting. 1 hour</td>
</tr>
<tr>
<td>HPER 1210</td>
<td>Skills and Instruction of Bowling</td>
<td>The purpose of this course is to provide opportunities, experiences, and assignments that will allow the student to develop the skills and knowledge necessary to plan and present bowling in a K-12 physical education setting. 1 hour</td>
</tr>
<tr>
<td>HPER 1300</td>
<td>Skills and Instruction of Softball</td>
<td>The purpose of this course is to provide opportunities, experiences, and assignments that will allow the student to develop the skills and knowledge necessary to plan and present softball in a K-12 physical education setting. 1 hour</td>
</tr>
<tr>
<td>HPER 1310</td>
<td>Skills and Instruction of Volleyball</td>
<td>The purpose of this course is to provide opportunities, experiences, and assignments that will allow the student to develop the skills and knowledge necessary to plan and present volleyball in a K-12 physical education setting. 1 hour</td>
</tr>
<tr>
<td>HPER 1320</td>
<td>Skills and Instruction of Soccer</td>
<td>The purpose of this course is to provide opportunities, experiences, and assignments that will allow the student to develop the skills and knowledge necessary to plan and present soccer in a K-12 physical education setting. 1 hour</td>
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</table>
HPER 1330 Skills and Instruction of Basketball The purpose of this course is to provide opportunities, experiences, and assignments that will allow the student to develop the skills and knowledge necessary to plan and present basketball in a K-12 physical education setting. 1 hour

HPER 1340 Skills and Instruction of Wrestling The purpose of this course is to provide opportunities, experiences, and assignments that will allow the student to develop the skills and knowledge necessary to plan and present wrestling in a K-12 physical education setting. 1 hour

HPER 1350 Skills and Instruction of Football The purpose of this course is to provide opportunities, experiences, and assignments that will allow the student to develop the skills and knowledge necessary to plan and present football in a K-12 physical education setting. 1 hour

HPER 1360 Skills and Instruction of Track and Field The purpose of this course is to provide opportunities, experiences, and assignments that will allow the student to develop the skills and knowledge necessary to plan and present track and field in a K-12 physical education setting. 1 hour

HPER 1490 Computer Applications in HPER This course provides an introduction to computer terminology, technology, communication, and information systems. Its purpose is to provide students with the knowledge of current computer applications in the fields of Health, Physical Education and Recreation. The course includes, but is not limited to the use of the computer for information gathering via the Internet, information processing and communications, word processing, spreadsheets, and database management. The course will fulfill the Western Michigan University computer literacy requirement. Credit cannot be earned for both HPER 1490 and either BIS 1020 or 1100, FCS 2250, SOC 1820, or CS 1050. 3 hours

HPER 1500 Foundations of Physical Education An introduction to contemporary physical education teacher education. Course content includes the examination of the value of physical activity in the 21st century, issues of instruction, the assessment of personal motor and fitness skills, and the initial development of a personal professional philosophy and portfolio. 3 hours

HPER 1520 Foundations of Exercise Science This is an introductory course for students majoring in Exercise Science. Its purpose is to provide students with information about: (a) Exercise science as a field of study; (b) the Exercise Science curriculum; (c) sub-disciplines in Exercise Science; (d) professional organizations and certification; (e) wellness and health related fitness; (f) physical exercise: an historical, sociological, and philosophical perspective; (g) exercise and aging; and (h) career options in Exercise Science. Student's health related fitness will be assessed. 3 hours

HPER 1530 Introduction to Athletic Training This course is designed to review the history and the governance of the athletic training profession and to address the educational domains and the responsibilities of the certified athletic trainer. The major content area of injury prevention will be emphasized. This course will also provide a general orientation to the clinical requirements of the student majoring in athletic training. 3 hours

HPER 1550 Foundations of Health Education This course will provide students with the philosophical background in the development of health education. Topics include: history and philosophy of health education/health promotion, professional competencies, ethics, organizations and future issues. 3 hours

HPER 1700 Introduction to Leisure and Recreational Services The course will provide an introduction to the field of recreational services and the role of leisure in society. Current trends, job opportunities in various settings, programming, and leadership will be discussed. Open to all students. 3 hours

HPER 1720 Outdoor Leadership The investigation and application of leadership responsibilities in outdoor wilderness and recreational settings and activities. 2 hours

HPER 1810 First Aid The standard course in first aid techniques leading to Red Cross certification. Open to all students. 2 hours

HPER 2150 Aerobic Conditioning 1 hour
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<tr>
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<tbody>
<tr>
<td>HPER 2200</td>
<td>Basic Health Concepts</td>
<td>This course will provide instruction and skills related to health and wellness, mental health and stress management, physical fitness, nutrition, weight control, and health issues related to growth and development (aging and death). 3 hours</td>
</tr>
<tr>
<td>HPER 2210</td>
<td>Basic Health Concepts II</td>
<td>Designed to provide students with basic health education content. Topics to be discussed include: health care systems and consumer health; alcohol, tobacco, and other drug addictions; and intentional and unintentional injuries. 3 hours</td>
</tr>
<tr>
<td>HPER 2220</td>
<td>Basic Health Concepts III</td>
<td>This course is designed to provide students with basic health education content in the areas of chronic and communicable diseases and environmental health issues. 3 hours</td>
</tr>
<tr>
<td>HPER 2330</td>
<td>Technical Concepts and Practices of Recreation Activity Leadership</td>
<td>This course is designed to provide the recreation student with the basic technical and physical leadership skills necessary to be a successful leader, facilitator of leisure and a valuable resource to any organization providing recreational activities. 3 hours</td>
</tr>
<tr>
<td>HPER 2350</td>
<td>Theory of Coaching</td>
<td>Introduction to coaching includes basic principles, covers State Athletic Handbook, budgets, scheduling, facilities, liability, public relations, relationships with staff, faculty, students, parents, press, etc. 2 hours</td>
</tr>
<tr>
<td>HPER 2360</td>
<td>Officiating Series</td>
<td>The discussion and application of rules and officiating techniques. The student is required to officiate in out-of-class athletic programs. Prerequisites: Must have had the first level activity or permission of instructor. Open to all students. 2 hours</td>
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<tr>
<td>HPER 2361</td>
<td>Baseball/softball</td>
<td>2 hours</td>
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<tr>
<td>HPER 2362</td>
<td>Basketball</td>
<td>2 hours</td>
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<tr>
<td>HPER 2363</td>
<td>Football</td>
<td>2 hours</td>
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<tr>
<td>HPER 2364</td>
<td>Soccer</td>
<td>2 hours</td>
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<tr>
<td>HPER 2365</td>
<td>Tennis</td>
<td>2 hours</td>
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<td>HPER 2366</td>
<td>Track &amp; Field</td>
<td>2 hours</td>
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<tr>
<td>HPER 2367</td>
<td>Volleyball</td>
<td>2 hours</td>
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<tr>
<td>HPER 2400</td>
<td>Human Motor Development and Learning</td>
<td>Course content focuses on birth to death study of the changes in motor behavior due to the interaction of environmental and biological factors. Special emphasis on the physical, cognitive, and personal-social development as this relates to the acquisition of motor skills. Prerequisite: BIOS 1120. 3 hours</td>
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<tr>
<td>HPER 2410</td>
<td>Physical Education and Recreation for Teachers</td>
<td>This course is open only to teachers. Topics included in the course are: Program planning, making of games and equipment, accident prevention, basic motor skills. Practice in games, stunts, rhythms and recreational activities will be included. 2 hours</td>
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<tr>
<td>HPER 2420</td>
<td>Aerobic Exercise Instruction</td>
<td>Designed to provide information and experiences leading to successful selection of activities, planning and presentation skills necessary to provide aerobic activity instruction. 1 hour</td>
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<tr>
<td>HPER 2430</td>
<td>Physical Education Methods: Early Elementary Movement/Physical Activities</td>
<td>The content in this course includes movement concepts (level, direction, pathway, speed, space), locomotor, non-locomotor and manipulative activities, selection of developmentally appropriate games, rhythmic activities, and the basic instructional components required for the plan and delivery of motor appropriate physical education curricula for preschool and early elementary school children. Prerequisite: HPER 1500. 3 hours</td>
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<tr>
<td>HPER 2530</td>
<td>Injury/Illness Survey and Management</td>
<td>Basic procedures in the recognition, assessment and the treatment of athletic related injuries and illnesses. To obtain the knowledge and skill needed to complete an on-site injury management plan. 3 hours</td>
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survey, and to initiate the management of the injury/illness. Addressing contemporary taping and wrapping techniques and the use of protective equipment in preventing and protecting the athlete and the physically active is addressed. Prerequisites: HPER 1810, HPER 1530, BIOS 2110. 3 hours

HPER 2540 Medical Conditions in Athletic Training Basic procedures in the recognition, treatment, and management of general medical conditions are addressed. To obtain the knowledge, skills, and values needed to manage illnesses of athletes and the physically active and to recognize the need for a medical referral when appropriate. Pharmacology, drug testing, psychosocial interventions, and selected emergency procedures pertaining to general medical conditions are addressed. Prerequisite: HPER 2530. 3 hours

HPER 2710 Recreational Programming and Leadership Theory This course is a study of the principles and theories behind recreation programming and leadership. The purpose of this course is to familiarize the student with recreation programming theory and how that theory is important to the recreation programmer. Further, the course will teach the different theories of leadership including group and individual decision making processes. It is the purpose of this course to familiarize the student with theory that can put into practice during the practical semester of programming and leadership. Prerequisite: HPER 2330 or taken concurrently with HPER 2330. Corequisite: HPER 2900. 3 hours

HPER 2760 Outdoor Education A course in the philosophy, methods, and materials of outdoor education emphasizing outdoor education activities for children and youth. Open to all students. 2 hours

HPER 2900 Inclusive and Special Recreation An overview of inclusive and special recreation programming designed for the student preparing for a career in recreation (leisure services). This course will provide the student with a sensitivity to, and knowledge about individuals with disabling conditions and their recreation/leisure needs. Prerequisite: HPER 2330. Corequisite: HPER 2710. 3 hours

HPER 2950 Biomechanics The purpose of this course is to provide the student with an understanding of the mechanics of the musculoskeletal structures and a procedure for observing and evaluating motor skills. This course will cover kinematics and kinetics as they relate to the musculoskeletal system and to functional motion and sport related motion. The course will emphasize the use of mechanics in assessing and evaluating human motion. Evaluation procedures will include: a qualitative or naked eye/field evaluation procedure and a computer or quantitative procedure. Prerequisite: BIOS 2110. 3 hours

HPER 2960 Stress Management and Flexibility This is one of four specific content courses designed to provide Exercise Science majors with knowledge and skills concerning the four major factors contributing to the development of health related physical fitness. Topics for the first half of the course include: anatomy, mechanics, and physiology of flexibility; techniques of stretching; controversial stretching; stretching and special populations; and relaxation and stretching. Topics for the second half of the course include: definition and types of stress; physiology of the stress response; relating and managing stress; lifestyle buffers, exercise, nutrition, and sleep; relaxation and stress management techniques; and Type A and B behavior. Prerequisite: HPER 2950. 2 hours

HPER 2980 Exercise Physiology This course explores the physiological concepts and principles related to the acute and chronic adaptations the human body makes when responding to stress in the form of strenuous, physical exercise. Practical applications concerning the teaching of health related fitness concepts are emphasized. Prerequisites: BIOS 2110, 2400. 3 hours

HPER 3000 Seminar Series Designed to provide an opportunity for qualified students to examine and discuss a subject area in field of common interest. Prerequisite: Enrollment by written permission of the instructor. 1 to 4 hours

HPER 3120 Planning School Health Programs Designed to provide information and experiences which will enable students to develop planning skills for a variety of health promotion programming in the school setting. Prerequisites: HPER 1550, 2200, 2210, 2220; ED 2500; all cognates (BIOS 1120, 2110, 2400; PSY 1000; SOC 2000); application to the Department of HPER/HESJ/HESN program. 3 hours

HPER 3150 Measurement and Evaluation for Exercise Science, Health, and Physical Education This course covers measurement and evaluation techniques in terms of understanding, interpretation, and application with emphasis on administration, selection, and use of tests; interpretation of results through statistical procedures; analysis of tests available in
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Prerequisites</th>
<th>Credits</th>
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<tbody>
<tr>
<td>HPER 3160</td>
<td>Issues in Health Education</td>
<td>The course will focus on current health issues. May be designed to deal with one issue or several.</td>
<td>2 hours</td>
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<tr>
<td>HPER 3161</td>
<td>Current Pedagogical Practices</td>
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<td>2 hours</td>
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<tr>
<td>HPER 3162</td>
<td>Current Practice in Community Health Organization</td>
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<td>2 hours</td>
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<tr>
<td>HPER 3163</td>
<td>Current Public Health Approaches</td>
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<td>2 hours</td>
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<tr>
<td>HPER 3170</td>
<td>Cardiovascular Health</td>
<td>This course will focus on the current issue of cardiovascular health, heart and vascular disease, and implications for lifestyle behavior change and health education programs.</td>
<td>2 hours</td>
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<tr>
<td>HPER 3240</td>
<td>Sports for Individuals with Disabilities</td>
<td>Designed to provide students with coaching, teaching, and skill development techniques for the variety of sports and activities in which individuals with disabilities participate. Emphasis will also be placed on participation in field experience during organized sports competitions for individuals with disabilities.</td>
<td>3 hours</td>
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<tr>
<td>HPER 3250</td>
<td>Swimming for the Exceptional Child</td>
<td>The study of physical and learning disabilities, values of swimming, and teaching techniques for these disabilities. Includes experience teaching exceptional children. Prerequisite: PEGN 3500.</td>
<td>3 hours</td>
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<tr>
<td>HPER 3300</td>
<td>Grant Writing in Health Education</td>
<td>Designed to prepare students with skills necessary to secure external grant funding through grant proposal writing. Emphasis is placed on grant sources and resources, the grant proposal process, grant management, and continued funding.</td>
<td>3 hours</td>
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<tr>
<td>HPER 3310</td>
<td>Community Health Education Planning</td>
<td>This course deals with the analysis of principles of program planning in public health education. Topics include: needs assessment, community analysis and organization, program selection, program coordination, and program evaluation.</td>
<td>3 hours</td>
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<tr>
<td>HPER 3320</td>
<td>Research and Writing in Recreation</td>
<td>This course is designed to instruct the student on research in the fields of recreation, leisure, and sport. It will introduce students to the different types of research and research methodologies commonly used in the recreation profession. This course will also emphasize professional writing as it is used in the field of parks and recreation. The course will emphasize, but is not limited to writing assignments including reports, research papers, research proposals, year-end reports, and other types of writing that are required of a successful professional in parks and recreation.</td>
<td>3 hours</td>
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<tr>
<td>HPER 3350</td>
<td>Advanced Theory of Coaching</td>
<td>A continuation course for professional students with a major in physical education or minor in coaching pursuing the second level of Program for Athletic Coaches Education Certification (PACE). PACE Level II certification demonstrates advanced competence in the interpersonal and technical skills of coaching high school sports in Michigan. Course content provides an understanding as to significance of quality coaching, human growth and development, conditioning for sport performance and psychological and social skills necessary to coach high school sports.</td>
<td>2 hours</td>
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<tr>
<td>HPER 3370</td>
<td>Coaching and Advanced Techniques</td>
<td>Coaching and advanced skills, selection of a team, preparation, officiating and conducting competitive events.</td>
<td>2 hours</td>
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<tr>
<td>HPER 3371</td>
<td>Baseball</td>
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<td>2 hours</td>
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<td>HPER 3372</td>
<td>Basketball</td>
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<td>HPER 3373</td>
<td>Football</td>
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<td>HPER 3374</td>
<td>Soccer</td>
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<td>HPER 3375</td>
<td>Tennis</td>
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<td>HPER 3376</td>
<td>Track &amp; Field</td>
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<td>HPER 3377</td>
<td>Volleyball</td>
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<tr>
<td>HPER 3378</td>
<td>Gymnastics</td>
<td>2</td>
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<tr>
<td>HPER 3379</td>
<td>Softball</td>
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<td>HPER 3400</td>
<td>Physical Education for the Elementary Classroom Teacher</td>
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<td>HPER 3460</td>
<td>Physical Education Methods: Special Populations</td>
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<tr>
<td>HPER 3500</td>
<td>Modification of Health Behavior</td>
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<td>HPER 3520</td>
<td>Teaching Health in the Elementary School</td>
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<tr>
<td>HPER 3540</td>
<td>Human Sexuality Education</td>
<td>3</td>
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<tr>
<td>HPER 3680</td>
<td>Administration and Organization of Intramural Sports</td>
<td>3</td>
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<tr>
<td>HPER 3710</td>
<td>Practical Recreational Programming and Leadership</td>
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<tr>
<td>HPER 3760</td>
<td>Management of Recreational Services</td>
<td>3</td>
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<tr>
<td>HPER 3800</td>
<td>Foundations of Sports Injuries</td>
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HPER 3810 Instructor First Aid  This course is designed to prepare students to be instructors in Community First 
Aid and Safety. This will be accomplished by providing first aid and CPR certification, and teaching skills related to 
certification.  2 hours

HPER 3830 Athletic Injury Evaluation of the Upper Extremity  This course is designed to present the techniques 
used in upper extremity athletic injury evaluation. An in depth analysis of upper extremity athletic injury mechanics, the 
theory and application of orthopedic and neurological evaluation are included. Prerequisites: All pre-program core 
requirements; admission into Athletic Training Professional Program.  3 hours

HPER 3840 Therapeutic Modalities  This course is designed to study the pain management techniques and the 
mediation of theory and practice of therapeutic modalities. To plan, implement, document and evaluate the efficacy of 
therapeutic modalities in the treatment of injuries to and illness of athletes and others involved in physical activity. 
Prerequisite: Admission into Athletic Training Professional Program.  3 hours

HPER 3850 Athletic Injury Evaluation of the Lower Extremity  This course is designed to present the techniques 
used in lower extremity athletic injury evaluation. An in depth analysis of lower extremity athletic injury mechanics, the 
theory and application of orthopedic and neurological evaluation are included. Prerequisites: All pre-program core 
requirements; admission into Athletic Training Professional Program and HPER 3830.  3 hours

HPER 3950 Cardiovascular Endurance: Aerobic Conditioning  The purpose of this course is to understand the 
physiological mechanisms underlying cardiorespiratory conditioning, learn the techniques associated with aerobic 
conditioning, and experience cardiovascular evaluation and aerobic conditioning. Prerequisites: HPER 2950, 2980. 2 hours

HPER 3960 Muscular Strength and Endurance  This course is one of four specific content courses designed to provide 
Exercise Science majors with knowledge and skills concerning the four major factors contributing to the development of 
health related physical fitness. Topics ranging from the physiology of strength training, muscles recruited for variable 
strength and endurance exercises, basic principles of strength and endurance development, strength and endurance training 
variables, proper lifting technique, and safety procedures will be discussed. Prerequisites: HPER 2950, 2980.  2 hours

HPER 3970 Body Composition and Weight Control  This course is designed to provide the student with 
information concerning the difference between body composition and body fat. The student will be introduced to the different 
methods of determining body composition. In addition, the student will be provided with information concerning basic 
nutrition and nutritional plans for normal and special populations. Prerequisite: HPER 2980.  2 hours

HPER 3990 Recreation Practicum  The practical field experiences in recreation. Enrollment by department approval 
and acceptance of practicum proposal. Students are given letter grades in course. Prerequisite: HPER 2710.  3 hours

HPER 4000 Field Experience/Internship in HPER  This course will provide in-depth field experience or 
internships for undergraduate majors or minors in athletic training, recreation, health, coaching, exercise science, or 
exceptional child. Students will be assigned to classes or positions according to their selected area of emphasis. Enrollment 
by department approval. Prerequisite varies with area of emphasis and requires departmental approval.  1 to 8 hours

HPER 4100 Intern Teaching Seminar in HPER  Through course activities and assignments, students develop 
professional skills which facilitate positive induction into the field of education. All assignments correspond with practical 
experiences which occur concurrently during HPER 4750. Prerequisites: Students must attain a GPA of 2.5 in physical, 
health and professional education courses as well as overall. All course work necessary for completion of student's major and 
minor curricula must be done prior to the semester during which the student applies for intern teaching.  1 or 2 hours

HPER 4120 Teaching Skills and Strategies  Designed to provide information and experiences that enable students 
to design and implement effective health education strategies in a school setting. Prerequisite: HPER 3120.  3 hours

HPER 4140 Measurement and Evaluation in Health Education  This course provides a forum for developing 
measurement and evaluation skills relevant to the completion of HPER 4120 (HESJ requirement) and HPER 431 (CHDJ 
requirement) in health education. The core competencies for professional development of a health educator related to needs 
assessment and evaluation will also be covered. The settings for health education practice covered in this course would
include the school and the community. Prerequisites: HPER 3500 and HPER 3310 (CHDJ) OR HPER 3120 (HESJ);
Corequisites: HPER 4310 or HPER 4120. 3 hours

HPER 4160 Topics in Recreation The purpose of this course is to pick one or two topics or issues each time it is
offered for in-depth investigation and study. The course will provide students with a background in current issues and current
developments in the field of recreation. 2 hours

HPER 4161 Commercial Recreation 2 hours
HPER 4162 Facility Management in Recreation 2 hours
HPER 4163 Sport/Recreation Program and Services 2 hours
HPER 4164 Legal Issues in Recreation 2 hours

HPER 4300 Community Health Education Interventions: Community Strategies Designed to prepare students with
skills necessary to implement health education programs within the context of community health settings. Emphasis is placed
on community health education methods at the community level, including community organization, coalition building,
community empowerment, and legislative advocacy. Prerequisite: HPER 3310. 3 hours

HPER 4310 Community Health Education Interventions: Individual Strategies Designed to prepare students with
skills necessary to implement health education programs within the context of community health settings. Emphasis is placed
on community health education methods at the individual level, including development of educational materials, working
with media, group processes, and effective presentations. Prerequisite: HPER 3310. 3 hours

HPER 4440 Professional Development in Exercise Science This course is designed to provide exercise science
majors with information and experiences that will enable them to plan, design, promote, and implement adult exercise
programs. Special emphasis is placed on the following: developing qualities of successful leadership, public speaking,
planning procedures, program planning procedures, use of technology, program promotion, facilities and equipment, teaching
techniques for adult learners, and career planning and development. Prerequisites: HPER 2950, 2960, 2980, 3170, 3950,
3960, 3970. 3 hours

HPER 4450 Exercise Testing and Prescription This course prepares students to plan and implement exercise programs
for adults who have a variety of needs. Students are taught how to screen clients, determine risks, establish a safe exercise
environment, assess health-related fitness, interpret test data and establish an exercise plan. Prerequisites: HPER 2950,
2960, 2980, 3170, 3950, and 3970. 3 hours

HPER 4470 Physical Education Methods: Instructional Design This course is designed to provide experiences which
will enable the student to: (1) identify instructional constraints; (2) select motor-appropriate experiences for children K-12;
(3) develop effective instructional materials; and (4) develop management and administrative skills required to plan and
implement a contemporary physical education program in school settings. Prerequisites: HPER 1500, 2400, 2950,
2980, 3150, 3450, 3460, 3900, and 3920. 3 hours

HPER 4480 Physical Education Methods: Teaching Skills This course provides information and experiences
which allow the student to (1) plan and implement effective physical education curricula based on a developmental model;
(2) self-assess teaching performance using reflective systematic skills; and (3) develop a professional teaching portfolio.
Prerequisite: HPER 4470. 3 hours

HPER 4500 Cultural Dynamics in Health, Physical Education, and Recreation This course is for majors in the
physical education teacher/coach, health, recreation, and exercise science emphases. A comparative approach is taken that
applies sociology and multiculturalism to the fields of health, physical activity, and recreation using the vehicle of
contemporary sport issues and trends. This course is approved as a writing-intensive course which may fulfill the
baccalaureate-level writing requirement of the student's curriculum. Prerequisites: HPER 1500(PDEJ) or 1530 (ATDJ) or
1550 (CHDJ), 56 hrs. (junior status). 3 hours
HPER 4690  Fitness Management  The purpose of this course is to provide students with an introduction to the scope, characteristics, management techniques, and business operations used in the field of sport management, as well as exercise science professions.  Prerequisites: HPER 2980, 3950, and 3960.  2 hours

HPER 4720  Recreation for the Aging  An overview of aging especially as it relates to leisure pursuits and organized recreation. Includes observation, participation and leadership of recreational activities or programs for retirees, nursing homes, senior citizens housing units and clubs.  Prerequisite: 56 hrs. (junior status).  3 hours

HPER 4750  Intern Teaching in HPER  This course represents the final experience of the student's curriculum during which an application of all knowledge and skills acquired is facilitated. Through the experiences provided in this course, students develop the skills and knowledge necessary for certification as a health or physical education teacher in the state of Michigan. Graded on a Credit/No Credit basis.  Prerequisite: Department approval.  5 or 10 hours

HPER 4760  Advanced Applications of Recreational Management  The purpose of this course is to provide students with advanced skills that are required in the administration of modern recreation and leisure service agencies. This course will allow students not only to gain knowledge of advanced administration skills, but to apply them in practical situations. This course will also present a final overview for recreation students and will cover in-depth issues such as ethics, communications, time management, legal issues, and professional development.  Prerequisite: HPER 3760.  3 hours

HPER 4800  Basic Electrocardiography  The purpose of this course is to examine the anatomy, physiology and electrophysiology of the heart; identify and describe a normal EKG, identify and describe abnormal EKG's; identify arrhythmias and abnormalities of the heart from an EKG; become familiar with common cardiac medications; observe a maximal graded exercise test.  Prerequisites: HPER 2980, 3170.  2 hours

HPER 4860  Therapeutic Exercise for Athletic Injuries  This course will study the theory of rehabilitation and to learn the correct application of therapeutic exercise techniques in the management of athletic injuries. To plan, implement, document, and evaluate the efficacy of therapeutic exercise program for the rehabilitation and reconditioning of athletic related injuries.  Prerequisites: HPER 3830 and 3840.  3 hours

HPER 4870  Sports Medicine Seminar  A course designed to address relevant and contemporary issues in sports medicine. Particular emphasis is given to the topic of health care administration and professional development of the certified athletic trainer.  Prerequisite: Admission into Athletic Training Professional Program.  3 hours

HPER 4880  Research/Evaluation in Recreation  An introduction to the methodology and scientific study of the phenomena of leisure and recreation. The course includes basic research and evaluation design, research and evaluation report writing, the analysis of current recreation and leisure research, and the use of computers in recreation research, and the use of computers in recreation research and evaluation.  2 hours

HPER 4910  Exercise for Special Populations  This course serves as an introduction to exercise management for individuals who experience chronic disease and disabilities. Students will develop and apply knowledge of testing procedures and program development for special populations, including the pathophysiology of various diagnoses and specific effects of exercise response, training, and contraindicated exercises.  Prerequisites: HPER 2950, 2960, 2980, 3170, 3950, 3960, and 3970.  3 hours

HPER 4960  Community Health Education Internship  Designed to prepare students with skills necessary to implement health education programs within the context of community health setting. Emphasis is placed on community health education methods at the community level, including community organization, coalition building, community empowerment, and legislative advocacy.  Prerequisites: All other required CHDJ major courses; departmental approval.  4 to 6 hours

HPER 4970  Senior Seminar in Recreational Services  The course is designed to present to the undergraduate student a final overview of the field of recreation and to prepare the student for his/her internship. It is also designed to cover topics including professional associations, current issues, ethics, jobs searching, and job skills.  Prerequisite: HPER 3760; 88 hrs. (senior status).  2 hours
HPER 4980 Exercise Science Internship  This course will provide an in depth internship in an applied setting supporting the outcomes of the Exercise Science undergraduate major. All course work must be completed prior to the internship. All internship sites must be approved by the HPER Department. Student must apply one semester in advance of the internship placement. Course is graded on a Credit/No Credit basis. Prerequisites: Exercise Science major; all Exercise Science major courses completed. 6 hours

HPER 4990 Recreation Internship  The recreation internship is structured to bring academic course work to life, provide valuable work experience, and professional contacts. This will help ensure a successful professional career. The recreation major must commit to a 15-week full item experience with an agency/organization in recreation or leisure service delivery or an appropriately related field. Students are given letter grades in course. Prerequisite: Department approval. 6 hours

HPER 5000 Studies in Health, Physical Education and Recreation  In-depth study of selected topics in HPER. Format can include clinics, workshops, seminars, travel and/or mini-courses; and provide opportunity to acquire skills and teaching techniques. State, national, and international authorities or consultants may be involved. Topics include: Lifetime Sports, Outdoor Education, Physical Education, Stress Management, Physical Fitness, Business Procedures, Nutrition. Professional Courses Open To Upperclass and Graduate Students (HPER). 1 to 2 hours

HPER 5100 Modern Health for Teachers and Health Professionals  This course is designed for teachers and health professionals who have need of current knowledge in health science. The course surveys topics such as mental health, nutrition, substance abuse, physical fitness, chronic diseases, and stress management. Consideration is given to psychological, sociological and cultural factors that influence health improvement. Attention is given to special factors of health and illness of children and adolescents. This course is not open to health education majors and minors who have had HPER 1000, 2200, 2210. Professional Courses Open To Upperclass and Graduate Students (HPER). 3 hours

HPER 5120 Principles, Practices, and Methods in Health Education  This course surveys the history, philosophy, and methods of health education. The philosophical basis and practices of health education are discussed in terms of needs and capabilities of people and factors that influence their development. Emphasis is placed upon the promotion of health and prevention of disease, disability, and premature death. Curriculum development and teaching methods focus on content and strategies considered most effective in teaching disease prevention and health promotion. The course is not open to health education majors or minors who have had 3120 or 4120. Prerequisite: 5100 or equivalent. Professional Courses Open To Upperclass and Graduate Students (HPER). 3 hours

HPER 5140 Methods and Materials in Health Education  Lectures and demonstrations with emphasis on the effective health supervision of school children, the principles and practices of health teaching in the various grades, and the interrelation of this teaching with that of other subjects in this curriculum. Prerequisite: HPER 3120, 4120 or 5120 or consent of department. Professional Courses Open To Upperclass and Graduate Students (HPER). 2 hours

HPER 5160 Issues in Health Education  The focus will be placed on current health issues. May be designed to deal with one issue or several. Professional Courses Open To Upperclass and Graduate Students (HPER). 1 to 3 hours

HPER 5300 Practicum in Teaching and Coaching  Demonstrations, participation and evaluation on teaching and coaching fundamentals in selected sports. A graduate student may apply a maximum of four credits from 530 courses toward the Master's Degree Program. Sports include: Archery, Badminton, Baseball, Basketball, Football, Golf, Field Hockey, Gymnastics, Ice Hockey, Judo, Karate, Soccer, Swimming, Track and Field, Volleyball, Wrestling, Yoga. Professional Courses Open To Upperclass and Graduate Students (HPER). 1 to 2 hours

HPER 5400 Movement Education  A concept in physical education which deals with the way children learn the basic principles of how their bodies move. Professional Courses Open To Upperclass and Graduate Students (HPER). 2 hours

HPER 5800 Studies in Athletic Training  Listed with various topics. A lecture/demonstration course concerned with the prevention, diagnosis, and treatment of sports type injuries. Prerequisites: BIOS 2110, 2400, HPER 3800. Professional Courses Open To Upperclass and Graduate Students (HPER). 1 to 2 hours
HPER 5910 Evaluation in Health, Physical Education, and Recreation Acquaints students with the theory, selection, construction, administration, interpretation of appropriate tests in the field. Class activity will include study and discussion of selected tests, application, scoring, interpretation, and construction of tests. Courses Open To Graduate Students Only. 2 hours

HPER 5980 Readings in Health, Physical Education and Recreation Advanced students with good academic records may elect to pursue independently a program of readings in areas of special interest. Prerequisite: Approval of the Chairperson of the Department of Physical Education. Courses Open To Graduate Students Only. 1 to 2 hours

Interdisciplinary Health Services
HSV 1000 Health and Human Services Career Seminar Explores careers in the health and human services professions. This course is designed to assist students in making informed choices regarding career opportunities and in selecting the necessary programs of study for non-clinical careers and for preparation for candidacy in health and human service professional degree and certificate programs. 2 hours

HSV 1100 Introduction to Health and Human Services This course provides an overview of the issues, philosophies, political ideologies, economic theories, and American values which have an impact on health and human service delivery. In addition, students will be introduced to the historical development, areas of services, and models of service delivery which are part of health and human services. The course will also provide students with the opportunity of learning about potential careers in the various professions within the field. 3 hours

HSV 3350 Pharmacology for Health Professionals This course focuses on basic principles in pharmacology and pharmacotherapeutics. Principles necessary for a general understanding of the medical management of acute and chronic disease states will be highlighted. Discussion will center on classes of drugs with pharmacology, side effects, and contraindications identified. Case studies may be utilized to emphasize commonly encountered patient care scenarios. 3 hours

HSV 4100 Legal Issues in Health and Human Services An overview of the law and its administration as it applies to the policies and procedures that are designed to improve and protect the health and social well-being of the population. The course will provide a survey of the basic concepts and content in the major areas of health and human service law, an explanation and identification of sources of legal authority and responsibility, and a familiarity with legal language. 2 hours

HSV 4120 Principles of Health Finance This course is an examination of the principles of finance as applied to health care management. The course will provide a basis for understanding the financial management function in a health care administration environment and on the use of financial information in health care management and decision-making. 3 hours

HSV 4140 Basic Principles and Organization of Health Planning This course is an introduction to the principles and methods of planning in the health system. It includes a descriptive analysis of the significance of planning effective health care services, alternative planning frameworks, and technical approaches to the planning process. In addition, the course surveys the history of planning in the health systems as well as the current structure arrangements for carrying out planning in the health arena both at the macro and micro levels. 3 hours

HSV 4150 Administrative Functions in the Health Care Setting This course focuses on the knowledge and skills necessary for the major administrative functions in health organizations. These include goal setting, decision-making, personnel management, data processing, service design, and general principles of financial management. 3 hours

HSV 4200 Health and Human Services Research and Statistics An introduction to the fundamentals of research design and statistics used in health and human service research and the application of this research to the improvement of care and service delivery. This course provides students with the basic skills to critically evaluate and analyze scientific research and conduct computer literature searches and reviews. 3 hours

HSV 4350 Special Topics in Health and Human Services This is a variable topics, variable credit undergraduate level course for consideration of current and special interests in health and human services. Specific topics and number of credit hours will be announced each time the course is scheduled. May be repeated for credit. 1 to 4 hours
HSV 4500 Individual Studies in Health and Human Services  This course will be arranged on an individual basis to provide students the opportunity to pursue independently the study of special areas of interest. May be repeated for credit.  1 to 4 hours

HSV 4690 AIDS/HIV: Perspective on an Epidemic  This course is intended to provide a historical perspective and introduction to the social, psychological, biological, political, economic, ethical, and medical implications of HIV infection and the Acquired Immune Deficiency Syndrome (AIDS). The course will be team taught by faculty and others in a variety of fields.  3 hours

HSV 4810 The Health System and Its Environment  This course provides a descriptive analysis of the organization of the health system. The student who participates can expect to gain an understanding of the structure of health services as well as the processes of operation of the service system and the ways in which consumers make use of the system. The analysis focuses on the interplay of forces within the system as well as behind the system and its environment. Prerequisite: HSV 1100.  3 hours

HSV 4850 Major Issues in Health and Human Services  Examines the major issues which influence health and human services and their delivery, including special population service provision, advocacy, patient/client-centered care, psycho-social aspects of disease and wellness, health promotion and education, quality and cost controls, and interdisciplinary team approaches to service delivery. The importance of services responsive to the needs of a diverse and multicultural population is also stressed. Students will receive instruction OSHA, Universal Precautions, CPR, and first aid. Prerequisites: HSV 4100, HSV 4810, OT 4780, and OT 4800.  3 hours

HSV 4890 Health and Human Services Independent Research  This course requires the completion of a credible research project related to a current issue in health and human services. The project must be approved and supervised by faculty. This course is only open to students who are registered, certified, or licensed health care providers who wish to substitute a research project and an elective course (3 hrs.) for the required HSV 4900 Internship. Prerequisite: HSV 4850.  3 hours

HSV 4900 Health and Human Services Internship  This course provides the student with a supervised internship experience of at least 240 agency clock hours in a health and human service organization or agency in which the student can apply the knowledge learned in the program and develop and refine his/her skills with the assistance and guidance of professionals working in the field. Prerequisite: HSV 4850. Graded on a Credit/No Credit basis. 1 to 6 hours

**Industrial Design**

ID 1430 Industrial Design Fundamentals Studio  An introduction to the professional practice of Industrial Design. Topics include social and economic motives for designing; evolution of style in mass-produced products; orthographic, isometric, perspective, and model representation. Students will work on simple creative projects involving one to three part objects and will learn basic methodology principles with emphasis on research and problem identification.  3 hours (1 to 4)

ID 1470 Principles of Industrial Form Studio  Industrial form's dependence on materials, tools and machine processes. Industrial and natural form generation. Experiments on static structures. Creative projects involving simple objects. Prerequisites: ID 1430 and ART 1040 and IME 1420 and MATH 1180.  3 hours (0 to 4)

ID 1540 Portfolio Review I  Students must complete this review prior to enrolling in Industrial Design design-oriented courses at the 2000-level and above. Students enroll in this course at the same time as ID 1470. Prerequisites (or taken concurrently): ID 1470 and MATH 2000 and IME 2460 and IME 1020.  0 hours

ID 2010 History of Design  Begins with an overview of the history of design, craft, and technology before the 20th century. Renaissance and Industrial Revolution periods are highlighted. Design history of the 20th century showing important social and technical developments which have influenced industrial priorities, markets, and practices. Important people, movements, schools, and philosophies that have influenced the evolution of industrial design around the world.  3 hours (3 to 0)
ID 2030 Color in Industrial Design Develop through experience an understanding of color, color action and color relationships. Interaction of color, form, materials, proportion, function and composition. Color and information, color and signage. Application of this knowledge to Industrial Design problem solutions. Prerequisite: ID 1540. 3 hours (2 to 2)

ID 2050 Model Construction Studio I Development of fast, simple mock-ups and form studies using clay, paper, plastic foam, wire, plaster and other materials. Creation of realistic looking models which reflect a high degree of craftsmanship. Use of hand tools, power tools and machines. Use of plastic foam, plastics, wood and metal. Prerequisite: ID 2430. 3 hours (0 to 6)

ID 2220 Wood Furniture Design Identification of selected wood species and man-made composites. Basic principles of wood product design are introduced. Aesthetic and ergonomic criteria will be emphasized. Selection of materials, basic processes and tools, introduction to machining and selection and application of finishing materials is taught. Preparation of Industrial Design documentation is required, i.e. 3D, orthographic and working drawings of the product and its parts. Prerequisite: ID 1540. 3 hours (2 to 3)

ID 2430 Product Design Methodology Studio I Introduction to product design methodology for mass-produced products. Study the Industrial Design Process and its application from idea generation through all the development stages to the introduction of a product in the marketplace. Ergonomics and user interface to enhance idea implementation. In depth study of sketching and rendering skills. Quick concept projects, basic research principles, preliminary dimensional, orthographic drawings, renderings and 3/4 view product presentation. Prerequisites: ID 1540 and ART 1050 and ART 1070 and ART 1080. 3 hours (0 to 6)

ID 2470 Product Design Methodology Studio II Introduction to quick product concept development projects focusing on research, ideation, shape, form, proportions, ergonomics, user interface, and manufacturing processes. Application of model shop skills and technology. Build a volumetric study model. A midterm project focusing on use and application of the Industrial Design Process, including visual, written, and verbal presentations. Final model is constructed to confirm the original design intent. Design and organization of portfolios for review to move to 3000-level courses. Prerequisites: ID 2430 and ID 2510 and IME 1500. 3 hours (0 to 6)

ID 2510 Computer-Aided Design Studio I Introduction to the advanced professional computer-aided Industrial Design hardware and software. Students will start with a CAD wire-frame to create a photo realistic computer model and rendering. Application of these processes in computer-aided manufacturing and interactive software design. Introduction to a variety of software programs will be made. Prerequisite: ID 1540. 3 hours (0 to 6)

ID 2520 Computer-Aided Design Studio II Continuation of study with the hardware and software used in Industrial Design. Animation and presentation software. Product development using only the computer. Prerequisite: ID 2510. 3 hours (0 to 6)

ID 2540 Portfolio Review II Students must complete this review prior to enrolling in Industrial Design design oriented courses at the 3000 level and above. Students enroll in this course at the same time as ID 247. Prerequisites (or taken concurrently): ID 2470 and ID 2050 and ID 2520. 0 hour

ID 3050 Model Construction Studio II Building working prototypes of simple devices and systems. Creation of advanced models with real finish. Use of advanced processes and machines. Prerequisite: ID 2540. 3 hours (0 to 6)

ID 3220 Advanced Woodworking Design Creation of new wood products based on functional, ergonomic, aesthetic and strength needs. Environmental aspects of the processes applied in the design will be analyzed. Basic cutting theories, woodworking machine construction, and advanced manufacturing lines including the 32mm construction system and flat-line processing application will be taught. Industrial Design documentation will be required. Prerequisites: ID 2220 and IME 2460. 3 hours (2 to 3)

ID 3300 Wood and Related Materials for the Interior Designer A study of the physical and mechanical properties of wood and wood-based materials, joint design, adhesives and fasteners, and selection and application of finishes. The effect of human factors on the design of furniture and interiors is emphasized. 3 hours (2 to 3)
ID 3310 Upholstering and Wood Turning  Determination of ergonomic, structural, and material requirements of upholstered furniture. Multiple upholstery methods will be applied. Evaluation of cutting theory, wood, and tool selection for turning. Prerequisite: ID 3220.  3 hours  (2 to 3)

ID 3320 Wood Finishing  Function of various finishing materials, surface preparation, principles of color, methods of application and final finishing. Environmental regulations pertaining to furniture finishing. Scheduling, repair, and refinish applications will be studied.  Prerequisites: ID 2220 and CHEM 1100 and 1110.  3 hours  (2 to 3)

ID 3430 Advanced Product Design Studio  Sketching exercises for the development of ideas, concepts, organization of ideas, and project planning to maintain optimum design output and consistency. Three accelerated projects concentrate on idea development and problem solving techniques. Advanced study of function, ergonomics, user interface and manufacturing processes. Study team leadership roles and project management in class or company sponsored assignment. A midterm project covers the entire Industrial Design Process and a well-constructed model. Final presentation in Power Point.  Prerequisites: ID 2540 and CHEM 1100 and CHEM 1110.  3 hours  (0 to 6)

ID 3470 Product Design Practicum Studio  Three accelerated projects focusing on advanced research, concept development sketches and renderings to evaluate and confirm design intent. Solve problem with using new materials, new technology, and human interface with the product. A midterm class project or company sponsored covers the entire Industrial Design Process. Leadership roles and project management. Final presentation in Power Point, and a high quality final model. Study process to evaluate materials needed for development of a professional portfolio in 400-level classes. Prerequisites: ID 3430 and ID 3050 and ID 3220. Corequisite: FS IME 3420.  3 hours  (0 to 6)

ID 4320 Production Woodworking  Mass production techniques utilizing computer-aided design and manufacturing, material yield, production planning, sequence of operation, dimensional control, and interchangeability. Production methods as they affect quality of wood products. Prerequisite: ID 3220.  3 hours  (2 to 3)

ID 4340 Physics and Mechanics of Wood  Physical and mechanical properties of wood and orthotropic wood structure will be studied and incorporated in the ASTM testing methods. Analysis of stress distribution, mode failure, and fracture characteristics will be studied. The relationship among orthotropic wood structure, joint design, and fastening methods on structural integrity will be analyzed. Computer systems will be used in statistical analysis and graphing of experimental data. Prerequisite: ID 2220 or department approval.  3 hours

ID 4430 Industrial Design Thesis and Project Studio I  A two-semester course that requires: 1) A major design project; 2) design of a professional portfolio; 3) design of a resume, cover letter and business cards, sample sheets and sample CD; 4) professional final presentation of major project in Power Point, Director or Flash; 5) preparation of all the project materials for the Senior Engineering and Design presentation. Major project requires following the entire Industrial Design Process: research, idea generation and development, sketches, sketch model, dimensional drawings, exploded view, bill of materials, final rendering and a pristine model. Application of ergonomics, user interface, engineering and manufacturing principles. This course, along with ID 447 creates the foundation to collect and create materials for a professional portfolio, and support materials. This course, along with ID 447, is approved as a writing-intensive course, which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisites: ID 3470 and ID 2030 and IME 2500.  3 hours  (0 to 6)

ID 4470 Industrial Design Thesis and Project Studio II  In the second part of this course, the student focuses problem-solving principles for function, user interface and manufacturing processes. Project moves to the Conversion Phase of the ID process. Complete dimensional drawings, design details to build a pristine final model. Final renderings, and 3D modeling studies. Simultaneously, the student must complete his/her portfolio and written material. Create and design his/her final presentation in Power Point, Director or Flash. The student prepares all the materials needed for the Senior Engineering and Design presentation. Lectures focusing on resume design, interview skills, verbal development and job-seeking techniques. This course, along with ID 4430, is approved to fulfill the baccalaureate-level writing requirement. Prerequisites: ID 4430, IME 4420.  3 hours  (0 to 6)

ID 4970 Topics in Industrial Design  A specialized course dealing with some particular area of design not usually included in other course offerings. May be repeated for credit with different topics to a maximum of six credit hours.  1 to 6 hours  (Variable)
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<thead>
<tr>
<th>ID</th>
<th>Course Title</th>
<th>Description</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>4990</td>
<td>Independent Studies</td>
<td>An individual study program to supplement regular course work, arranged in consultation with a study supervisor. One to three hours credit per semester. Prerequisite: Consent of department. May be repeated not to exceed six credit hours.</td>
<td>1 to 3 hours (Variable)</td>
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### Imaging

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<tr>
<th>Course Code</th>
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<tbody>
<tr>
<td>IMAG 1500</td>
<td>Introduction to Imaging</td>
<td>An introductory course describing the printing/imaging industry. Image Design, preparation, generation, photo imaging by photomechanical and desktop systems, proofing, presswork, and bindery. A comparison of all printing methods will be included. Learning environment enhance by hands-on experience. 4 hours (3 to 3)</td>
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</tr>
<tr>
<td>IMAG 1570</td>
<td>Imaging Systems</td>
<td>Conversion of line and halftone image sources to digital data for output as reflection copy proofs, film or direct to plate. Photosensitive materials, electronic imaging systems, lenses and light, copy and data requirements, chemical and dry processing methods, densitometric and sensitometric instrumentation and image analysis. Prerequisite: IMAG 1500. 3 hours (2 to 3)</td>
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</tr>
<tr>
<td>IMAG 2150</td>
<td>Introduction to Ink</td>
<td>Ink main components and ink additives. Formulation, manufacturing, quality control, and waste disposal of liquid and paste inks. Ink and color. Relationship between the chemical and physical properties of inks and their printing quality. Working properties of ink. Optical properties of ink. End-use properties of ink. Concepts of rheology and surface energy. Environmental concerns. Water-based, solvent based, UV and EB curable ink chemistries. Inks for impact printing processes. Digital inks. Prerequisites: IMAG 1500, CHEM 1100, CHEM 1110 and PAPR 1000. 4 hours (3 to 3)</td>
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<tr>
<td>IMAG 2510</td>
<td>Multimedia Publication and Design</td>
<td>Design and composition of multimedia publications. This includes publications for print, web and CD-ROM, as well as animation and video. Different types of graphic objects and color representations will receive extensive coverage. Page layout, web authoring and digital video editing software will be utilized in extensive laboratory exercises. 3 hours (2 to 3)</td>
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<tr>
<td>IMAG 2570</td>
<td>Computer Graphics</td>
<td>Computer graphics from the point of view of both hardware and software. The representation, display, and manipulation of graphical objects. The relationships of displayed graphics to printed graphics, both direct digital and conventional. Prerequisites: IMAG 1570, 2510. 3 hours (2 to 3)</td>
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<tr>
<td>IMAG 3100</td>
<td>Work Experience/Coop</td>
<td>Full-time employment in an imaging, or related industry that provides first-hand experience in a job capacity directly related to imaging industries. A written report is required. Departmental consent is required. Open only to department majors. Prerequisite: Junior standing. 1 hour</td>
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</tr>
<tr>
<td>IMAG 3500</td>
<td>Offset Lithography</td>
<td>Substrate selection for web and sheetfed offset printing, offset printability, and printing defects. Prepress operations, platemaking, proofing. Offset press components, register controls, printing units, principles of drying, impression rollers and blankets. Ink variables, and differences between inks for publication, packaging and product printing. Prerequisites: IMAG 2150, STAT 2160 or STAT 2610. 4 hours (3 to 3)</td>
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</tr>
<tr>
<td>IMAG 3570</td>
<td>Color Management</td>
<td>Introduction to color management, color science and color imaging technologies. The course covers the basics of color reproduction for printing. It deals with RGB, CMYK and CIE color models. A large focus of the course is practical color management as practiced in the industry today. An ICC workflow and ICC profiles will be constructed and analysed. Profiles for scanners, monitors and printers will be made. Prerequisites: IMAG 1570, IMAG 2510. 3 hours (2 to 3)</td>
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<tr>
<td>IMAG 3580</td>
<td>Flexography</td>
<td>The study of all segments of the flexographic printing process, including current and future technology. Study of market segments and uses of flexography as a label and package printing process. Prerequisites: IMAG 215, STAT 2160 or 2610. 4 hours (2 to 3)</td>
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<tr>
<td>IMAG 3590</td>
<td>Rotogravure</td>
<td>Substrate selection for rotogravure, gravure printability, and printing defects. Prepress operations, cylinder plating, engraving, proofing. Gravure press components, register controls, printing units, doctor blades, principles of drying and solvent regeneration, doctor blades, impression rollers and electrostatic assist. Ink variables, and differences between inks for publication, packaging and product printing. Prerequisites: IMAG 2150, STAT 2160 or 2610. 4 hours (2 to 3)</td>
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</table>
IMAG 4150  Inks and Imaging  A course designed to provide science and engineering majors with a basic understanding of formulation, manufacture, and testing of different printing inks. Ink constituents and their properties, formulations for specific end use applications, special purpose inks, curing systems, and environmental issues will be some of the topics covered in the course.  Prerequisites: PAPR 1030 or IMAG 1500, CHEM 3750, CHEM 3760, CHEM 4300, and MATH 2720.  3 hours (2 to 3)

IMAG 4160  Imaging Materials and Processes  A course designed to provide science and engineering majors with a basic understanding of various printing processes detail; imaging materials and processes, pre-press processes and color and imaging science will be some of the topics covered in the course.  Prerequisites: PAPR 1030 or IMAG 1500, CHEM 3750, CHEM 3760, CHEM 4300, and MATH 2720.  4 hours (3 to 3)

IMAG 4400  Seminar  A seminar course using guest speakers, University staff and field trips to add depth and breadth to the students' education.  Prerequisite: Junior standing.  1 hour

IMAG 4570  Advanced Multimedia  Advanced methods in digital multimedia creation and manipulation. Digital video and computer animation will combined and edited using professional techniques. Multimedia video productions will be produced using CD/DVD recording devices and analog display and recording devices.  Prerequisite: IMAG 2570.  3 hours (2 to 3)

IMAG 4580  Digital Imaging and Workflow  Digital imaging methods for prepress and direct printing. Digital printing mechanisms discussed in detail. Workflow standards including CIP4, JDG, PDF/X, etc.  Corequisite: IMAG 3570.  3 hours

IMAG 4620  Imaging Estimating  Estimating the price of imaged (printed, displayed, animated, etc.) materials before manufacture and in the final pricing. Computerized estimating systems and techniques.  Prerequisite: IMAG 3500 or 3580 or 3590.  4 hours (3 to 3)

IMAG 4630  Finishing/Bindery  Analyze post-press equipment and operations to complete the printed piece. Field trips will demonstrate the scope of operations involved. Study of equipment costs and development of Basic Hourly Costs; postal rates, regulations, and procedures.  Corequisite: IMAG 4620.  3 hours (2 to 3)

IMAG 4660  Systems in Printing Management  Study the organization and management of printing companies in regards to personnel selection and training, quality assurance standards and development, safety and environmental concerns, social responsibilities, morals and ethics, scheduling procedures and work flow and ISO certification.  Prerequisite: PAPR 3100.  3 hours

IMAG 4850  Research Design  Research selection, planning, design, and writing. A research problem selected in consultation with faculty. Student will define and analyze the problem; do a critical review of the literature; and propose a documented research program to increase understanding and knowledge about the problem. This course is approved as a writing-intensive course which fulfills the baccalaureate-level writing requirement of the student's curriculum.  Prerequisite: Senior standing in major.  3 hours

IMAG 5100  Printability Analysis  Relationships between printed substrate, ink, printing process and resulting print quality from both the theoretical and measurement standpoints. Print recognition and printing problems from the point of view of substrate formation and its physicochemical properties, ink characteristics, and the printing process parameters. Main techniques of printability evaluation will include modern optical methods of light interaction with both printed and unprinted substrate, spectrophotometry, and image analysis.  Prerequisite: IMAG 3500 or 3580 or 3590 or PAPR 3420.  3 hours (2 to 3)

**Industrial and Manufacturing Engineering**

IME 1020  Technical Communication  Principles of objective presentation of factual material in written, oral, and electronic communication, with emphasis on the research process. Content, format, and mechanics, as well as a clear, concise style are important components of individual and collaborative assignments.  Prerequisite: ENGL 1000 or placement into College-level writing.  3 hours (3 to 0)
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<tbody>
<tr>
<td>IME 1220</td>
<td>Automobile in Society</td>
<td>Applications of principles of Physics, Chemistry, Biology and Technology applied to the automobile. Topics included are: Occupant Protections, Vehicle Control, Physical Strength and Durability of Drivers, Power Production, Global Warming, Power Transmission, Energy Storage and Retrieval, Air Pollution, Use and Re-use of Natural Resources, Choices dealing with Vehicle Selection, Purchase Options, Insurance, Productivity, Maintenance, Societal Consequences and a history of the industry's record of successes and failures.</td>
<td>3 hours (3 to 0)</td>
</tr>
<tr>
<td>IME 1420</td>
<td>Engineering Graphics</td>
<td>Essentials of engineering graphics including technical sketching, CAD applications, applied geometry, orthographic projection, section, dimensioning, tolerancing, threads and fasteners, weldments, detail and assembly drawing, charting and basic elements of descriptive geometry. All work is according to current ANSI drafting standards. Previous technical drawing is recommended.</td>
<td>3 hours (2 to 3)</td>
</tr>
<tr>
<td>IME 1440</td>
<td>Descriptive Geometry</td>
<td>Applications of analytical graphics in solution of engineering and technical design problems. Study of spatial concepts involving points, lines, planes, and solids. Prerequisite: Recommended, IME 1420.</td>
<td>3 hours (2 to 3)</td>
</tr>
<tr>
<td>IME 1500</td>
<td>Introduction to Manufacturing</td>
<td>Analysis and application of a broad range of modern manufacturing techniques utilized in industry. Exploration of production methods as influenced by historical impact, materials, processes, productivity, ethics, and social/environmental concerns. The global challenges to product design, performance, quality, and economic considerations will be investigated.</td>
<td>3 hours (3 to 0)</td>
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<tr>
<td>IME 2050</td>
<td>Work Design</td>
<td>Design of jobs and work environments in business and industry. Topics include techniques for job design, ergonomics in the workplace, and work measurement. A semester project requiring the design of a work station is required. Prerequisite: IME 1020 and MATH 1220 or 1700. Corequisite: Recommended, IME 2610.</td>
<td>4 hours (3 to 3)</td>
</tr>
<tr>
<td>IME 2060</td>
<td>Engineering Computations</td>
<td>A basic course introducing students to software and hardware to be used for engineering computations and decision-making. The course includes basics of Internet and Intranet, and use of web browsers for accessing and disseminating information. Instructions also include structured problem solving, basics of flowcharting, logic flow development and basics of a structured programming language. Prerequisite: MATH 1220 or 1700. Recommended, CS 1060.</td>
<td>3 hours (3 to 0)</td>
</tr>
<tr>
<td>IME 2100</td>
<td>Engineering Cost Estimating</td>
<td>This course will cover engineering cost estimating principles including development of standard costs, development of general overhead and burden rates, and quoting and estimating new jobs.</td>
<td>3 hours (3 to 0)</td>
</tr>
<tr>
<td>IME 2460</td>
<td>Introduction to Computer-Aided Design</td>
<td>Principles of computer graphics technology and applications in CAD hardware and software components, and system operation. Survey of selected commercial CAD systems for production of 2-dimensional drafting and 3-dimensional wireframe part design creation. Emphasis placed upon factors affecting performance and capabilities of comparative CAD systems operation. Prerequisite: IME 1420.</td>
<td>3 hours (2 to 3)</td>
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<tr>
<td>IME 2500</td>
<td>Plastics Properties and Processing</td>
<td>Effects of polymer chemistry, additives, plasticizers, fillers, and reinforcements on the properties of plastics. Molding, forming, extrusion, casting, lamination, coating, welding, and decorating of thermoplastic and thermoset materials. Prerequisite: Recommended, CHEM 1100/1110.</td>
<td>3 hours (2 to 3)</td>
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<tr>
<td>IME 2540</td>
<td>Machining Processes</td>
<td>Introduction of both traditional and non-traditional methods of machining of materials. Relationship of machines, jigs and fixtures, and productive tooling to the machining of discrete components. Introduction to measuring and gauging as it relates to machining practices. Hands on experience with traditional CNC equipment, including production techniques. Prerequisite: Recommended, IME 1500.</td>
<td>3 hours (2 to 3)</td>
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<tr>
<td>IME 2610</td>
<td>Engineering Statistics</td>
<td>Introduction to statistical methodology emphasizing applications in engineering. Topics include descriptive and inferential statistics, regression, analysis of variance, and design of experiments. This course is cross-listed with STAT 2610. Prerequisite: MATH 1220 or 1700.</td>
<td>3 hours (2 to 3)</td>
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<tr>
<td>IME 2620</td>
<td>Probability for Engineers</td>
<td>Introduction to probability emphasizing applications in engineering. Topics include the use of discrete and continuous random variables, Goodness of Fit Tests, fitting of distributions, and elementary stochastic processes. This course is cross-listed with STAT 2620. Prerequisites: IME 2610</td>
<td>3 hours (3 to 0)</td>
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<td>Course Code</td>
<td>Course Title</td>
<td>Description</td>
<td>Prerequisites</td>
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<tr>
<td>IME 2810</td>
<td>Statics and Strength of Materials</td>
<td>Forces on structures, moments, equilibrium. Stresses and deformation in axially-loaded members, torsion members and beams. Elementary design of structural members. Prerequisite: MATH 1220 or MATH 1700 or MATH 2000.</td>
<td>4 hours (4 to 0)</td>
</tr>
<tr>
<td>IME 2830</td>
<td>Thermodynamics</td>
<td>Fundamentals of thermodynamics. First and second law for open and closed systems. Basics of heat transfer. Prerequisites: PHYS 1130/1140; MATH 1220 or MATH 2000 or MATH 1700.</td>
<td>2 hours (2 to 0)</td>
</tr>
<tr>
<td>IME 2840</td>
<td>Fluid Mechanics and Hydraulics</td>
<td>Fluid properties; fluid statics, laminar and turbulent flow; flow in pipes. Prerequisites: IME 2810, PHYS 1130/1140.</td>
<td>2 hours (2 to 0)</td>
</tr>
<tr>
<td>IME 2990</td>
<td>Cooperative Education</td>
<td>A cooperative education program involves a full-time planned and supervised work experience in industry during the semester or the equivalent on a part-time basis. A written report of the student's activities will be required. May be elected four semesters for a maximum of twelve semester credit hours. Must be taken on a credit/no credit basis.</td>
<td>1 to 3 hours (Arr.)</td>
</tr>
<tr>
<td>IME 3050</td>
<td>Work Analysis</td>
<td>Methods engineering and measurement of human work systems. Techniques for operation analysis, work measurement, and work sampling. Predetermined basic motion-time systems and standard data development are introduced. NOT FOR ENGINEERING CREDIT.</td>
<td>3 hours (3 to 0)</td>
</tr>
<tr>
<td>IME 3070</td>
<td>Computer Controlled Manufacturing Systems</td>
<td>Analysis and design of computer controlled manufacturing systems. Students must enroll in IME 3080 during the semester following IME 3070. Prerequisites: IME 2060 and ECE 2100.</td>
<td>4 hours (3 to 3)</td>
</tr>
<tr>
<td>IME 3080</td>
<td>Computer Controlled Manufacturing Design Lab</td>
<td>A continuation of IME 3070 in which students design and construct a physical computer controlled model to simulate a manufacturing process. IME 3070 and IME 3080 must be taken during the same academic year. Prerequisite: IME 3070.</td>
<td>2 hours (0 to 6)</td>
</tr>
<tr>
<td>IME 3090</td>
<td>Engineering Economy for Mechanical Engineers</td>
<td>Economic decision making from an engineering perspective. This course is designed to provide undergraduate engineering students with sufficient knowledge to perform engineering economy studies. Topics covered include time value of money, decision making criteria, break-even studies, depreciation and taxes, inflation, and life cycle cost analysis. Prerequisite: Recommend MATH 1230.</td>
<td>2 hours (2 to 0)</td>
</tr>
<tr>
<td>IME 3100</td>
<td>Engineering Economy</td>
<td>Application of principles of engineering economy for establishment of equipment and system feasibility. Interest, equivalence, taxes, depreciation, uncertainty and risk, incremental and sunk costs, and replacement models. Prerequisites: MATH 1230 and Junior standing.</td>
<td>3 hours (3 to 0)</td>
</tr>
<tr>
<td>IME 3110</td>
<td>Introduction to Operations Research</td>
<td>The development of mathematical concepts and models concerned with industrial engineering problems. Topics include queuing theory, game theory, linear, and dynamic programming. Prerequisites: IME 2610, 2620.</td>
<td>3 hours (3 to 0)</td>
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<tr>
<td>IME 3120</td>
<td>Systems Decision Making</td>
<td>Investigating decision-making opportunities while incorporating mathematical models and environmental factors such as time, uncertainty, constraints, and multiple goals. Specific emphasis is placed on analyzing problems using a systems approach. Topics include systems analysis, operations research methodologies, dynamic systems, and the application of a variety of computer tools to aid the decision making process. Prerequisite: STAT 2600 or IME 2610.</td>
<td>3 hours (3 to 0)</td>
</tr>
<tr>
<td>IME 3150</td>
<td>Work Analysis and Design Lab</td>
<td>The purpose of this design course is to use in a laboratory setting introductory principles of work analysis, design and measurement. Major topics include human factors, work design principles, work environment, economic justification, work measurement and the design process. NOT FOR ENGINEERING CREDIT. Corequisite: IME 3050.</td>
<td>1 hour (0 to 3)</td>
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<tr>
<td>IME 3160</td>
<td>Report Preparation</td>
<td>Learning techniques and procedures for preparation of technical documents. Intensifying critical, analytical process of thinking, and executing writing and oral strategies for different situations. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisites: IME 1020, junior standing.</td>
<td>3 hours (3 to 0)</td>
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IME 3180 Statistical Quality Control Methods of applying statistics and probability theory to control production processes. Application of computer programs to analyze quality control problems. Prerequisite: IME 2610. 3 hours (3 to 0)

IME 3200 Engineering Cost Analysis A course in engineering economics and the economic comparison of alternative technical systems. Includes interest, equivalence, depreciation, taxes, and risk. NOT FOR ENGINEERING CREDIT. Prerequisite: Recommended, MATH 1220 or MATH 2000 or MATH 1700. 3 hours (3 to 0)

IME 3240 Automotive Power Systems The construction, disassembly/reassembly, manufacture, examination of design, simulation, operation, testing of performance and durability serviceability, emissions and recyclability of current and contemporary power plants for automotive and truck use. Emphasis on current designs of SI and CI engines, ASTM tests of fuels, lubricants and coolants as well as evaluation of near-term alternatives such as synthetic diesel and fuel cells. Principles of mechanics, thermodynamics, dynamics and chemical principles as applied to engines and power systems. Prerequisite: Recommended IME 1220. 3 hours (2 to 3)

IME 3250 Automotive Electrical Systems The study and simulation of electrical power production, regeneration, storage, use, and control in current and alternative automobiles and trucks. Focus on the wide variety of electronic operational enhancements as they aid vehicle, safety, comfort, with the reduction of emission, fuel consumption, driver effort, and skill. The manufacture of components and systems, interaction with other systems, efficiency, on-board and off-board diagnostics, and life cycle testing. Prerequisites: Recommended, IME 1220 and ECE 1010. 3 hours (2 to 3)

IME 3260 Operations Planning and Control Methods of controlling and coordinating production using production planning, scheduling, inventory control, and dispatching. NOT FOR ENGINEERING CREDIT. Prerequisite: STAT 2160 or 2600 or IME 2610. 3 hours (3 to 0)

IME 3280 Quality Assurance and Control Techniques of controlling quality in manufacturing systems. Topics include organization of quality, methods of measurement, and basic statistical tools. NOT FOR ENGINEERING CREDIT. Prerequisite: STAT 2160 or 2600 or IME 2610. 3 hours (3 to 0)

IME 3300 Simulation Modeling and Analysis Use of computer modeling and discrete event simulation methodology with emphasis on designing and analyzing manufacturing and service systems. Commercial simulation packages will be used. Prerequisites: IME 2060, 2620. 3 hours (3 to 0)

IME 3460 Programming for Computer-Aided Design Modular software development for interactive CAD. Topics include human interface for interactive design, programming structure for modular entity creation, storing and retrieving object data, utilizing peripheral input and output devices, attribute regulation and control, and software transfer and documentation specifications. Prerequisites: IME 2460 and CS 1110. 3 hours (2 to 3)

IME 3480 Designing for Production Engineering documentation as it relates to the product development and manufacturing methods required to bring a quality product to market. ANSI and ISO standards will be studied to acquaint the students with the documentation necessary to develop assembly and part drawings and to control the changes that will effect the assembled parts. Material specifications and cost studies will be combined with geometric dimensioning and tolerancing to be applied to parts gages and tooling. The use of CAD is a major part of this course. Prerequisites: IME 2540, 2460, and 2810. 3 hours (2 to 3)

IME 3500 Production Thermoplastic Processing Injection molding, blow molding, extrusion and thermoforming. Effects of thermoplastic melt characteristics on product design and part quality. Effects of machine design, set-up, and operation on part cost and profitability. Overview of processing machinery including take-off and sizing equipment. Prerequisite: IME 2500. 3 hours (2 to 3)

IME 3520 Metal Casting Principles of pattern design, molding, pouring, and process analysis using a variety of materials and production techniques. Solidification of metals and alloys as a nucleation and grain growth process. Formation of inclusions and other casting defects will be discussed. Theory and practice in metal casting principles using green sand, investment, centrifugal, and lost foam processes. Prerequisites: IME 2540 and (MSE 2540 or ME 2500). 3 hours (2 to 3)

IME 3570 Fabrication, Assembly, and Finishing Overview of assembly processes including adhesion, cohesion (welding), mechanical fasteners, snap and press fits, forming and fabricating techniques. Product finishing methods including
surface preparation of various substrates, painting, plating, anodizing, printing, and vacuum metallizing. Review of the impact of the assembly and finishing procedures on product quality and reliability. Prerequisite: IME 2810. 3 hours (2 to 3)

IME 3580 Computer-Aided Manufacturing Principles of operation of numerically-controlled systems for manufacturing. Application of CAD/CAM systems and graphics N/C in programming. Prerequisites: IME 2540 and IME 2460. 3 hours (2 to 3)

IME 3870 CAD/CAM Fundamentals Application of computer graphics to drafting and design, translation of drawings to part programs for CNC machine control. Considerations for computer-integrated manufacturing. (Not for majors in Engineering Graphics and Design Technology and Manufacturing Engineering Technology.) 3 hours (2 to 3)

IME 4020 Supervision of Industrial Operations The essential functions of supervision will be presented in this course. Common supervisory duties, obligations, and responsibilities are covered with emphasis on concepts and skills useful in modern engineering and technology organizations. Prerequisite: Junior standing. 3 hours (2 to 3)

IME 4040 Plant Layout and Material Handling This course is designed to give students a comprehensive understanding of the issues involved in the design of an industrial production system. It will cover the problems in plant location, product analysis, process design, equipment selection, materials handling, and plant layout. NOT FOR ENGINEERING CREDIT. Prerequisites: IME 3050, 3260, and Senior standing. 4 hours (3 to 3)

IME 4120 Industrial Systems Management Principles and applications of advanced systems management, including project management, continuous improvement and advanced quality systems. Computer tools to manage systems will be introduced. Philosophies of systems management will be discussed. Students will acquire advanced systems management skills as applied to multiple industries, including manufacturing and service. Prerequisite: Recommended, IME 3120. 3 hours (3 to 0)

IME 4140 Material Handling and Facilities Design Comprehensive understanding of the issues involved in the design of an industrial production system. Problems in plant location, product analysis, process design, equipment selection, materials handling, and plant layout. Includes an intensive semester project to plan and design a manufacturing facility. Prerequisites: IME 2050, 3100, and 3160. Corequisite: IME 4160. 4 hours (3 to 3)

IME 4160 Operations Control in Industry The function of production and inventory operations. Control of manufacturing production systems and modeling. Prerequisites: IME 2050, 2100, 3110, and 3300. 4 hours (3 to 3)

IME 4180 IE Senior Seminar This course will discuss application of design principles, research methodology, including data collection and analysis, professional expectations in report preparation and presentation, and professional ethics. Students will be required to take the fundamentals of engineering examination given each fall by the State of Michigan as part of the course requirements. Prerequisite: Department approval. 1 hour

IME 4190 IE Senior Design This course is the capstone industrial engineering course. The course will require application of several IE design principles to a project. The projects are chosen by students or assigned by faculty. All students are required to present their projects at the Senior Engineering Design Conference hosted by the College of Engineering and Applied Sciences. Prerequisites: Department approval and "C" or better in IME 4180. 4 hours

IME 4200 Modern Industrial Systems Students will observe and analyze actual supervisory and managerial functions in industrial and service establishments. Conference procedures will be used in exploring many facets of supervisory and managerial practices and procedures. A charge for transportation is required. Prerequisites: Senior standing. 3 hours (1 to 6)

IME 4220 Engineering Teams: Theory and Practice Methods of understanding, planning and presenting a conference with oral and written components. Task groups will be used to explore creativity, controversy, power, and process in leadership situations. Prerequisites: COM 1040 or IME 3160 and Junior standing. 3 hours (3 to 0)

IME 4250 Automotive Drive Systems The study and simulation of the transmission of power from the power system to the road. Both manual and automatic transmissions and transaxles, including CVT's, clutches, transfer-cases, front and rear wheel drive and half shafts, and differentials. The evaluation of design, construction, manufacturing adjustment,
both on-board and off-board diagnostics. Special emphasis will be placed on near term alternative power transmission
devices such as are used in Hybrid Drive systems. Prerequisite: Recommended, IME 1220. 3 hours (2 to 3)

IME 4260 Automotive Structure, Ride, and Safety Study and simulation of the body, structures, and control
systems that allow the operator and occupants to travel in a safe, comfortable environment free of annoying vibration.
Associated systems include interiors, environmental control, structural stiffness and crush control features, stopping systems
including ABS and Traction Control, and Suspension Systems. Emphasis on the evaluation of design, meeting government
performance requirements, manufacture, life cycle testing, diagnosis of faults and adjustments of these systems. Prerequisite:
Recommended, IME 1220. 3 hours (2 to 3)

IME 4420 Ergonomics and Design An introduction to ergonomics affording students the necessary knowledge
essential for the psychological and anthropometrical development leading to good design. Emphasis is placed on health and
safety. A design project is required. 3 hours (2 to 3)

IME 4440 Advanced Product and Machine Design Advanced projects in the application of geometric
dimensioning and tolerancing to complex parts and assemblies. Mechanical components are analyzed and applied to meet
design requirements for applied motion and force transmission projects. CAD application will be an important part of this
course. Prerequisites: IME 1440 and 3480. Recommended, IME 4810. 3 hours (2 to 3)

IME 4460 CAD Applications Parametric macro development and applications customization on selected
commercial CAD systems. Investigation of existing graphics packages and advanced software design with special emphasis
on surface and solids modeling for design creation, display, and analysis. Prerequisites: IME 2460 and Senior status.
3 hours (2 to 3)

IME 4480 Computer-Aided Analysis Understanding and application of Computer-Aided Design (CAD) principles for
design analysis of conceptual designs. Exposure to and utilization of commercial software packages for computer-based
design analysis techniques (e.g., Finite Element Analysis - FEA) and customized design evaluation (e.g., symbolic
evaluation). Interaction with, and among, selected drafting/modeling and design/analysis packages. Prerequisites:
IME 2830, 2840, 3480, and CS 1110. 3 hours (2 to 3)

IME 4520 Die Casting A study of the elements of the process and control limits to produce sound castings. An
analysis of gating systems will be evaluated with industry computer programs. Alloys will be studied in relation to parts
being produced. Prerequisite: IME 2540, (MSE 2540 or ME 2500). Recommended IME 3520. 3 hours (2 to 3)

IME 4530 Maintenance in Manufacturing Installation, adjustment, and maintenance of equipment. Machinery
monitoring, diagnostics, and maintenance systems. Prerequisite: Senior standing. 3 hours (2 to 3)

IME 4560 Process Testing and Measurement Overview of standardized mechanical and thermal testing procedures
used to characterize both base materials and product assemblies. Tensile, compressive, flexural, and impact procedures for
destructive testing. Measurement with thermal couples, pressure transducers, motion sensors for measurement of both
process and resulting product. Prerequisites: IME 2810, (MSE 2540 or ME 2500), and (STAT 2600 or IME 2610). 3
hours (2 to 3)

IME 4580 Manufacturing Systems Integration Analysis and synthesis of integrated manufacturing systems. Topics
include modeling of manufacturing systems and the role of computers in the control and integration of manufacturing
systems. Prerequisites: IME 2460; recommended, ECE 1010 and IME 3580. 3 hours (2 to 3)

IME 4590 Mold Design and Construction Mold and die design, processing and part requirements, molded holes
and undercuts, threads, tool-making processes, tooling, materials, special fixtures. Mold and die construction using a wide
range of cavity production methods. Computer analysis of temperature, pressure, and filling characteristics of a mold.
Prerequisites: IME 2500, 2540. 3 hours (2 to 3)

IME 4810 Metrology Precision measurement, its relationship to geometric tolerances, critical dimensions, and
calibration. Statistical process control and quality assurance using manual and automated gauges, checking fixtures, non-
destructive testing, and coordinate measuring systems. Use of vision, laser, and other non-contact measuring systems.
Prerequisites: STAT 2600 or IME 2610; recommended, IME 3480. 3 hours (2 to 3)
IME 4870 Manufacturing Productivity Techniques  The application of modern systems for engineering design and the re-engineering of manufacturing and service operations from the initial product design to delivery of the final product. Emphasis will be on manufacturing systems, principles, practices and procedures to enhance productivity, quality, and customer service in a global business environment. Prerequisites: Senior standing; ISMJ or ISMN only.  3 hours (3 to 0)

IME 4880 Applied Process Reengineering Application of analytical and process measurement techniques to process design decisions. Benefits of process standardization and improvement. This course is cross-listed with MKTG 4850. Prerequisites: Senior standing; ISMJ or ISMN or permission of instructor.  3 hours (3 to 0)

IME 4900 Independent Research and Development Individual research or special project in engineering. Open only to juniors and seniors having the approval of the faculty member under whom the student will work and the approval of the department chair. Students may register more than once, not to exceed 6 hours.  1 to 4 hours

IME 4910 Multidisciplinary Senior Proposal Problem definition, project planning and scheduling, follow-up and control techniques. Results in presentation and plan for multidisciplinary senior project. This course, when completed satisfactorily with IME 4920, is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisite: Department approval.  2 hours

IME 4920 Multidisciplinary Senior Project Open-ended multidisciplinary team projects involving systems design, analysis, or application. Results in a tangible system, written report, and presentation. This course, when completed satisfactorily with IME 4910, is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisites: Department approval and "C" or better in IME 4910.  2 hours

IME 4930 Multidisciplinary Senior Project Consultation Supervision of open-ended multidisciplinary team projects involving systems design, analysis, or application. Results in a tangible system, written report, and presentation. Prerequisites: Department approval and "C" or better in IME 4910.  1 hour

IME 4950 Special Topics in Industrial and Manufacturing Engineering A specialized course dealing, each time it is scheduled, with some particular aspect of industrial or manufacturing engineering not usually included in other course offerings. Prerequisite: Permission of instructor. May be repeated for credit with a different topic.  3 hours (3 to 0)

IME 4980 Readings in Engineering Independent readings in engineering. Open only to juniors and seniors having the approval of the faculty member under whom the student will work and the approval of the department chair. Students may register more than once, not to exceed 6 hours.  1 to 6 hours

IME 4990 Studies in Engineering Independent studies in engineering. Open only to students having the approval of the faculty member under whom the student will work and the approval of the department chair. Students may register more than once, not to exceed 6 hours.  1 to 6 hours

IME 5010 Survey of Industrial Engineering Topics Course devoted to studying the basics of the industrial engineering profession. Subjects will include work analysis, engineering economy, statistical quality control, production planning and control, and material handling. Emphasis is placed on the application of these techniques to manufacturing related problems. This course cannot be applied for credit toward the Masters of Science degrees in Engineering Management or Industrial Engineering. Prerequisite: MATH 1220 or 1700 or 2000; recommended, STAT 2600 or 3660 or equivalent.  3 hours (3 to 0)

IME 5020 Manufacturing Engineering Fundamentals This course reviews the fundamental principles in Computer-Aided Design (CAD), Computer-Aided Manufacturing (CAM), and metrology used in the practice of manufacturing engineering. Topics covered include: CAD documentation techniques, CAD modeling, Geometric Dimensioning and Tolerancing (GD & T), EIA/ISO format (G & M code) Numerical Control (N/C) programming, graphical N/C programming systems, and Statistical Process Control (SPC). The laboratory includes hands-on experiences with commercial CAD/CAM systems, N/C machines, and instruments of precision measurement. This course cannot be applied for credit toward any masters or graduate program offered by the IME department. This course may be used to meet the stated prerequisite requirements normally satisfied by IME 2460, IME 3580, and IME 4810 in the graduate program. Prerequisites: Recommended, IME 1420 and 2540.  4 hours (3 to 3)
IME 5050 Continuous Improvement in Operations The purpose of this course is to introduce business and engineering students as well as managers to the process of kaizen (Continuous Improvement) and Total Employee Involvement. 3 hours (3 to 0)

IME 5070 Computer Integrated Manufacturing Topics related to computer integrated manufacturing. Topics include computer process control, robotics, group technology, CNC, CAD, FMS. Hands-on experience with miniature computer controlled equipment will be included. 3 hours (3 to 0)

IME 5080 Advanced Quality Management Analysis and application of new concepts in the field of quality control. Tests of significance, probability studies, and other uses of statistics as applied to quality control. Prerequisite: Recommended, IME 3180 or 3280 or 5010 or equivalent. 3 hours (3 to 0)

IME 5120 Management of Service Operations An analysis of service industries, exploring differences in planning and controlling operations. Emphasis will be on service system design, service quality, and comparing customer expectations with their perceptions. 3 hours (3 to 0)

IME 5160 Design of Experiments and Regression Analysis Topics related to experimental design and regression analysis. Topics include randomized blocks, latin squares, factorials, multiple correlation and regression, and its application to response surfaces. Prerequisite: Recommended, IME 2610 or equivalent. 3 hours (3 to 0)

IME 5420 Human Factors Engineering The process of designing for human use. The course covers the study of the interactions between the individual, equipment, products, and the environment in any human-task-environment system. Topics include human capabilities and limitations; human input, output, and control; work space design; and the work environment. Prerequisites: Recommended, IME 2610 and IME 2620 or equivalent. 3 hours (3 to 0)

IME 5460 Concurrent Engineering The synthesis of automated design, analysis, and manufacturing processes through integrated computer systems. Topics in automated graphics, wireframe, surface and solids modeling, boundary element analysis, and manufacturing process generation will be investigated. Prerequisite: Recommended, IME 2460 or equivalent. 3 hours (3 to 0)

IME 5500 Advanced Plastics Processing Review of optimum machine components and systems. Identification of key process variables within injection molding and extrusion systems. Discussion of the causes of process instability. Determination of the process capability within injection molding and extrusion systems. Prerequisite: Recommended, IME 2500 or equivalent. 3 hours (3 to 0)

IME 5520 Casting Simulation and Solidification The process of computer simulation illustrates the way a casting is filled and how the alloy is allowed to cool. By simulating the process conditions to observe 3-D fill and solidification, researchers will be able to predict potential defects in the casting and redesign the process to eliminate the defects, before making actual castings. Activities will compare theory to practice. Prerequisite: IME 3520 or previous metal casting experience. 3 hours

IME 5570 Special Topics in Industrial and Manufacturing Engineering Group study of special topics in industrial engineering and technology. The specific topic will be shown in the course title when scheduled. May be repeated for credit with a different topic. Prerequisite: Department approval. 3 hours (3 to 0)

International and Area Studies

INTL 2000 Introduction To Global and International Studies Interdisciplinary introduction to global and international studies as an academic field of inquiry, with emphasis on historical development of the global system, global economy and society, environmental conditions and awareness, mass communications, technology and enterprise, response formats for global issues and intellectual and creative life. Explores the relationships between globalizing forces and the countervailing influences of regional and cultural identity. 3 hours

INTL 2500 Topics in Global Studies This is a variable topics course focusing on global and international studies from a variety of perspectives. Repeatable for credit. 3 hours
INTL 3300 Study Abroad - WMU Programs  Student participation in an approved program of study in a foreign college or university organized through Western Michigan University's Office of International Affairs. Where credit toward the major or minor is desired, prior approval must be obtained from the student's major and/or minor department. Individual courses may be used in fulfillment of some areas of the College of Arts and Sciences Liberal Education Curriculum or the University General Education Program provided the content and scope of the course are appropriate. Students desiring to use study abroad in fulfillment of LEC or General Education requirements should bring a course description and syllabus to the Director of Advising in the College of Arts and Sciences Advising Office, prior to enrollment when possible, for approval and placement in the appropriate Distribution Area or Proficiency. May be repeated for up to 32 credit hours. 1 to 16 hours

INTL 3310 Study Abroad - Non-WMU Programs  Student participation in an approved program of study in a foreign college or university organized through an institution other than Western Michigan University. Where credit toward the major or minor is desired, prior approval must be obtained from the student's major and/or minor department. Individual courses may be used in fulfillment of some areas of the College of Arts and Sciences Liberal Education Curriculum or the University General Education Program provided the content and scope of the course are appropriate. Students desiring to use study abroad in fulfillment of LEC or General Education requirements should bring a course description and syllabus to the Director of Advising in the College of Arts and Sciences Advising Office, prior to enrollment when possible, for approval and placement in the appropriate Distribution Area and/or Proficiency. May be repeated for up to 32 credit hours. 1 to 16 hours

INTL 4040 Foreign Studies Seminar  Seminars in the Social Sciences conducted outside the United States by WMU faculty or others associated with WMU. Students who complete such a seminar may receive credit in the Departments of Anthropology, Economics, Geography, History, Political Science, or Sociology if the credit is approved by the chairperson of the department prior to registering for the seminar. Individual courses may be designated as fulfilling some areas of the College of Arts and Sciences Liberal Education Curriculum or the University General Education Program. May be repeated for up to 32 credit hours. 1 to 6 hours

INTL 4050 Foreign Studies Seminar  Seminars in the Humanities conducted outside the United States by WMU faculty or others associated with WMU. Students who complete such a seminar may receive credit in the Departments of Asian and Middle Eastern Languages, Communication, Comparative Religion, English, Foreign Languages and Literatures, Philosophy, and departments in the College of Fine Arts if the credit is approved by the chairperson of the department prior to registering for the seminar. Individual courses may be designated as fulfilling some areas of the College of Arts and Sciences Liberal Education Curriculum or the University General Education Program. May be repeated for up to 32 credit hours. 1 to 6 hours

INTL 4900 Seminar in Global and International Studies  Written and oral discourse on a selected issue in global and international studies. Topics listed in Schedule of Course Offerings. May be repeated. This course is approved as a writing-intensive course which may fulfill the baccalaureate-writing requirement of the student's curriculum. Prerequisites: INTL 2000 and 18 hrs. of course work toward major in global and international studies, exclusive of foreign language requirements. 3 hours

INTL 4980 Directed Research and Field Projects  Individual reading, research, and international field projects. Topics may be listed in Schedule of Course Offerings. May be repeated for up to 6 hrs. Prerequisite: Advisor approval. 1 to 6 hours

INTL 5000 Topics in Global and International Studies  Topics may be listed in Schedule of Course Offerings. May be repeated. 1 to 3 hours

Italian
ITAL 1000 Basic Italian I  Fundamentals of Italian with communicative emphasis. Italian cultural readings. 4 hours

ITAL 1010 Basic Italian II  Continuation of ITAL 1000. Prerequisite: ITAL 1000. 4 hours

ITAL 2000 Intermediate Italian I  The development of spoken and written expression in the Italian language with an emphasis on grammar review. Prerequisite: ITAL 1010 or equivalent. 4 hours
ITAL 2010 Intermediate Italian II The continued development of spoken and written expression in the Italian language through readings and discussions of civilization and culture materials Prerequisite: ITAL 2000 or equivalent. 4 hours

ITAL 4770 Foreign Study Student participation in departmentally approved program of study abroad. Repeatable for credit up to 32 credit hours. Prerequisite: Prior permission of departmental advisor and chairperson. Variable

ITAL 5020 Italian for Graduate Study Italian instruction for graduate students enrolled in a degree program who need knowledge of Italian for their field of study. Students will sit in appropriate level course for their learning. May be repeated for credit. May not be taken by undergraduate students in any field. Prerequisite: Approval of department of student's graduate program and approval of Department of Foreign Languages. 3 to 4 hours

ITAL 5200 Topics in Italian Linguistics and Language Science The advanced study of a language or a group of languages from a scientific point of view, such as the function and status of languages in society, the comparative history of different language families or the manipulation of language for pragmatic needs across cultures. May be offered as ARAB/CHIN/FREN/GER/GREK/ITAL/JPNS/LAT/RUSS 5200. Prerequisites: Completion of 4 courses in area of specialization. 3 hours

Japanese

JPNS 1000 Basic Japanese I Acquisition of beginning level communicative competence of the Japanese language in all four skills - speaking (able to handle some survival situations); listening (able to understand simple everyday conversation with repetition); writing (able to write short memos, simple letters and journals); and reading (able to read all hiragana and katakana). Introduction to about 25 kanji, or Chinese characters, and some aspects of the Japanese culture and people. Introduction to computer-assisted Japanese language learning, including basic word-processing in Japanese. 4 hours

JPNS 1010 Basic Japanese II Continuation of JPNS 1000. Acquisition of another 75 kanji. Prerequisite: JPNS 1000 or equivalent. 4 hours

JPNS 2000 Intermediate Japanese I Continuation of JPNS 1010. Achievement of intermediate level communicative competence of the Japanese language in four skills. Acquisition of another 75 kanji. Prerequisite: JPNS 1010 or equivalent. 4 hours

JPNS 2010 Intermediate Japanese II Continuation of JPNS 2000. Learning of another 75 kanji. Completion of basic Japanese grammar and structures. Prerequisite: JPNS 2000 or equivalent. 4 hours

JPNS 2750 Japanese Life and Culture This course is designed to introduce selected themes of Japanese life and culture, past and present. The main themes covered by this course are mostly linguistic, literary, philosophic, artistic, and religious. The course will be offered in English with no prerequisites and open to all students. The aim is to provide students new to the subject with an informed and balanced first impression of some of the fundamental components of Japanese culture, and to do so in such a way as to demonstrate its differences from the Western heritage while also noting their universal human value. 3 hours

JPNS 3000 Advanced Japanese I Continuation of JPNS 2010. Study of more complex Japanese grammar and structures. Acquisition of another 100 <em>kanji</em>. Fundamental skills of Japanese writing both in handwriting and on the computer. Prerequisite: JPNS 2010. 4 hours

JPNS 3010 Advanced Japanese II Continuation of JPNS 3000. Study of more complex Japanese grammar and structures. Acquisition of another 100 <em>kanji</em>. Emphasis upon increasing the student’s command of conversational Japanese. The course includes role play, film viewing with discussion, speeches, debates, and other communicative activities. Prerequisite: JPNS 3000. 4 hours

JPNS 3240 Business Japanese This course emphasizes the effective use of the Japanese spoken language in contexts likely to be encountered by a career-oriented professional in Japan and the U.S. Topics may include business ritual, business travel, meetings, bureaucracy, annual reports, and socializing. The course includes practice in reading newspapers, business-letter writing, transcription/dictation of texts, and listening to news broadcasts. Prerequisite: JPNS 2010. 3 hours
JPNS 4510 Advanced Japanese Language  Advanced study of conversation, composition, or reading in Japanese. Topic may vary from semester to semester. May be repeated for credit with change of topic. Prerequisites: JPNS 3160 and 3170 or JPNS 3000 and 3010. 3 hours

JPNS 4770 Foreign Study  Student participation in departmentally approved program of study abroad. Repeatable for credit up to 32 credit hours. Prerequisite: Prior permission of departmental advisor and chairperson. Variable

JPNS 5020 Japanese for Graduate Study  Japanese instruction for graduate students enrolled in a degree program who need knowledge of Japanese for their field of study. Students will sit in appropriate level course for their learning. May be repeated for credit. May not be taken by undergraduate students in any field. Prerequisites: Approval of department of student's graduate program and approval of Department of Foreign Languages. 5000-level courses may be taken only by advanced undergraduate students. Advanced undergraduate students are defined as those who have satisfactorily completed a minimum of four courses, or equivalent, applicable towards a minor in any one language. Each course, however, may have more specific and/or additional prerequisites. 3 to 4 hours

JPNS 5200 Topics in Japanese Linguistics and Language Science  The advanced study of a language or a group of languages from a scientific point of view, such as the function and status of languages in society, the comparative history of different language families or the manipulation of language for pragmatic needs across cultures. May be offered as ARAB/CHIN/FREN/GER/GREK/ITAL/JPNS/LAT/RUSS 5200. Prerequisites: Completion of 4 courses in area of specialization. 5000-level courses may be taken only by advanced undergraduate students. Advanced undergraduate students are defined as those who have satisfactorily completed a minimum of four courses, or equivalent, applicable towards a minor in any one language. Each course, however, may have more specific and/or additional prerequisites. 3 hours

JPNS 5500 Independent Study in Japanese  Directed individual study of a specific topic in Japanese language, literature, or culture. May be repeated for credit. Prerequisites: Completion of four courses in Japanese or equivalent; minimum grade point average of 3.0 in Japanese; departmental approval required. 5000-level courses may be taken only by advanced undergraduate students. Advanced undergraduate students are defined as those who have satisfactorily completed a minimum of four courses, or equivalent, applicable towards a minor in any one language. Each course, however, may have more specific and/or additional prerequisites. 1 to 3 hours

Journalism

JRN 1000 Foundations of Journalism  An examination of the role of journalism in American society and an introduction to writing for newspapers. This course includes discussion of news values, objectivity, journalism history, libel, ethics, current events and the impact of the mass media on individuals, groups and institutions. Students will learn news story content and structure and Associated Press Style. There is a strong emphasis on news writing assignments in this course. 3 hours

JRN 2100 News Writing and Reporting  A continuum of JRN 1000, this course continues to hone students' skills in news writing and reporting but with an emphasis on out-of-class reporting and information gathering, ethics, current events, and a variety of news stories and styles are emphasized. Students will learn about beat reporting, the use of public documents, and meeting coverage. Prerequisites: "C" or better in JRN 1000, COM 2000, COM 2400; admitted major or declared Communication minor status. 4 hours

JRN 2500 Photojournalism  Introduction to the use of still photography in journalism and related information gathering processes. Students will learn appropriate camera operation, the producing and processing of photographs and the preparation and editing of photographs for print and on-line media. Prerequisite: "C" or better in JRN 2100. 3 hours

JRN 3010 Copy and Content Editing  This course provides practice in copy and content editing. Students learn the techniques of copy, content and page editing. If focuses on copy editing, rewriting, typography, headline writing, page design, handling photographs, developing story ideas, working with writers, and editing for accuracy and fairness. This course offers students an overview of the roles and responsibilities of news editors. 4 hours

JRN 3100 Advanced Reporting and Online Journalism  An advanced course that focuses on advanced reporting and online research. Students will learn to gather and evaluate information from a variety of sources including libraries, government documents, databases and the World Wide Web. Students conduct research and interviews during a semester-
long project to produce a comprehensive, in-depth news story. Prerequisites: "C" or better in JRN 2100; admitted major or declared Communication minor status. 4 hours

JRN 3300 The Cultural History of American Journalism This is a study of the historic relationship between American culture and society and the printed, broadcast, and computerized news media. The course will consider how the news media influence and are influenced by cultural, social, intellectual, political, and economic institutions. As part of the course, students will study the contributions and lives of influential American journalists such as Benjamin Franklin, Thomas Paine, William Cullen Bryant, Elias Boudinot, Horace Greeley, Frederick Douglass, Ida M. Tarbell, W.E.B. DuBois, Ida B Wells-Barnett, Walter Lippmann, Henry Luce, Margaret Bourke-White, John H. Johnson, Edward R. Murrow, and Tim A. Gingo, Jr. Particular attention will also be paid to how the news media have impacted the social status and cultures of lesser-heard voices: women, African and Native Americans, immigrants, political dissidents, and others. Prerequisite: Junior standing, or sophomore standing with instructor's permission. 3 hours

JRN 4100 Specialized Reporting A writing-intensive capstone course for journalism majors and minors that explores in-depth an area of journalism. The course will include advanced reporting and writing assignments, as well as lecture in the special topic selected for that semester. Topics may include feature writing, health and science reporting, critical writing, the black press, narrative journalism and journalism history. JRN 4100 satisfies the baccalaureate-level writing requirement. Prerequisites: "C" or better in JRN 3100; admitted major or declared Communication minor status. 3 hours

JRN 4200 Journalism Law and Ethics The study of the legal and intellectual ramifications of the practice of journalism. Topics and issues include the application of Constitutional, common, and statutory law to journalism, reporting on the law and various court systems, and ethical behavior in writing and reporting news. Students will study the responsibilities of journalists to bring to their work relevant knowledge, informed judgment, critical intelligence and appropriate ethical standards. Prerequisite: "C" or better in JRN 2100. 3 hours

JRN 4990 Journalism Practicum Students must work 40 hours per credit hour during the course of the internship. Students must submit an application prior to contacting an internship sponsor and must receive prior approval from the journalism faculty. Prerequisites: "C" or better in JRN 1000 and JRN 2100 and School approval; no more than 6 credit hours in combination with COM 4990 or JRN 4990. 1 to 3 hours

Language

LANG 1000 Basic Foreign Languages I "Study of a foreign language not regularly offered in the department. Fundamentals of the particular foreign language with emphasis on specific skills, as appropriate for that language." 4 hours

LANG 1010 Basic Foreign Languages II Continuation of LANG 1000. LANG 1000 or equivalent in the same language. 4 hours

LANG 2000 Intermediate Foreign Languages I "Continuation of LANG 1010. Review, practice and development of knowledge and skills as appropriate for the particular foreign language." LANG 1010 or equivalent in the same language. 4 hours

LANG 2010 Intermediate Foreign Languages II Continuation of LANG 2000. LANG 2000 or equivalent in the same language. 4 hours

LANG 2500 The Nature of Language "A broad introduction to the nature and development of language in human society and to the interdisciplinary aspects of current studies of language and language behavior." Student cannot complete both LANG 1050 and LANG 2500 for credit. 4 hours

LANG 2800 Comparative Language Study: French, German, and English in Society "A comparative study of language form and function and linguistic institutions in French-, German-, and English-speaking societies. Introduction to theories for the description and analysis of language in society." Taught in English; does not count toward major or minor in French or German. 3 hours
LANG 3400 Introduction to Germanic Linguistics  "Introduction to the study of Germanic languages from a scientific perspective, considering the linguistic form and sociolinguistic function. Examination of the differences between major Germanic languages (English & German) and exploration of minor languages (e.g. Dutch, Scandinavian)." Cross-listed with GER 3400. 3 hours

LANG 3500 Classical Greek and Roman Mythology Investigates the origins, elements, and interpretations of the principal myths and legends of Greece and Rome and their preservation not only in literature, but also in painting, music and sculpture. No prerequisite. 3 hours

LANG 3510 The City of Gods: Power and Morality in the Roman World The foundation myth of Rome combines elements of the sacred with rape and fratricide. This course explores the complex and sometimes paradoxical relationship between Rome's power and morality as portrayed by prominent writers. The evolving sense of Roman morality provides a perspective for understanding and appreciating morality, or moralities, today. Works from a variety of genres may be studied, including biography, epic poetry, satire, political oratory, and essays. 3 hours

LANG 3530 Russian Myths and Tales  "This course introduces the student to a wide selection of Russian myths and tales, and examines the aesthetic, social and psychological values that they reflect. Students will gain an understanding of the cultural influence fairy tales have in literature, music and ballet, in painting and in film." 3 hours

LANG 3750 Foreign Literature in English Translation: Views of Humanity  "The content of the course will stress the observation and experience of another society and culture as depicted in some of the great writings of foreign literature through reading in English. Universal themes about the human condition and insight into their treatment by representative native writers will be presented. The course will consider the differences in treatment of individuals and society and will offer a comparison to contemporary life through various literary works and the social-historical background for each of the selections. This course does not apply toward a major or minor in French or German, but it may apply toward a major or minor in Latin or a minor in Chinese, Japanese, and Russian. The course may be taken in more than one language area. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum." Representative topics which may be treated in this course include: Classical Literature in English Translation
Themes and genres of classical literature in English translation. Possible themes include: Women in Greek Drama; Invention in Ovid's Metamorphoses; the Tragic Outlook; Ancient Epic; the Philosophic-Satirical Tradition in Rome.
French Literature in English Translation
A thematic and stylistic analysis of major French writers from LaFayette to the present, to include Stendahl, Balzac, Flaubert and Proust.
German Literature in English Translation
A comparative study of literary themes and techniques of major German writers from Hauptmann to the present, including Mann, Brecht, Kafka, and Borchert.
Russian Literature in English Translation
This course, taught in English, may be a survey of 19th and/or 20th century Russian prose in its historical and cultural context, or it may be a course examining works of a particular author. May be repeated for credit when the topics vary. Currently offered are the following: Dostoevsky and the Existentialists, Russian Short Fiction, Leo Tolstoy.
Spanish-American Literature in English Translation
Selected prose and poetry from late 19th century (Ruben Dario and Modernismo) to the contemporary writers of Hispanoamerica.
Spanish Literature in English Translation
Selected Spanish prose and poetry from the Middle Ages to the twentieth century. The course will include, but will not be restricted to, works by Lope de Vega, Cervantes, St. Teresa, Calderon de la Barca, Unamuno, and Garcia Lorca, as well as the Anonymous Poem of the Cid and Lazarillo de Tormes." 3 hours

LANG 5200 Topics in Linguistics and Language Science The advanced study of a language or a group of languages from a scientific point of view, such as the function and status of languages in society, the comparative history of different language families or the manipulation of language for pragmatic needs across cultures. May be offered as ARAB/CHIN/FRN/GER/ GREK/ITAL/JPNS/LAT/RUSS 5200. Prerequisites: Completion of 4 courses in area of specialization. 3 hours
LANG 5500 Independent Study in Classics Directed, individual study of a specific topic related to Classical languages, literature, and/or culture. Prerequisite: Completion of four courses or equivalent in classics; minimum grade point average of 3.0 in the major; departmental approval required. May be repeated for credit. 1 to 3 hours

LANG 5580 Second Language Acquisition and Teaching Required for modern language teaching majors and minors. There will be a dual focus: a theoretical focus on second language acquisition and the ways by which non-native speakers come to acquire a foreign language; and a practical focus on methods of teaching in a proficiency-oriented program, as well as on the teaching and learning of culture and the pedagogical use of technologies. Students must complete this course before completing directed teaching. Prerequisites: Minimum of four courses, including a language at the 3160 and 3170 level, or equivalent, or permission of instructor. 3 hours

LANG 5580 Modern Language Instruction (in French, German, Spanish, or other language) Required for modern language teaching majors and minors. This course will acquaint prospective language teachers with various approaches and strategies involved in modern language teaching. Specifically, in a performance-oriented program, students will learn theory and practice related to teaching the listening, speaking, reading and writing skills, as well as the culture component. Students must complete this course before beginning directed teaching. Prerequisite: Minimum of four courses including a language at the 3160 and 3170 level, or equivalent, or permission of instructor. This course will be offered regularly. The comparable methods course for Latin is LAT 557 Teaching of Latin. 3 hours

LANG 5800 Foreign Language for Special Purposes The study of or practice in a specialized area in the field of foreign language and culture such as court interpreting, medical or engineering terminology, or public school administration. The content of this course may vary from semester to semester. Students may repeat the course for credit, provided the subject matter differs. Prerequisite: Completion of four courses in area of specialization; departmental approval required. 1 to 12 hours

Latin
LAT 1000 Basic Latin I Fundamentals of Latin; readings emphasize Roman thought, culture, and civilization. 4 hours

LAT 1010 Basic Latin II Continuation of 1000. Prerequisite: LAT 1000 or equivalent. 4 hours

LAT 2000 An Introduction to the Study of Latin Literature A review of Latin grammar based on selections from Latin authors representing various genres, for example: history, satire, political oratory, lyric poetry, comic drama. Prerequisite: LAT 1010 or equivalent. 4 hours

LAT 2010 Latin Composition The course will cover fundamentals of writing Latin correctly and well, including grammar, idiom, word-choice, clarity, and elegance. While the course will emphasize ancient models of Latin writing, later examples may be studied. Topics for composition may include contemporary as well as ancient subjects. Prerequisite: LAT 2000. 4 hours

LAT 2030 Cicero Selections from the writing of Cicero with special attention to improving reading skills while studying the thought and style of one of Rome's leading statesmen and orators. Prerequisite: LAT 2000. 4 hours

LAT 2040 Vergil Readings from the works of Vergil especially the Aeneid, with particular attention to improving language skills while exploring Vergil's thought and style. Prerequisite: LAT 2000 or equivalent. 4 hours

LAT 3240 Latin Literature Selections from Latin prose and poetry. Since specific readings vary according to genre, author, or period, this course may be repeated for credit. Prerequisite: LAT 2000 or equivalent. 4 hours

LAT 4770 Foreign Study Student participation in departmentally approved program of study abroad. Repeatable for credit up to 32 credit hours. Prerequisite: Prior permission of departmental advisor and chairperson. Variable

LAT 5020 Latin for Graduate Study Latin instruction for graduate students enrolled in a degree program who need knowledge of Latin for their field of study. Students will sit in appropriate level course for their learning. May be repeated for credit. May not be taken by undergraduate students in any field. Prerequisites: Approval of department of student's graduate
program and approval of Department of Foreign Languages. 5000-level courses may be taken only by advanced undergraduate students. Advanced undergraduate students are defined as those who have satisfactorily completed a minimum of four courses, or equivalent, applicable toward a major or minor in any one language. Each course, however, may have more specific and/or additional prerequisites. 3 to 4 hours

LAT 5200 Topics in Latin Linguistics and Language Science The advanced study of a language or a group of languages from a scientific point of view, such as the function and status of languages in society, the comparative history of different language families or the manipulation of language for pragmatic needs across cultures. May be offered as ARAB/CHIN/FREN/GER/GREK/ITAL/JPNS/LAT/RUSS 5200. Prerequisites: Completion of 4 courses in area of specialization. 5000-level courses may be taken only by advanced undergraduate students. Advanced undergraduate students are defined as those who have satisfactorily completed a minimum of four courses, or equivalent, applicable toward a major or minor in any one language. Each course, however, may have more specific and/or additional prerequisites. 3 hours

LAT 5500 Independent Study in Latin Directed, individual study of a specific topic in Latin literature or linguistics. Departmental approval required for admission. Repeatable for credit. Prerequisite: A minimum grade point average of 3.0 in the major. 5000-level courses may be taken only by advanced undergraduate students. Advanced undergraduate students are defined as those who have satisfactorily completed a minimum of four courses, or equivalent, applicable toward a major or minor in any one language. Each course, however, may have more specific and/or additional prerequisites. 1 to 3 hours

LAT 5570 Teaching of Latin The purpose of the course is to acquaint the prospective teacher with theory and practice appropriate to the teaching of the Latin language, literature, and culture in its classical context and as it relates to the modern world. Required of Latin teaching majors and minors. Prerequisites: Completion of four courses, or equivalent, in Latin; or permission of instructor. 5000-level courses may be taken only by advanced undergraduate students. Advanced undergraduate students are defined as those who have satisfactorily completed a minimum of four courses, or equivalent, applicable toward a major or minor in any one language. Each course, however, may have more specific and/or additional prerequisites. 3 hours

LAT 5600 Medieval Latin A survey of the development of medieval Latin from late antiquity to the Renaissance. Specimens will include major literary and documentary sources of the medieval centuries including new genres such as hagiography, monastic rules, hymns, and homilies. Prerequisite: One of LAT 2000, 2010, 2040, 3240, or equivalent, or permission of the department. 5000-level courses may be taken only by advanced undergraduate students. Advanced undergraduate students are defined as those who have satisfactorily completed a minimum of four courses, or equivalent, applicable toward a major or minor in any one language. Each course, however, may have more specific and/or additional prerequisites. 4 hours

Law

LAW 1500 Personal Law Personal Law studies some of the legal problems faced in everyday living, such as traffic infractions, rental and property laws, consumer disputes, insurance, and wills. It presents a practical approach, which also provides a fundamental basis for further legal study. May not be taken to fulfill BBA requirements. 3 hours

LAW 3500 Computer Law Students will learn how the legal systems of the United States and other countries address the legal challenges raised by rapidly changing computer technology. Students will learn what laws apply to their business and personal actions so that they can make the most appropriate decisions. However, more importantly, students will learn how those laws were passed and why. 3 hours

LAW 3800 Legal Environment An introduction to the legal environment in society. An examination of the role of law in society, the structure of the American legal system and the basic legal principles governing individual conduct. 3 hours

LAW 3810 Ecology and the Law The study of law as it relates to people's efforts to protect the environment. Included will be an examination of traditional common law principles and federal and state statutes relating to environmental protection, analysis of recent cases, and discussion of techniques for the effective use of administrative procedures of the various environmental protection agencies. 3 hours
LAW 3820 Business Law The study of law affecting common business transactions. The course examines the formation and performance of contracts, basic types of property interests, and key aspects of laws affecting commercial paper. Sales law, creditor-debtor relationships, and estate planning laws are briefly discussed. Prerequisite: LAW 3800. 3 hours

LAW 3830 Commercial Law The study of law affecting the organization and operation of business firms. Organizational concerns focus on partnership and corporation laws and regulations affecting the issuing and sale of corporate securities. The agency relationship and related laws that affect the operation of business activities are also examined. Prerequisite: LAW 3800. 3 hours

LAW 3840 Criminal Law and Procedure This course surveys the laws and procedures underlying the American criminal justice system. After an introduction to the philosophy and sources of criminal law, the course investigates the legal definition of particular crimes and studies their elements. Legal procedures from arrest, through pre-trial and trial phases, to sentencing, probation and parole are also considered, together with relevant evidentiary topics. Prerequisite: SOC 2620 or consent of instructor. 4 hours

LAW 3850 e-Business Law This course examines the legal aspects of electronic business. Law is an essential part of any study of electronic business since law provides three types of infrastructure required for any economic system to function, including electronic business. First, law defines what is property (i.e., the objects of trade and ownership - without property definitions, the whole idea of business falls apart). Second, law plays an integral part in the creation of a secure system of payment for the purchase items on the Internet. Finally, law provides an enforcement mechanism is needed to punish transgressions of the substantive rules that govern electronic business. This course will also examine ethical concerns involved in electronic business. Prerequisite: LAW 3500 or LAW 3800. 3 hours

LAW 4820 Employment Law A survey of laws affecting management-labor relations. The course examines general employer-employee relationships, emphasizing the hiring and firing of employees, employee benefit programs, workman's compensation laws, and civil rights rules and regulations. Prerequisite: LAW 3800. 3 hours

LAW 4830 Real Estate Law The study of land ownership, sales agreements, mortgages, land contracts, leases, zoning, condemnation and urban land development problems. Prerequisite: LAW 3800. 3 hours

LAW 4840 International Business Law A study of national, regional and international laws which affect the conduct of international business. An examination of the legal regulations which promote or restrain trade or investment by international business firms. Prerequisite: LAW 3800. 3 hours

LAW 4860 Marketing and Sales Law The course examines the law as it applies to the sale of goods, warranties affecting such sales and the methods of financing those sales. Legal obligations imposed upon and risks assumed by the seller are emphasized. Prerequisite: LAW 3800. 3 hours

LAW 4980 Readings and Research in Commercial Law Directed individual study of finance or legal problems which are not treated in departmental course offerings. Prerequisite: Written consent of instructor and department chair is required. 1 to 3 hours

Mathematics
MATH 1090 Computational Skills A mastery-based remedial course designed to sharpen computational skills involving whole numbers, fractions, decimals, percents, signed numbers and simple geometric figures. These skills are used in solving word problems. All entering students must take an exam on this material unless exempted on the basis of ACT Mathematics score. Students who do not pass the exam are required to take this course and enrollment in this course is restricted to these students. Credit for the course will not apply to the number of credits needed for graduation. 2 hours

MATH 1100 Algebra I A course in algebra at the level usually covered in high school. Review and practice with basic algebraic skills. Topics include arithmetic foundations of algebra, properties of real numbers, linear equations and inequalities, and systems of linear equations. This is a continuous progress, mastery-based course. Credit for MATH 1100 will not be granted to anyone having already received credit with grade of "C" or better in any of MATH 1110, 1160, 1180,
1220, or 2000 or equivalent transferable courses. Prerequisite: MATH 1090 or satisfactory score on mathematics placement mechanism. 3 hours

MATH 1110 Algebra II A continuation of MATH 1100. Topics include polynomials, fractional and radical equations, logarithmic and exponential functions, complex numbers, quadratic equations, and systems of quadratic equations. Credit for MATH 111 will not be granted to anyone having already received credit with a grade of "C" or better in any of MATH 1180, 1220, 2000 or equivalent transferable courses. Prerequisite: MATH 1100, or one year of high school algebra and satisfactory score on mathematics placement mechanism. ACT/SAT score of 19/460 or greater. 3 hours

MATH 1140 Excursions in Mathematics This course satisfies the general education requirement of a college level mathematics course. It is intended for students whose programs of study have no further mathematics requirements. Its purpose is to develop an awareness of the use of mathematics in the world around us. Areas of application may include: compound interest and monetary growth, planning and scheduling, collecting and interpreting data, games and decision making, measurement and geometry, patterns and art. Prerequisite: MATH 1100 or satisfactory score on Mathematics Department placement mechanism. 3 hours

MATH 1160 Finite Mathematics with Applications This course is designed to give the student a background in the elements of finite mathematics. Included will be a discussion of: sets, relations and functions; systems of linear equations and inequalities; vectors and matrices; concepts of probability; random variables and distribution functions; applications of linear algebra and probability. Prerequisite: MATH 1100, or 2 years of college preparatory mathematics and satisfactory score on placement mechanism. ACT/SAT score of 19/460 or greater. 3 hours

MATH 1180 Precalculus Mathematics This course is designed to provide the student with basic algebraic and trigonometric concepts necessary for calculus. Topics include: real numbers, inequalities, coordinate systems, functions, polynomials, solutions of polynomial equations, exponential and logarithmic functions, trigonometry and trigonometric functions. Prerequisite: MATH 1110, or at least 3 years of college preparatory mathematics and satisfactory score on placement mechanism. ACT/SAT score of 24/560 or greater. 4 hours

MATH 1220 Calculus I The first of a two-semester sequence in differential and integral calculus. Functions, limits, continuity, techniques and applications of differentiation, integration, trigonometric, logarithmic and exponential functions. Prerequisite: MATH 118, or at least 3-1/2 years of college preparatory mathematics, including trigonometry and satisfactory score on the placement mechanism. ACT/SAT score of 27/610 or greater. Students who take more than one of MATH 1220, MATH 1700, or MATH 2000 will receive only 4 hours of credit toward graduation. 4 hours

MATH 1230 Calculus II A continuation of Calculus I. Techniques and applications of integration, trigonometric functions, sequences and series, indeterminate forms, improper integrals, applications to elementary differential equations. Prerequisite: MATH 1220 (recommended) or MATH 1700. 4 hours

MATH 1450 Discrete Mathematical Structures Sets, functions, relations, graphs, digraphs, trees, recursion, mathematical induction and other proof techniques, counting techniques, Boolean Algebras and asymptotic analysis of algorithms. The relationship of these concepts with computer science will be emphasized. Prerequisites: MATH 1220 or MATH 1700, and an introductory programming course. 3 hours

MATH 1500 Number Concepts for Elementary/Middle School Teachers This course provides a foundation in number concepts appropriate for elementary and middle school teachers. Topics include numeration systems, number theory, rational numbers, and integers. Emphasis is placed on conceptual understanding, problem solving, mental arithmetic, computational estimation, and calculator use. Prerequisite: MATH 1100 with a grade of "C" or better or a satisfactory score on placement mechanism. ACT/SAT score of 19/460 or greater. Enrollment in this course is limited to those whose curricula include either Elementary Education or Special Education. 4 hours

MATH 1510 Geometry for Elementary/Middle School Teachers This course explores the fundamental ideas of planar and spatial geometry. Content includes the analysis and classification of geometric figures; the study of geometric transformations; the concepts of tessellation, symmetry, congruence, and similarity; and an overview of measurement. The course also includes an introduction to the use of computers in the teaching and learning of informal geometry. Prerequisite: MATH 1500 with a grade of "C" or better, or placement into MATH 1220. ACT/SAT score of 27/610 or greater. 4 hours
MATH 1700  Calculus I, Science and Engineering  The first of a two-semester sequence in differential and integral calculus which emphasizes applications and preparation for science and engineering (particularly physics). Vectors, functions, limits, continuity, techniques of differentiation, integration, and trigonometric, logarithmic and exponential functions.  Prerequisite: MATH 1180 or Placement into MATH 1220. Students who take more than one of MATH 1220, 1700, or 2000 will receive only 4 hours of credit toward graduation.  4 hours

MATH 1710  Calculus II, Science and Engineering  A continuation of MATH 1700, with further applications and preparation for science and engineering. Techniques of integration, more on trigonometric functions, sequences and series, indeterminate forms, improper integrals, and more on elementary differential equations.  Prerequisite: MATH 1700 (recommended) or (MATH 1220 and departmental approval).  4 hours

MATH 1900  Survey of Mathematical Ideas  A survey of significant, active areas of mathematics with the emphasis on concepts rather than calculations. The historical origin and development of certain mathematical ideas will be included. The areas of mathematics investigated will include topics from set theory, probability theory, number theory, computer mathematics, and graph theory. This course will not satisfy any program requirements in mathematics.  Prerequisite: MATH 1100 or satisfactory score on Mathematics Department placement mechanism. ACT/SAT score of 19/460 or greater.  4 hours

MATH 2000  Calculus with Applications  A terminal one semester course in calculus with emphasis on techniques and applications. Topics include functions, limits, differentiation, integration and applications. This course should not be elected by those students taking courses in the MATH 1220 to 1230 sequence.  Prerequisite: MATH 1110, or 1-1/2 years high school algebra and 1 year high school geometry and satisfactory score on placement mechanism. ACT/SAT score of 24/560 or greater. Students who take more than one of MATH 1220, 1700, or 2000 will receive only 4 hours of credit toward graduation.  4 hours

MATH 2300  Elementary Linear Algebra  Vectors and geometry in two and three dimensions, systems of linear equations, matrix algebra, linear transformations in R2 and R3, generalizations to the vector spaces Rn, inner products, determinants. Some emphasis on proofs.  Prerequisite: MATH 1220 or 1700 (MATH 1230 or 1710 recommended).  4 hours

MATH 2650  Probability and Statistics for Elementary/Middle School Teachers  This course covers basic concepts of statistics and probability appropriate for elementary and middle school teachers. Topics include statistical techniques for organizing, summarizing, presenting, and interpreting data sampling techniques; simulation methods; counting techniques; and analytic methods in probability. Computers are used to reinforce major course ideas.  Prerequisite: MATH 1500 with a grade of "C" or better.  4 hours

MATH 2720  Multivariate Calculus and Matrix Algebra  Vectors and geometry in two and three dimensions, matrix algebra, determinants, vector differentiation, functions of several variables, partial differentiation, linear transformations, multiple integration, and change of variables. The computer algebra system Maple will be used to explore some of these topics.  Prerequisite: MATH 1710 or MATH 1230.  4 hours

MATH 3140  Mathematical Proofs  The prime objective of this course is to involve the students in the writing and presenting of mathematical proofs. The topics in this course will include logic, types of proof, sets, functions, relations, mathematical induction, proofs in an algebraic setting such as divisibility properties of the integers, proofs in an analytic setting such as limits and continuity of functions of one variable. Additional topics may include elementary cardinal number theory, paradoxes and simple geometric axiom systems. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum.  Prerequisites: MATH (1230 or 1710) and MATH (2300 or 3740).  3 hours

MATH 3300  Modern Algebra I  This course introduces the abstract algebraic concepts of groups, rings, and fields, and shows how they relate to the problem of finding roots of polynomials. Topics include: Properties of the integers, congruences, the Euclidean algorithm, groups, subgroups, cosets, Lagrange's theorem, direct product, isomorphism, symmetric groups, rings, integral domains, polynomial rings, fields, field extensions, quotients of polynomial rings.  Prerequisite: MATH 3140.  4 hours
MATH 3400 Fundamental Concepts of Geometry This course examines the axiomatic structures of Euclidean geometry and elementary non-Euclidean geometries. Transformational approaches to Euclidean geometry are also considered. Prerequisite: MATH 3140. 3 hours

MATH 3500 Teaching of Middle School Mathematics This course considers curriculum issues and trends in middle school mathematics focusing on methods and materials for teaching mathematics effectively to middle school students. Activity and laboratory approaches for teaching mathematics are emphasized. Prerequisite: MATH 3140 or consent of instructor. 3 hours

MATH 3510 Computing Technology in Secondary School Mathematics This course introduces uses of computing technology to enhance and extend the learning of mathematical topics in grades 7 to 12. Emphasis is placed on the use of technology in problem solving and concept development. This course is open only to students pursuing a program leading to professional mathematics teacher certification. Prerequisites: Prior programming experience, MATH 3500, and acceptance into Professional College of Education. 3 hours

MATH 3520 Teaching of Elementary/Middle School Mathematics This course covers curriculum and instructional issues in elementary school mathematics. Prerequisites: MATH 1510 and MATH 2650 with grades of "C" or better and admittance to the Elementary Education Program in the College of Education. 3 hours

MATH 3740 Differential Equations and Linear Algebra Slope fields, first order differential equations and applications, linear differential equations, numerical methods, solution of systems of linear algebraic equations, eigenvalues and eigenvectors, systems of differential equations, and series solutions. The computer algebra system Maple will be used to explore some of these topics. Prerequisite: MATH 2720. 4 hours

MATH 3900 Undergraduate Seminar This seminar features student participation covering mathematical topics not normally included in regular major programs. May be repeated for credit. Prerequisite: permission of Department. 1 hour

MATH 3950 Practicum in Mathematics Students enrolled in this course will normally work in the modular math program. The course may be repeated. Prerequisite: consent of instructor. 1 hour

MATH 4020 Mathematical Modeling An introduction to the methods of mathematical modeling. The major aim of this course is to teach the formulation of mathematical problems from real world practical situations. The representation of a practical or scientific problem in mathematical terms may give a more precise understanding of its significant properties, and may allow prediction of future events. Case studies considered will involve many areas of application and several different mathematical techniques. The computer will be used as a tool in pursuing some of these problems. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisite: MATH 3740 and a computer programming course. 3 hours

MATH 4080 Linear Programming Linear programming and its applications. This course will cover basic theory and applications of linear programming. The topics will include convex geometry, the simplex algorithm, and duality. The applications may include problems in the areas of network optimization, the transportation problem, the assignment problem, the diet problem, cluster analysis, L1 fits, game theory, and scheduling. Prerequisite: MATH 2300 or 3740. 3 hours

MATH 4300 Modern Algebra II This course continues MATH 330 by studying groups, rings, and fields in more generality and detail. Topics are chosen from: Group homomorphism, normal subgroups, quotient groups, the fundamental homomorphism theorem, groups acting on sets, Sylow's theorem, ring homomorphisms, ideals, quotient rings, Euclidean domains, principal ideal domains, unique factorization domains. Prerequisite: MATH 3300. 3 hours

MATH 4400 Graphs and Mathematical Models Elements of graph theory, including the study of Eulerian graphs, Hamiltonian graphs, planar graphs, trees, digraphs, and the applications of graphs as models. Emphasis will be on proofs and proof techniques. Examples of other discrete models may be considered. Prerequisite: MATH 1450 or MATH 3140 or consent of instructor. 3 hours

MATH 4450 Algorithmic and Applied Combinatorics An algorithmic approach to combinatorics including graph theory, enumeration, and applications. Prerequisites: MATH 1450 or MATH 3140 (CS 1110 recommended). 3 hours
MATH 4500  Teaching of Secondary School Mathematics  This course considers curriculum issues and trends in secondary school mathematics focusing on methods and materials for teaching mathematics effectively to secondary school students. Prerequisite: MATH 3510 and one of MATH 3300 or MATH 3400. 3 hours

MATH 4900  Topics in Mathematics  The content of this course varies with the semester offered and with the instructor. The course is intended to introduce students to significant topics not ordinarily encountered and to present more variety in their undergraduate programs. May be taken more than once with the approval of the student's advisor. Prerequisite: Approval of Department. 3 hours

MATH 5070  Numerical Analysis I  The analysis and use of numerical algorithms for the solution of nonlinear equations, systems of linear equations, interpolation, numerical differentiation and integration. Prerequisites: MATH 3740 and a computer programming language beyond Basic, e.g., Fortran or C. Undergraduates with junior status and 12 hours of work in mathematics and statistics may enroll in 5000-level courses with prior approval of the department chair. 3 hours

MATH 5100  Applied Matrix Algebra  An introduction to the study of methods to solve linear systems of equations, least squares approximation problems, and eigenvalue problems. Topics covered include the algebra of real and complex matrices with particular emphasis on LU-decompositions, QR-decompositions, singular value decompositions, generalized inverses, Hermitian symmetric matrices, positive definite matrices and the Spectral Theorem. Applications from multivariate calculus will be discussed. Prerequisites: Either MATH 2300 and MATH 2720, or MATH 3740. Undergraduates with junior status and 12 hours of work in mathematics and statistics may enroll in 5000-level courses with prior approval of the department chair. 3 hours

MATH 5220  Introduction to Topology  Topics to be chosen from: Topological spaces and continuous functions, metric spaces, connectivity, separation axioms, compactness, product and quotient spaces, paracompactness, and manifolds. Prerequisite: MATH 3300 or MATH 5700. Undergraduates with junior status and 12 hours of work in mathematics and statistics may enroll in 5000-level courses with prior approval of the department chair. 3 hours

MATH 5270  Differential Geometry of Curves and Surfaces  An introduction to Riemannian Geometry with emphasis on curves and surfaces. Topics may include isometries, orientation, differential forms, curvature, metrics, and geodesics. Prerequisites: MATH 2720 and either MATH 2300 or MATH 3740 (MATH 3140 recommended). Undergraduates with junior status and 12 hours of work in mathematics and statistics may enroll in 5000-level courses with prior approval of the department chair. 3 hours

MATH 5300  Linear Algebra  Properties of finite dimensional abstract vector spaces, linear transformations, and matrix algebra are studied. Prerequisite: MATH 3300. Undergraduates with junior status and 12 hours of work in mathematics and statistics may enroll in 5000-level courses with prior approval of the department chair. 3 hours

MATH 5540  Algebra in the Elementary/Middle School Curriculum  This course is devoted to the teaching and learning of algebra in elementary and middle grades. Concepts and skills are developed and reinforced using a variety of approaches and materials. Calculators and computers are used throughout the course to develop concepts; to explore the connections among numeric, graphic, and symbolic representations of mathematical ideas; and to model and solve problems involving quantitative variables. Prerequisites: MATH 1500, 1510, 2650, and 3520 with grades of "B" or better or consent of instructor. Undergraduates with junior status and 12 hours of work in mathematics and statistics may enroll in 5000-level courses with prior approval of the department chair. 4 hours

MATH 5550  Mathematical Modeling and Problem Solving in the Elementary/Middle School Curriculum  This course provides experiences in mathematical modeling and problem solving for elementary/middle school teachers. Problem contexts are selected to deepen students' understanding of important ideas in number theory, algebra, geometry, probability, statistics, and the conceptual underpinnings of calculus. Calculators and computers are used extensively. Prerequisites: MATH 5540 with a grade of "C" or better or consent of instructor. Undergraduates with junior status and 12 hours of work in mathematics and statistics may enroll in 5000-level courses with prior approval of the department chair. 4 hours

MATH 5700  Advanced Calculus I  Properties of real numbers, Cauchy sequences, series, limits, continuity, differentiation, Riemann integral, sequences and series of functions. Prerequisites: MATH 2720 and 3140 (3300 is
recommended). Undergraduates with junior status and 12 hours of work in mathematics and statistics may enroll in 5000-level courses with prior approval of the department chair.  4 hours

MATH  5710  Advanced Calculus II  Topology of n-dimensional space, continuity and differentiability of functions of one variable; Riemann-Stieltjes integral; convergence of sequences and series of functions; Fourier series; analysis of functions of several variables. Prerequisite: MATH 5700 or approval of advisor. Undergraduates with junior status and 12 hours of work in mathematics and statistics may enroll in 5000-level courses with prior approval of the department chair.  3 hours

MATH  5720  Vector Calculus and Complex Variables  Functions of several variables, implicit and inverse functions, Jacobians, multiple integrals, Green's Theorem, divergence, curl, the Laplacian, Stokes' Theorem, analytic functions, Laurent expansions, residues, argument principle, and conformal mapping. Prerequisite: MATH 3740. Undergraduates with junior status and 12 hours of work in mathematics and statistics may enroll in 5000-level courses with prior approval of the department chair.  4 hours

MATH  5740  Advanced Differential Equations  Series solutions at ordinary and singular points of linear ordinary equations, Bessel and Legendre functions, self-adjoint boundary value problems, Fourier series, solution of partial differential equations by separation of variables. Prerequisite: MATH 3740. Undergraduates with junior status and 12 hours of work in mathematics and statistics may enroll in 5000-level courses with prior approval of the department chair.  3 hours

MATH  5800  Number Theory  Diophantine equations, congruences, quadratic residues, and properties of number-theoretic functions. Prerequisite: MATH 3300. Undergraduates with junior status and 12 hours of work in mathematics and statistics may enroll in 5000-level courses with prior approval of the department chair.  3 hours

MATH  5900  In-Service Professional Development in Mathematics  This course develops specific professional skills related to the teaching and learning of pre-college mathematics. Final course outcomes have demonstrated applications to the mathematics classroom. This course may be repeated. Each offering of MATH 590 will be given an appropriate subtitle which will be listed on the student's official transcript. Students may earn up to three hours of credit for any given subtitle. Credit hours may be applied to continuing teacher certification programs with approval of the Teacher Certification Office, but will not be applicable to a new endorsement in mathematics nor to any graduate program within the Department of Mathematics. Graded on a Credit/No Credit basis. Prerequisite: Permission of instructor. Undergraduates with junior status and 12 hours of work in mathematics and statistics may enroll in 5000-level courses with prior approval of the department chair.  1 to 3 hours

MATH  5950  Topics in Elementary/Middle School Mathematics  This course addresses topics in mathematics content and pedagogy relative to the teaching and learning of elementary/middle school mathematics. Prerequisite: MATH 3520 or consent of instructor. Course may be repeated for credit. Undergraduates with junior status and 12 hours of work in mathematics and statistics may enroll in 5000-level courses with prior approval of the department chair.  3 hours

MATH  5990  Independent Study in Mathematics  Advanced students with good scholastic records may elect to pursue independently the study of some topic having special interest for them. Topics are chosen and arrangements are made to suit the needs of each particular student. May be repeated for credit. Prerequisite: Approval of chairperson of department. Undergraduates with junior status and 12 hours of work in mathematics and statistics may enroll in 5000-level courses with prior approval of the department chair.  1 to 6 hours

Physician Assistant

MDSC  2010  Medical Terminology  The language of medicine-through an understanding of the Greek and Latin derivations and construction of medical terms, the student learns the vocabulary of the health-related professions.  1 hour

Medieval Studies

MDVL  1450  Heroes and Villains of the Middle Ages  An interdisciplinary course designed to introduce beginning students to the medieval roots of the individual, social, and institutional ideals and values of modern Western culture as they are expressed and exemplified in the images of medieval heroes and their counterparts. Students may not receive credit for both MDVL 1450 and HIST 1450.  3 hours
MDVL 5000 Interdisciplinary Studies in Medieval Culture

An interdisciplinary course organized around selected topics in Medieval and Renaissance Studies. The focus may be in a specific period (The Twelfth Century), a religious movement (Monasticism), a political structure (Venice-A Renaissance City-state), or the social fabric (Medieval Man: Image and Reality). 3 hours

MDVL 5970 Directed Study

Research on a selected topic in the field of Medieval Studies directed and supervised by a faculty member. Registration requires at least junior standing and approval by the Director of the Medieval Institute. May be repeated for credit. Prerequisite: Approval application required. 1 to 3 hours

**Mechanical Engineering**

ME 2200 Processes and Materials in Manufacturing

Manufacturing principles and organization, principal processes used to make metal, plastic and ceramic parts, design considerations for computer integrated manufacturing, simultaneous engineering. This course meets for 3 lecture hours and 3 lab hours per week. 4 hours

ME 2320 Thermodynamics I

Fundamental laws of classic thermodynamics including ideal and non-ideal processes. Applications are studied in relationship to the traditional thermodynamic cycles and to alternate energy systems such as solar and wind energy. Prerequisites: MATH 1230 or 1710, PHYS 2050, PHYS 2060. 3 hours

ME 2500 Materials Science

First course in the science of engineering materials. Relationships between microscopic structure and the mechanical properties of metals, polymers, and ceramics. Effects of environment on material properties. This course is cross-listed with AAE 2500. Prerequisites: CHEM 1100 and 1110, MATH 1220 or 1700. 3 hours

ME 2530 Statics and Mechanics of Materials

Forces and moments acting upon structural bodies under static loads. Concepts of vectors, free-body diagrams, shear and moment diagrams, centroids, moments of inertia and friction. Compression, tension, shear, torsion, and bending in structural members, including stress distribution, deflection, and buckling. (Not for students required to take ME 2570). Prerequisites: MATH 1230 or 1710 and CS 1022 or 1023. 4 hours

ME 2560 Statics

Forces and moments acting upon structural bodies under static loads. Concepts of vectors, free-body diagrams, shear and moment diagrams, centroids, moments of inertia and friction. Prerequisite: MATH 1230 or 1710. 3 hours

ME 2570 Mechanics of Materials

Compression, tension, shear, torsion, and bending in structural members including stress distribution, deflection, buckling, and fatigue on engineering materials. Design and selection of simple machine members and a knowledge of design codes and standards are applied. Prerequisite: ME 2560. 3 hours

ME 2580 Dynamics

Kinematics and kinetics of particles, rigid bodies in translation, rotation, and plane motion. Includes impulse-momentum and work-energy methods. Introduction to vibrations. Prerequisites: ME 2560 or ME 2530, PHYS 2050, PHYS 2060. 3 hours

ME 3350 Instrumentation

Principles of measurement, testing, and evaluation of mechanical and aeronautical engineering systems. Experimental design. Estimation of error. Technical report preparation. Prerequisites: ME 2570, ME 3620, ECE 2100, and writing requirement. This course meets for 2 lecture hours and 3 lab hours per week. 3 hours

ME 3560 Fluid Mechanics

Analysis of fluid systems and problems. Incompressible and compressible fluids, turbulent and laminar flows, subsonic and supersonic flows are covered. Pipe systems, flow orifices, and open channels. (Credit may not be earned in both ME 3560 and IME 3840.) Prerequisites: ME 2580, MATH 3740. 3 hours

ME 3580 Mechanism Analysis

Analysis of displacement, velocity, and acceleration in mechanisms by analytical and graphical methods. Introduction to mechanism synthesis with computer applications. Prerequisite: ME 2580 and CS 1022 or 1023. 3 hours

ME 3600 Control Systems

Theory and analysis of linear closed-loop control systems containing electronic, hydraulic, and mechanical components. Differential equations. Laplace transforms, Nyquist and Bode diagrams are covered. Prerequisites: ME 2580, MATH 3740, ECE 2100. 3 hours
ME 3620 Theory of Engineering Experimentation Principles of experimental design using a statistical approach. Statistical analysis of experimental data with computer applications. Prerequisites: MATH 1230 or 1710 and CS 1022 or 1023. 3 hours

ME 3650 Machine Design I The application of engineering principles to the fundamental design of machine mechanisms and basic systems. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisites: IME 1420, (ME 2200 or AAE 2610), (ME 2500 or AAE 2500), ME 2570, ME 3580. (ME 3580 may be taken concurrently). This course meets for 2 lecture hours and 3 lab hours per week. 3 hours

ME 3670 Internal Combustion Engines I Introduction to internal combustion engine systems and mechanical design. Consideration of factors affecting engine design using principles of engineering science. Analysis of common engine systems for reciprocating and continuous flow internal combustion engines. Prerequisites: MATH 2720, ME 2580, ME 2320. This course meets for 2 lecture hours and 3 lab hours per week. 3 hours

ME 4300 Heat Transfer Steady state and transient conduction, radiation functions, radiation networks, natural and forced convection, design of heat exchangers, and computer applications. Prerequisites: MATH 2302, (ME 3560 or AAE 3710). 3 hours

ME 4320 Thermodynamics II Advanced topics including gas-vapor mixtures, combustion, and compressible flow. Prerequisites: ME 2320 or CHEG 3200; ME 3560 or CHEG 3110. (ME 3560 or CHEG 3110 may be taken concurrently). Mechanical Engineering or Chemical Engineering majors only. 3 hours

ME 4330 Environmental Systems Design in Buildings Theory of the conditioning of air, applications to the design of systems to control temperature, humidity, distribution, and ventilation. Computer simulation of buildings and systems. Prerequisites: ME 4310 or CHEG 3120; ME 4320. Mechanical Engineering or Chemical Engineering majors only. 3 hours

ME 4340 Design of Thermal Systems Application of energy concepts to thermal fluid design problems. Open ended design projects in incompressible and compressible fluid flows, thermodynamics, heat transfer, power generation, alternate energy systems including computer simulations. Experimentation and theoretical analysis verification with data analysis and report preparation. Prerequisites: ME 3350 or (CHEG 2810 and IME 2610); (ME 4310 or CHEG 3120). Mechanical Engineering or Chemical Engineering majors only. This course meets for 2 lecture hours and 3 lab hours per week. 3 hours

ME 4350 Machine Design II The application of mechanical engineering concepts to the mechanical synthesis process. Computer-aided design, computer modeling, and optimization applied to the synthesis of a system. Prerequisites: ME 3650. This course meets for 2 lecture hours and 3 lab hours per week. 3 hours

ME 4360 Subsonic Aerodynamics Subsonic aerodynamics for engineers. The study of incompressible and compressible flow around blunt bodies. Computer applications to the solution of aerodynamic problems. Prerequisite: ME 3560. Mechanical Engineering or Aeronautical Engineering majors only. 3 hours

ME 4370 Experimental Solid Mechanics Principles and methods of mechanical testing, stress and strain analysis under monotonic and cyclic loading, fatigue behavior and fracture involving life prediction and prevention of failure. Experimentation and theory verification, including planning, testing, and data analysis with report preparation. Prerequisites: ME 2500 or AAE 2500, ME 2570, ME 3350. This course meets for 2 lecture hours and 3 lab hours per week. 3 hours

ME 4380 Dynamics of Machinery Kinematic and dynamic analyses of machine, mechanisms, and rotating systems. Topics include open and closed loop kinematic analyses, Newton's law for rigid body motion, inertia, work and energy methods, flywheels static and dynamic balancing, Lagrange's equations of motion, and introductory vibration analysis. Prerequisite: ME 3580. 3 hours

ME 4390 Vehicle Dynamics Design of ground vehicle suspension and steering systems. Vehicle ride, handling and safety systems. Passive and active suspension control. Prerequisites: ME 3580, ME 3600, ME 3650. 3 hours

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ME 4680  Engine Design  Application of the knowledge of the mechanics, thermodynamics and fluid mechanics to the design of internal combustion engines to meet specific mission requirements. Optimization of the design using computer modeling and parametric studies. Prerequisites: ME 3580, (ME 4670 or ME 4320). This course meets for 2 lecture hours and 3 lab hours per week. 3 hours

ME 4700  Vehicle Structural Design  Structural design of surface and air vehicles to meet specific mission requirements. Design of structures with minimum weight and cost while maintaining structural integrity under the imposed loads. Prerequisites: ME 3580 and ME 3650. 3 hours

ME 4710  Motion and Control  Analysis and implementation of linear closed-loop motion control systems containing electrical, hydraulic, pneumatic and mechanical components. Analytical and experimental development of models for components and systems. This course is cross-listed with ECE 4710. Prerequisite: ME 3600 or ECE 3710. This course meets for 2 lecture hours and 3 lab hours per week. 3 hours

ME 4790  Mechanical and Aeronautical Engineering Project Planning  An introduction to the design process, including problem definition, decision making and project planning. Goal of the course is to develop a project proposal and work plan for a major design project. Prerequisites: ME 3350, ME 3600, (Group 2 elective or AAE 4500 or AAE 4600). (Group 2 elective or AAE 4500 or AAE 4600) may be taken concurrently. 1 hour

ME 4800  Mechanical and Aeronautical Engineering Project  An engineering experience in completing an open-ended design project including synthesis, analysis, evaluation, and presentation. Classroom discussion subjects include legal, ethical and professional aspects of engineering practice. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisites: ME 4790 and (Group 2 elective or AAE 4500 or AAE 4600.) This course meets for 1 lecture hour and 6 lab hours per week. 3 hours

ME 4810  Vehicle Design  Design of vehicle systems and/or subsystems. Prerequisites: ME 2320, ME 2570, ME 2580, (ME 2500 or AAE 2500), or by departmental approval. This course meets for 2 lecture hours and 3 lab hours per week. 3 hours

ME 4900  Independent Research and Development  Individual research or special project. Available only by special arrangement with an instructor and approved by the department chair. Prerequisite: Consent of department. 1 to 4 hours

ME 4950  Topics in Mechanical Engineering: Variable Topics  A specialized course dealing with some particular area of mechanical engineering not included in other course offerings. May be repeated for credit with a different topic up to six credits. Prerequisite: Consent of department. 1 to 4 hours

ME 4980  Independent Readings  An independent readings assignment, the description and purpose of which will be set forth on a form available at the department office. Prerequisite: Consent of department. 1 to 6 hours

ME 4990  Independent Studies  An independent studies assignment available only by special arrangement with an instructor and approved by the department chair. Prerequisite: Consent of department. 1 to 6 hours

ME 5300  Theoretical and Computational Fluid Mechanics  The theory and numerical implementation of ideal flow, viscous effects, and exact solutions of Navier-Stokes equations. Special emphasis will be on planning methods, conformal mapping, and singular distributions for flows around two- and three- dimensional bodies. Familiarity with VMS and some FORTRAN experience are required. Prerequisites: ME 3560 and consent of instructor. 3 hours

ME 5390  Advanced Thermal Design Theory and practical thermal system design using advanced computer-aided design tools with emphasis on modelling and optimization of modern thermal elements. Prerequisite: ME 4310. 3 hours
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Description</th>
<th>Prerequisites</th>
<th>Credits</th>
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<tbody>
<tr>
<td>ME 5400</td>
<td>Automatic Control of Flight Vehicles</td>
<td>Synthesis of basic auto pilot and stability augmentation systems for flight vehicles. Advanced flight control structures including integrated flight/fire control, control of inertial cross-coupling. Human pilot plus airframe and the relationships with flying qualities requirements. Extensive use of commercial software tools.</td>
<td>Prerequisite: ME 3600.</td>
<td>3 hours</td>
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<tr>
<td>ME 5450</td>
<td>Computational Fluid Dynamics I</td>
<td>Basics of Computational Fluid Dynamics (CFD) including classification of partial differential equations, finite difference formulations, parabolic partial differential equation, stability analysis, elliptic equations, hyperbolic equations, scalar representation of the Navier-Stokes equations and grid generation.</td>
<td>Prerequisites: ME 3560, CS 2010.</td>
<td>3 hours</td>
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<tr>
<td>ME 5500</td>
<td>Materials Science II</td>
<td>Advanced course in both metallic and non-metallic engineering materials, including commercial alloy systems, polymers, elastomers, composite materials, and ceramics. Mechanical and physical properties useful to design are related to composition, atomic structure, and manufacturing processes. Includes failure mechanisms of metals, ceramics, polymers, and composites.</td>
<td>Prerequisites: ME 2200, ME 2320, and (ME 2500 or AAE 2500), and ME 2570.</td>
<td>3 hours</td>
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<tr>
<td>ME 5530</td>
<td>Advanced Product Engineering</td>
<td>An engineering design project from concept to adoption. Static and dynamic analysis. Mechanical systems design and layout.</td>
<td>Prerequisites: ME 3600, ME 4530.</td>
<td>3 hours</td>
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<tr>
<td>ME 5550</td>
<td>Intermediate Dynamics</td>
<td>Three dimensional kinematics and dynamics of rigid bodies; equations of motion; Lagrange's equations; work and energy; impulse and momentum; virtual work; stability; computer simulation; intro. to vibrations.</td>
<td>Prerequisites: ME 258, MATH 374.</td>
<td>3 hours</td>
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<tr>
<td>ME 5580</td>
<td>Mechanical Vibrations</td>
<td>A study of the oscillatory motion of physical systems with emphasis on the effects of vibrations on the performance and safety of mechanical systems.</td>
<td>Prerequisites: ME 2580, MATH 3740.</td>
<td>3 hours</td>
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<tr>
<td>ME 5600</td>
<td>Engineering Analysis</td>
<td>Application of vector analysis and differential equations to the solution of complex engineering problems.</td>
<td>Prerequisite: ME 3600 or equivalent.</td>
<td>3 hours</td>
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<tr>
<td>ME 5610</td>
<td>Finite Element Method</td>
<td>Development of finite element method for solution of one-, two-, and three-dimensional problems in heat transfer, fluid flow, structures and elasticity.</td>
<td>Prerequisites: ME 2570, ME 3560, ME 4310, and MATH 3740 or equivalents.</td>
<td>3 hours</td>
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<tr>
<td>ME 5620</td>
<td>Application of Numerical Methods in Engineering</td>
<td>Finite difference methods for initial value and boundary value problems; 2D finite differencing, boundary element methods applications to differential equations of heat transfer, fluid flow, and solid mechanics.</td>
<td>Prerequisite: Consent of instructor.</td>
<td>3 hours</td>
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<tr>
<td>ME 5640</td>
<td>Engineering Noise Control</td>
<td>Introduction to basic concepts of noise control. Nature of sound and its effects on our environment. Indoor and outdoor sound propagation. Noise standards and measurements. Case studies of real-world implementations of noise control engineering. Laboratory demonstrations.</td>
<td>Prerequisites: MATH 3740, ME 2580.</td>
<td>3 hours</td>
</tr>
<tr>
<td>ME 5690</td>
<td>Principles of Fatigue and Fracture</td>
<td>Basics of experimental techniques and modeling used in industry to study inelastic deformations, fatigue, and fracture of engineering materials and structures.</td>
<td>Prerequisite: ME 3650 or consent of instructor.</td>
<td>3 hours</td>
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<tr>
<td>ME 5710</td>
<td>Gas Dynamics</td>
<td>Basic equations of compressible flow, isentropic relationships, and normal and oblique shock. Prandtl-Meyer expansion, Fanno Line, and Rayleigh Line flow. Applications to nozzles, diffusers, and supersonic wind tunnels. Linearized flows, method of characteristics.</td>
<td>Prerequisites: ME 4310 and ME 4320.</td>
<td>3 hours</td>
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<tr>
<td>ME 5720</td>
<td>Advanced Thermodynamics</td>
<td>Topics including the conditions of equilibrium, process and thermodynamic engines, the extremum principle, Maxwell relations, stability of thermodynamic systems, phase transitions, chemical thermodynamics, irreversible thermodynamics, and an introduction to the statistical thermodynamics. Prerequisites: ME 4310 and ME 4320.</td>
<td>3 hours</td>
<td>3 hours</td>
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</table>
ME 5730 Engineering Materials Material selection for resistance to both load and environment. Design parameters for material selection and various metal systems, corrosion, service failures, and mechanical behavior of engineering alloys at high and low temperatures. Prerequisites: (ME 2500 or AAE 2500) and (ME 3650 or MSE 4570). 3 hours

ME 5750 Tribology - Principles and Applications Surface chemistry, topographical measurement and description, contact mechanics, wear mechanisms, lubrication and film formation, application to friction and wear situations in machine elements. Prerequisites: ME 3560, ME 3650. 3 hours

ME 5800 System Modeling and Simulation This is a first course in the principles of mathematical modeling of stochastic and deterministic systems. It will focus on analytical models, mathematical rigor and computer simulation of problems. Students will simulate a number of systems using appropriate stochastic and deterministic models using a computer. This course is cross-listed as ECE 5800. Prerequisites: (ECE 3710 or ME 3600) and ECE 3800 or equivalents. 3 hours

ME 5850 Mechatronics A course in fundamentals of motion control, primarily as it is applied to robotics. Students will learn the basics of control systems as applied to multiaxis servo systems. Appropriate time will be devoted to develop a sound basis in the electro-mechanical discipline. This course is cross-listed as ECE 5850. Prerequisites: ECE 2100, ME 2580 and (ECE 3710 or ME 3600). 3 hours

ME 5860 System Identification This is a course in model determination. Students will learn the basics of defining system structure and techniques for finding parametric values. The emphasis will be placed on the application of modeling to practical problems in the student's specific discipline. This course is cross-listed as ECE 5860. Prerequisite: ECE 5800 or ME 5800. 3 hours

ME 5950 Topics in Mechanical Engineering A specialized course dealing with some particular area of Mechanical Engineering not included in other course offerings. May be repeated for credit with a different topic up to six total credits. Prerequisite: Consent of department. 1 to 4 hours

Manufacturing Engineering

MFE 1200 Engineering Design and Verification Study in the application of ANSI and ISO standards in the design of manufactured parts and assemblies. Linear and geometric dimensioning and tolerancing (GDT) in both metric and customary units will be applied in functional designs. An introduction to statistical process control and quality assurance using precision measurement instruments and coordinate measuring systems. Prerequisite: A course in computer-aided design or consent of instructor. 3 hours (2 to 3)

MFE 2200 Principles of NC/CNC Machining NC/CNC machine use and programming. Post processors. Tool geometry. Cutting feeds and speeds. Vision systems. Industrial automation. Introduction to advanced topics in Computer Integrated Manufacturing (CIM). Prerequisites: MFE 1200 and 1500; PHYS 2050. 3 hours (2 to 3)

MFE 3300 Manufacturing Materials I Structure and properties of metallic materials. Considerations for selection in applications. Manufacturability. A three-hour laboratory is required. Prerequisites: CHEM 1010 or 1100 and 1110. 4 hours (3 to 3)

MFE 3400 Design for People at Work The application of Human Factors/Ergonomics principles to the design of the workplace, equipment, and environment to provide safe and productive facilities for people at work. Topics will include a review of OSHA/Safety and ADA requirements. 3 hours (3 to 0)

MFE 3600 Computer Control of Manufacturing Operations Introduction of concepts related to computer control of manufacturing operations. Brief coverage of analog/digital conversion, automation components, microprocessor and its applications, principles of classical control theory, NC/CNC systems, robotics, and programmable logic controllers (PLC). The classroom lectures are reinforced with a series of laboratory experiments. 3 hours (2 to 3)


MFE 4300 Manufacturing Materials II: Properties of ceramic and polymeric materials. Considerations for selection in applications. Manufacturability. Prerequisite: MFE 3300. 4 hours (3 to 3)

MFE 4400 Production Engineering: The quantitative and computer-based methods and techniques of planning and controlling manufacturing operations are presented. Topics include product design and process selection, design of manufacturing facilities and jobs, aggregate planning, inventory systems, operations scheduling, and system improvement. 3 hours (3 to 0)

MFE 4420 Quality Assurance: The tools necessary to control and assure quality in the manufacturing environment are addressed. They include statistical process control, product design quality, manufacturing process quality systems, process capability, lot-by-lot sampling, gage reproducibility and repeatability, design of experiments, and quality improvement tools such as Pareto analysis, Ishikawa diagrams, system flowcharting. Prerequisite: MATH 2720. 3 hours (3 to 0)

MFE 4440 Simulation of Industrial Operations: Use of computer simulation as a modeling tool with emphasis on most current simulation languages and simulators is presented. Every week an industrial case study is introduced and, in a lab environment, the simulation model is developed. Statistical analysis of input data and simulation results are examined. Prerequisite: IME 2610. 3 hours (2 to 3)

MFE 4800 Senior Design Project I: First of a two-semester sequence on engineering design in which students work in teams on approved design projects. A preliminary design and feasibility report are required at the end of this course. Project will be completed in MFE 4820. Prerequisites: Consent of instructor. Senior status. Co-requisites: MFE 4200; MFE 4240. 2 hours (2 to 0)

MFE 4820 Senior Design Project II: Completion of the engineering design project started in Senior Design Project I. A formal written and oral presentation is required. Prerequisite: MFE 4800. 2 hours (2 to 0)

Management

MGMT 2500 Organizational Behavior: This course provides an examination of individual, interpersonal, group, and organization processes faced by employees. Current theory, research, and practice regarding variables that influence human behavior are discussed. Emphasis is placed on learning relevant to goal setting, managing change, team processes, reward structures, human productivity, and career management in organization settings. Prerequisite: BUS 1750. 3 hours

MGMT 2750 Analytical Foundations: This course covers the use of qualitative and quantitative techniques for research and decision-making across the business functions of production, distribution, marketing, information management, accounting, finance, and human resource management. It may include analytical techniques such as research methods, problem identification, project management, decision cycle, decision models, forecasting, etc. Prerequisite: STAT 2160 or equivalent. 3 hours

MGMT 3000 Fundamentals of Management: An introduction to the concepts, theories, models, and techniques central to the practice of management. Historical and contemporary thought are presented in the context of the behavioral, structural, functional, quantitative, and ethical aspects of managing organizations. Cross-cultural aspects of management are also explored. Expected outcomes for the student are: a general familiarity with the management process, and limited situational application of course content. Prerequisite: Junior standing. 3 hours
MGMT 3010  Project Management  Students acquire the knowledge, tools, and experience to work effectively as a member of a project team through a combination of lectures and experiential learning. In addition to acquiring specific project management skills and using computing applications for project management, the course advances students' understanding of the human dimensions of work processes. Prerequisite: MGMT 2500.  3 hours

MGMT 3140  Small Business Management  The knowledge and skills a business-trained individual needs after founding or buying an independent firm are introduced in this course. Specific applications of business areas such as finance, advertising, accounting, and tax law for the owner/operator of a small business will be addressed. It is assumed that students have a basic knowledge of business fundamentals before taking this course. Prerequisites: MGMT 2500, MKTG 2500.  3 hours

MGMT 3500  Managing Diversity in Organizations  Knowledge and skills needed to manage an increasingly diverse work force are explored. The impact of gender, race, ethnicity, culture, and other dimensions of a diverse work force on organizations are examined. Human Resource Information Systems (HRIS) are used to study effective utilization of human resources.  3 hours

MGMT 3520  Human Resource Management  This course covers various HRM functions including work force needs; staffing and development; organization and individual appraisal; employee compensation and benefits; safety and health; approaches to employee problems; and labor relations.  3 hours

MGMT 3530  Organizational Competencies  This course focuses on the role of the HR professional in guiding organizational change. Thus, the content of the course emphasizes training and development activities, but also includes the integration of these activities into strategic change imperatives. The course pedagogy includes case studies and group exercises designed to stimulate students toward the integration of training, development, and strategy.  3 hours

MGMT 3600  Quantitative Methods for Business Decisions  Introduction to quantitative methods and their application to the functional areas of business. Topics covered will include system modeling, probability theory, forecasting methods, decision making under conditions of certainty, risk and uncertainty, inventory models, linear programming, elementary queuing theory, and introduction to techniques of mathematical simulation. Prerequisite: STAT 2160 or equivalent.  3 hours

MGMT 4000  Topics in Management  An examination of advanced topical problems in management. (Repeatable)  3 hours

MGMT 4010  Project Leadership  Students acquire the knowledge, tools, and experience to lead project teams through a combination of lectures and experiential learning. This class emphasizes advanced project management skills and concepts crucial to successful leadership such as motivation, decision making, and negotiation. Students apply the concepts learned by assuming leadership roles for the project teams in MGMT 3010. Prerequisite: MGMT 3010.  3 hours

MGMT 4040  Business and Society  A systematic analysis and evaluation of the institutions and other external and internal factors which shape the role of business in the United States. Illustrative topics: pluralism, values, ethics, social responsibility, the business/government relationship, productivity, corporate governance and social responsiveness.  3 hours

MGMT 4100  Multinational Management  An examination of management strategy, controls, environmental influences of the multinational corporation with consideration of geographic factors. The management function abroad will be examined in light of the cultural assumptions underlying U.S. management and will deal with the necessary modification for effective operations in a cross-cultural environment.  3 hours

MGMT 4120  Management Internship  Students may engage in a variety of professional experiences under the direction of a faculty advisor. Each internship is supervised by a faculty member, requires written term reports by the intern, and requires a written evaluation of the intern's performance by the firm hosting the internship. Repeatable for a maximum of 4 hours credit. Graded credit/no credit. Does not count toward the major.  1 to 4 hours

MGMT 4140  Entrepreneurship  An elective for students interested in entrepreneurial careers. Primary attention is given to managing a new or rapidly growing business. Alternative sources of capital are examined. Various growth strategies are
considered along with personal requirements for entrepreneurial success. Prerequisites: MGMT 2500, FCL 3200, MKTG 2500 or department consent. 3 hours

MGMT 4320 Compensation and Benefits This course is intended as an advanced undergraduate course for students with a commitment to Human Resources Management. The course builds on a knowledge of motivation and statistics to develop an understanding of organization wage and salary statistics, incentive systems, and employee health and pension systems. Students completing the course are expected to have acquired an understanding of contemporary approaches to compensation and benefits. Prerequisite: MGMT 3520. 3 hours

MGMT 4470 Airline Strategy The focus of this course is the application of strategic management concepts and tools to organizations in the airline industry. Students will study and analyze the competitive and regulatory/social forces affecting the airline industry, and the formulation and implementation of strategic choices and directions by successful and unsuccessful organizations in the airline industry. Prerequisite: BUS 1750. 3 hours

MGMT 4510 Staffing Organizations This course is intended to: a) provide an overview of the process by which organizations acquire and deploy the organization's workforce, and b) begin developing specific knowledge, skills, and abilities needed to effectively carry out staffing activities (attracting, selecting, placing, and socializing employees). Students learn theories, research, policies, practices, and legal considerations relevant to these objectives. Prerequisite: MGMT 3520. 3 hours

MGMT 4540 Employment Relations This course is designed to present methods and concepts of managing employment relations. How labor unions operate and how businesses avoid or become involved with labor unions are investigated. Negotiation, conflict resolution, and contract administration processes and their operation are covered. The goals, purposes and history of organized labor are examined. Maintenance of the quality of relationships between employees and organizations is explored. Prerequisite: MGMT 3520. 3 hours

MGMT 4600 Decision Analysis This course is designed to present methods and concepts of decision making in uncertain business environments. It will address both the philosophy, and the methodology of scientific decision processes to supplement intuitive decision making. The objective of the course is to provide a clear understanding of both the limitations and potential benefits of formal analysis and information gathering. Some of the topics covered include: utility functions, values of perfect and imperfect information, and preference assessment. Prerequisite: MGMT 2750. 3 hours

MGMT 4630 Production and Operations Management Economic and socio-technical characteristics of the major types of production systems are explored. Managerial aspects of workplace and facility design. Simple models for controlling operations in purposeful organizations. Prerequisite: MGMT 3600 or equivalent (BIS 4640, FCL 4200, ECON 4000, MKTG 4710). 3 hours

MGMT 4640 Production Management and Control Quantitative and computer-based methods of planning and controlling operations in manufacturing industries and service organizations. Areas covered in depth include scheduling, aggregate planning, and inventory control. This course is intended for students interested in quantitative applications in business as well as management majors concentrating in production and operations management. Prerequisite: MGMT 2750. 3 hours

MGMT 4650 Managing for Quality The course will examine the total quality management (TQM) philosophy. The topics include benchmarking, continuous improvement, employee participation, statistical control charts and quality tools. A detailed discussion of the Deming, Juran and Crosby principles is undertaken. Also, Malcolm Baldridge Award and ISO 9000 certification are examined. To further enhance understanding about the TQM philosophy, the principles are applied in the classroom. Prerequisites: MGMT 2500 and MKTG 2500. 3 hours

MGMT 4700 Operations Simulation Simulation is a managerial technique that imitates the operations of a real or planned system. It is applied in the analysis and improvement of system operations involving uncertainty and interactions between system components. It has been widely used by both manufacturing and service firms to evaluate effectiveness of operations strategies. This course introduces students to development, validation, and use of computer-based simulation models using software such as General Purpose Simulation language (GPSS/H). Students will use simulation approach to evaluate improvements in production/service systems. Prerequisite: MGMT 2750 or equivalent. 3 hours
MGMT 4800  Materials Management Strategy  Introduces students to a framework for making longer-term decisions in operations management, and stresses the importance of developing and executing a production/operations management strategy which is consistent with the business strategy of the organization. An emphasis will also be placed on production/operations capability as a competitive weapon. Prerequisites: MGMT 4630, MGMT 4640, or equivalent.  3 hours

MGMT 4810  Integrated Materials Systems  This course examines the interrelationships and coordination among the various activities necessary for the development and operations of materials and technology systems. Emphasis will be placed on engineering purchasing, logistics, and production systems. Students will have the opportunity to synthesize the concepts and concerns of team building, problem solving, communication, and organizational management. Prerequisites: MGMT 4640, MKTG 3720, MKTG 4840, ME 2200.  3 hours

MGMT 4950  Independent Study  Independent research on specialized management topics. Prerequisite: Consent of instructor. (Repeatable)  1 to 4 hours

MGMT 4990  Strategic Management  An integrative capstone course focusing on the formulation and implementation of organizational policy and strategy from the perspective of the general manager. Prerequisites: Senior standing and successful completion of all core courses.  3 hours

Marketing

MKTG 2500  Marketing Principles  Introduction to the role of marketing in the U.S. and global economy. Emphasis on how organizations create customer value through marketing strategy planning. Topics covered include buyer behavior, market segmentation, product planning, service quality, promotion, pricing, and managing channel relationships. Prerequisite: Sophomore standing. This course is open to pre-business and business majors as well as the following other majors: Aviation Science & Administration, Dietetics, Interior Design, Industrial Design, Imaging/Printing, Imaging/Printing:Management, Imaging/Printing:Marketing, Imaging:Business, Secondary Education in Marketing, and Textile & Apparel Studies. This course is open to the following minors: Accountancy, Advertising & Promotion, General Business, International Business, Integrated Supply Matrix Management, Management, Marketing, and Secondary Education in Marketing.  3 hours

MKTG 2900  Introduction to Food and CPG Industries  An introductory course designed to provide an overview of the food and consumer package goods (CPG) industries. The marketing functions performed by producers, manufacturers, wholesalers, and retailers are examined, along with consumer shopping, purchasing, and consumption behavior. Prerequisites: Sophomore standing; PRBP, TXD, Business Administration majors, and MKT minors only.  3 hours

MKTG 3600  Professional Selling  An introduction to the principles of selling. Includes study of selling in our present economy, analysis of the steps in a sales presentation, and a classroom demonstration. Prerequisite: MKTG 2500; departmental major and minors, SKS majors and minors, and TXD majors only.  3 hours

MKTG 3710  Marketing Research  An introduction to the research process as it aids decision making in marketing management. The focus is on the stages of research process from the planning of the research to gathering, analysis, and interpretation of data as it relates to marketing management. Prerequisites: MKTG 2500, STAT 2160 or STAT 3660; Marketing majors and minors, General Business majors, Imaging:Business majors, Imaging/Printing:Marketing majors, and Secondary Education in Marketing majors only.  3 hours

MKTG 3720  Purchasing Management  The organization and operation of the purchasing function, responsibilities and policies; problems confronting the purchasing department; relationships with other departments and suppliers. Prerequisites: MKTG 2500; Marketing majors and minors, Sales & Administration majors, Integrated Supply Matrix Management majors and minors, Imaging/Printing:Marketing majors, Imaging/Printing:Management majors, and Secondary Education in Marketing majors and minors only.  3 hours

MKTG 3730  Internet Marketing  This course examines the strategic use of the Internet as an interactive marketing tool and medium. Students will analyze various models for increasing marketing effectiveness and efficiency, and will learn strategies for evaluating and planning web sites and Internet advertising to achieve positive customer relationships. Students
will also critically assess the pros, cons, and future developments related to this evolving medium. Prerequisites: MKTG 3740 or MKTG 3600 or MKTG 3910; ADV, MKT, SBM, and FMK majors and minors only. 3 hours

MKTG 3740 Advertising and Promotion A comprehensive survey of basic principles of advertising and promotion. The course will include the study of promotion media, practices and theories and the effects of advertising and promotion in the firm, the economy, and society. Students will be introduced to the fundamentals of Integrated Marketing Communications (IMC). Prerequisites: MKTG 2500; Marketing majors and minors, General Business majors, Imaging:Business majors, Textile & Apparel Studies majors, and Secondary Education in Marketing majors and minors only. 3 hours

MKTG 3760 Sales Administration Topics include the role of personal selling in the firm; determination of market and sales potential; recruiting; training; sales compensation; territories and quotas; motivation; measuring selling effectiveness. Prerequisites: MKTG 2500; Marketing majors and minors, General Business majors, and Secondary Education in Marketing majors and minors only. 3 hours

MKTG 3770 Sales Promotion The course is designed to introduce the student to the principles and practices of sales promotion. Included will be topics related to the development and implementation of direct inducement or incentive programs offered to members of the sales force, distributors, or consumers with the primary objective of effecting an immediate sale. Prerequisites: MKTG 2500; ADV majors and minors, MKT majors and minors, FMK majors, SBM majors, and GBZ majors only. 3 hours

MKTG 3800 Sport Marketing This course presents an overview of the marketing of sports at the professional and collegiate levels, as well as the use of sport sponsorships by commercial enterprises to help market products and services. Class projects emphasize original research into sport marketing topics, with collaboration from industry professionals. Prerequisites: MKTG 2500 and permission of instructor. 3 hours

MKTG 3910 Retail Merchandising This course is designed to acquaint students with merchandising principles and applications related to the marketing of food and consumer packaged goods (CPG). Emphasis will focus on point-of-sale merchandising, sales promotion, advertising, pricing, and shelf management utilized by manufacturers, retailers and wholesalers. Consumer demographics and lifestyles trends will be examined related to store location/design, product and service offerings, and promotional effectiveness. Prerequisites: MKTG 2500, MKTG 2900; may be taken concurrently with MKT 2900. FMK majors only, or consent of instructor. 3 hours

MKTG 3920 Applied Marketing Analysis This course is designed to actively involve students in an applied marketing research project. Working closely with a business, nonprofit, or government organization, students will be involved in the process of research design, including problem identification, sampling design, instrument development, data collection, data analysis, interpretation of findings, and presentation of findings. Emphasis will be placed on the development and application of analytical techniques to address marketing problems. Prerequisites: MKTG 3710, and permission of instructor. Marketing Department majors only. 3 hours

MKTG 3960 Survey of Food and CPG Industries An intensive two-week survey of manufacturers, retailers, wholesalers and businesses related to the food and consumer package goods industries. Company visits include presentations by industry executives and tours of manufacturing, distribution, and company facilities. Students observe practices related to marketing, production, packaging, distribution, research, and technology development. Written reports are required. Bus travel and overnight stays are necessary. A fee for transportation and housing is required. Prerequisites: MKTG 2900; Food Marketing majors only. 3 hours

MKTG 3970 Food and CPG Internship Under the direction of a faculty advisor, students seek and obtain a position offering full-time work experience related to the food and consumer package goods industries. Students are expected to work a minimum of 150 hours for each internship credit hour received. Interns are required to submit periodic written reports, and an employer evaluation of their performance. An approved application form, signed by a faculty advisor is necessary before registration is permitted. Course may be taken up to three times for a maximum of 6 hours credit. Graded on a Credit/No Credit basis to be included in the major for Food and Consumer Package Goods Marketing Majors only. Prerequisites: Food Marketing majors only and approval of instructor. 1 to 3 hours
MKTG 4600 Advanced Selling Strategies  This course examines advanced methods of questioning, customer need analysis and problem finding, creative solution development, computer based sales planning, team selling, negotiation and elements of time and territory management. Exercises, extensive role playing, and cases are used.  Prerequisites: MKTG 3600 and 3720; Sales and Business Marketing majors only.  3 hours

MKTG 4630 Manufacturing Logistics  An analysis of the movement and storage of raw materials, component parts, and sub-assemblies to support physical availability for manufacturing. Emphasis on aspects of production management that determine materials requirements, logistics process capability, and optimization of total logistics cost.  Prerequisites: MKTG 2500 and either BUS 3750 or IME 3260; ISM majors and minors and SBM majors only. Students cannot receive credit for both MKTG 4630 and MKTG 4840.  3 hours

MKTG 4700 Business Marketing Strategy  An advanced course in planning and implementing business-to-business marketing strategies with an emphasis on segmenting markets, managing channel relationships, and creating customer value through continuous improvement and re-engineering. Prerequisites: MKTG 3710, MKTG 3720, FIN 3200 and senior standing; Marketing majors and minors, Imaging/Printing:Marketing majors, and Sales & Business Marketing majors only.  3 hours

MKTG 4710 Quantitative Marketing Applications  Provides marketing student with a basic understanding of fundamental quantitative techniques and shows how these techniques will assist the decision maker in solving marketing problems. A term project applying the research process, concepts, and quantitative methods is required.  Prerequisite: MKTG 3710.  3 hours

MKTG 4720 Media Planning and Research  This course examines the media used in Integrated Marketing Communications (IMC). Students will learn media vocabulary and techniques of audience measurement and media scheduling and buying. Emphasis is placed on secondary data research and media sources to develop comprehensive media plans for solving marketing communications problems. Prerequisites: MKTG 3710 and MKTG 3740; Advertising and Promotion majors and minors only.  3 hours

MKTG 4730 Interactive Marketing Strategy  An applied course in interactive marketing strategy development. Covers principles, methods, and applications of direct mail, catalog, telemarketing, Internet, and other electronic media to the selling of goods and services. Student teams develop a complete interactive marketing strategy involving research, marketing plan, media plan, creative plan and execution, and budget for current case situation.  Prerequisites: MKTG 4740; Advertising and Promotion majors and minors only.  3 hours

MKTG 4740 Creative Strategy  Students will acquire an understanding of the creative process used to develop Integrated Marketing Communications (IMC) strategies for product/service positioning and rollout. Consumer, company, and product research will be integral parts of the learning process. Students will analyze campaigns, develop copy platforms and produce IMC strategies and executions. Prerequisite: MKTG 3740.  3 hours

MKTG 4750 International Marketing  An examination of the theories and principles of International Marketing. This course focuses on major concepts and dimensions of international marketing for small and large businesses. Emphasis on developing managerial frameworks within which global or multinational marketing programs can be planned, analyzed and assessed.  Prerequisites: MKTG 2500; Marketing Department majors and minors, GBZ majors, International Business minors, and TXD majors only.  3 hours

MKTG 4760 Retail Management  This course focuses on professional management of retail companies. It addresses all levels of management responsibility (strategic, administrative, and operational) within the two largest functional divisions of retail organizations, namely, the merchandising and the store operations divisions. Attention is also given to other functions (finance, human resources, research, advertising, etc.) but primarily as they relate to merchandising and store operations. Prerequisites: MKTG 2500; MKT majors and minors, FMK majors, GBZ majors, MGT majors, FMK majors, and SKS majors and minors only.  3 hours

MKTG 4770 Consumer Behavior  Investigate, analyze and interpret the extensive body of research information on consumer behavior considering both the theoretical and practical implications. Prerequisites: MKTG 2500 and 3710. May be taken concurrently with MKTG 3710. ADV and MKT majors and minors and GBS majors only.  3 hours
MKTG 4780 Special Topics in Marketing  Study of advanced topics within the marketing discipline. The course topic will be indicated in the student record. Repeatable for different topics. Prerequisites: MKTG 2500 and permission of instructor. 3 hours

MKTG 4790 Marketing Internship  Marketing internship experience under the supervision of participating employers. Variable credit at the rate of approximately 100 hours of approved internship experience per credit hour. May be repeated for a maximum of 6 hours. Term reports required. Employer must submit a written performance appraisal. Graded on a credit/no credit basis. Cannot be counted toward major requirements. MKT, SBM, ADV majors only. Prerequisites: MKTG 2500, MKTG 3710, and permission of instructor. 1 to 3 hours

MKTG 4810 Integrated Marketing Communications Campaigns  This is the capstone course for advertising and promotion majors. It will include promotional and managerial case studies. Complete IMC campaigns will be developed based on research, marketing plans, media plans, creative plans, and creative executions. Advertising research will be explored. Budget strategies will be discussed and applied. Emphasis will be on integrated marketing communications planning. Development of "portfolio pieces" will be part of this course. Prerequisites: MKTG 4720, 4740 and 4770. 3 hours

MKTG 4840 Marketing Logistics  An analysis of the movement and storage of finished products to support physical availability in markets. Emphasis on customer requirements and customer satisfaction, logistics process capability, and optimization of total distribution costs. Prerequisites: MKTG 2500 and either BUS 3750 or IME 3260; Food &amp; Consumers Pkg Goods Marketing majors, Marketing majors and minors, Imaging/Printing:Marketing majors, Sales &amp; Business Marketing majors, and Secondary Education in Marketing majors only. Students cannot receive credit for both MKTG 4630 and MKTG 4840. 3 hours

MKTG 4850 Applied Process Reengineering  This course examines the application of analytical and process measurement techniques to process design decisions. The benefits of process standardization and improvement will be documented and discussed. This course is cross-listed with IME 4880. Prerequisites: Senior standing; ISM major or minor or permission of instructor. 3 hours

MKTG 4860 Marketing Strategy  Students in this course apply a variety of analytical and theoretical marketing tools to gauge how consumer and organizational behavior, competitive dynamics, and market forces impact demand for a firm's products or services. Through decision-making exercises, case studies, computer simulations, and/or team projects, students develop competence in making target market and marketing mix decisions and developing strategic marketing plans. Prerequisites: MKTG 3710, 3740, FIN 3200 and a minimum of 88 credit hours. Marketing and Advertising and Promotion majors only. 3 hours

MKTG 4920 Category Management  Applications of information technologies utilized in the marketing of food and other consumer products. Emphasis will be on the use of computer technology to analyze price and cost controls; make merchandising, shelf management, and category decisions; develop sales forecasts; and interpret various operating performance ratios. Prerequisites: MKTG 3910; Food Marketing majors only. 3 hours

MKTG 4930 Food and CPG Sales  This course introduces selling principles employed within the food and consumer package goods industries. Multi-tier retail channel selling as well as Key Account headquarters selling practices will be examined. Students apply fact-based selling methods utilizing syndicated market data and category management tools related to the selling process. Extensive role-playing, sales presentations and exercises relevant to the buying/selling process will be used. Prerequisites: MKTG 4920. May be taken concurrently with MKTG 4920. Food Marketing majors only. 3 hours

MKTG 4940 Food and CPG Marketing Issues and Strategies  This capstone course examines current issues and strategies relevant to the marketing of food and consumer package goods (CPG). The course provides an opportunity for students to learn and apply strategic marketing decision processes to establish, sustain, or enhance an organization's competitive position. Case studies, computer simulations, and/or company projects may be used to demonstrate the importance of relevant issues and strategies. Prerequisites: MKTG 3710, MKTG 4920 and FIN 3200. Food Marketing Majors only. 3 hours

MKTG 4980 Readings in Marketing  Directed individual study of bodies of knowledge not otherwise treated in departmental offerings. Prerequisite: Written permission of instructor. 1 to 3 hours Arr.
### Materials Science and Engineering

**MSE 2510** The Evolution of Materials  
The evolution of materials from the stone age, through the bronze and iron age, will be described. Understanding of eras in history through the progression of materials. Advanced materials from the current period ("The Materials Age") with applications for miniaturized computers ("lap-top"), space shuttle, bio-compatible materials for implants in the human body, and construction of buildings, roads and bridges. Prospects for the future will be discussed.  
3 hours (3 to 0)

**MSE 2540** Properties of Materials  
Internal structure of materials in relation to microscopic and macroscopic properties. Mechanical, physical, chemical and thermal properties of wood, metals, ceramics, polymers, semiconductors, and composites. Environmental degradation of materials. Not for Engineering credit. Prerequisites: MATH 1220 or 2000 or 1700, CHEM 1100.  
3 hours (3 to 0)

**MSE 2550** Materials Science Laboratory  
Basic nature of materials in relation to microscopic and macroscopic properties, mechanical testing techniques, different techniques in strengthening metals, impact strength of plastics, corrosion. Not for Engineering credit. Prerequisite: MSE 2540 must be taken concurrently.  
1 hour (0 to 3)

**MSE 2580** Materials Science Laboratory  
Laboratory investigations of topics covered in the basic materials course. Mechanical testing techniques to determine the strength of materials, structure-properties relationships, different techniques in strengthening metals, corrosion. Prerequisite: ME 2500 must be taken concurrently.  
1 hour

**MSE 3530** Physical Metallurgy  
Introduction to electron theory of metals. Introduction to crystallography and x-ray diffraction, defect structure of metals and their application to solid state diffusion. Prerequisites: MATH 1230 or 1710, PHYS 2050, ME 2500, and department approval.  
4 hours (4 to 0)

**MSE 3540** Transport Phenomena in Materials  
Principles of heat, charge, mass, and momentum transport. A comprehensive treatment of bulk and surface diffusion in solids, including mathematical formalism. Application to lattice defects, conductivity, semiconductivity, processing, heat treatment, coating, and corrosion and oxidation of metals. Prerequisites: MATH 3740, MSE 3530, and CHEM 4300.  
3 hours

**MSE 4570** Mechanical Behavior of Materials  
Fundamentals of elasticity and plasticity theory. The mechanical and thermo-mechanical forming methods of materials. Prerequisites: ME 2500, ME 2530 or 2560, MATH 2720, and department approval.  
3 hours (3 to 0)

**MSE 4580** Instrumental Methods in Materials Analyses  
Principles and application of physical experimental techniques in materials analyses and research. Techniques include x-ray diffraction, electron microscopy, optical microscopy, atomic force microscopy, m"ssbauer spectroscopy, and thermal analysis. Prerequisites: ME 2500, GEOS 3350, and consent of instructor.  
3 hours (2 to 3)

**MSE 4710** Thermodynamics of Materials  
Introduction to chemical metallurgy, thermodynamic functions associated with compounds, diffusion, phase equilibria and phase diagrams, extractive metallurgy, chemistry of ceramics. Prerequisites: ME 2500, CHEM 4300.  
4 hours (4 to 0)

**MSE 4730** Ceramics and Ceramic Composites  
Crystallography and atomic bonding relationships relative to mechanical, thermal, optical, magnetic, and electrical properties. Phase equilibria and transformation. Mechanical and physical properties of ceramic composites. Electronic, optical, biological, and structural application of ceramics and ceramic composites. Processing of traditional and technical ceramics. Prerequisites: ME 2500 and CHEM 4300.  
3 hours (3 to 0)

**MSE 4740** Polymers and Polymer Composites  
Polymerization techniques and molecular weight distributions. Polymer chain configuration, conformation, shape, and viscoelastic properties. Microstructure and physical and mechanical properties of bulk polymers, thin films, and solutions. Polymer composite materials. Major polymer classes and their modern applications. Prerequisites: CHEM 3700, IME 2500, and ME 2500.  
3 hours (3 to 0)

**MSE 4760** Failure Analysis and Corrosion  
Theory, design implications and case studies in the following areas: elastic deformation, plastic deformation, creep, fracture, fatigue, corrosion and oxidation. A technical paper based on a project will be submitted at the end of the course. Prerequisites: MSE 4570, MSE 4710, IME 2610 and MATH 3740.  
3 hours (2 to 3)
MSE 4830 Project Design and Control  Problem definition, project planning and scheduling, follow-up and control techniques. Results in presentation and plan for senior project. This course, along with MSE 4850, is approved as a writing-intensive course, which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisites: Senior status and department approval.  1 hour (1 to 0)

MSE 4850 Senior Project  Open-ended team projects involving systems design, analysis, or application. Results in a tangible system, written report and presentation. This course, along with MSE 4830, is approved as a writing-intensive course, which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisites: MSE 4830 and approved project.  3 hours (1 to 6)

MSE 4950 Topics in Engineering  A specialized course dealing with some particular area of technology not usually included in other course offerings. May be repeated for credit with different topics to a maximum of six credit hours. Prerequisite: Consent of department.  1 to 6 hours (Variable)

MSE 4990 Independent Studies  An individual study program to supplement regular course work, arranged in consultation with a study supervisor. One to three hours credit per semester. May be repeated not to exceed six credit hours. Prerequisite: Consent of department.  1 to 3 hours (Variable)

MSE 5320 Wood Science and Engineering  Scientific study of dendrology and forest products industry. A study of the relationship between the macro and microscopic structure in wood and wood-based composites as they relate to Engineering Design. Laboratory activities will involve machining theory, wood fluid relationships and wood stabilization. Prerequisites: MATH 3740, PHYS 2070, ME 2500, and consent of instructor.  3 hours (2 to 2)

MSE 5660 Ceramics: Structure and Properties  Ceramic crystalline structure. Structure imperfections, deformation and failure of ceramic materials. Processing, properties, and toughening mechanisms. Design with and applications of ceramic materials. Prerequisites: MATH 3740, PHYS 2070, ME 2500, and consent of instructor.  3 hours (2 to 2)

Military Science

MSL 1010 Foundations of Officemanship  Introduce students to issues and competencies that are central to a commissioned officer's responsibilities. Establish framework for understanding officemanship, leadership, and Army values followed and "life skills" such as physical fitness and time management.  1 hour

MSL 1020 Basic Leadership  Establishes foundation of basic leadership fundamentals such as problem solving, communications, briefings and effective writing, goal setting, techniques for improving listening and speaking skills and an introduction to counseling.  1 hour

MSL 2010 Individual Leadership Studies  Students identify successful leadership characteristics through observation of others and self through experiential learning exercises. Students record observed traits (good and bad) in a dimensional leadership journal and discuss observations in small group settings.  2 hours

MSL 2020 Leadership and Teamwork  Examines how to build successful teams, various methods for influencing action, effective communication in setting and achieving goals, the importance of timing the decision, creativity in the problem solving process, and obtaining team buy-in through immediate feedback.  2 hours

MSL 2990 Studies in Military Science  An opportunity for students who have been unable to take military science courses in sequence to obtain needed course work at more convenient times. Course content is adapted to meet the individual needs of the student. Prerequisite: Approval of department chair.  2 or 3 hours

MSL 3010 Leadership and Problem Solving  Students conduct self-assessment of leadership style, develop personal fitness regimen, and learn to plan and conduct individual/small unit tactical training while testing reasoning and problem solving techniques. Students receive direct feedback on leadership abilities. Prerequisite: Prior departmental approval required; must obtain call number from department office.  3 hours

MSL 3020 Leadership and Ethics  Examines the role communications, values, and ethics play in effective leadership. Topics include ethical decision-making, consideration of others, spirituality in the military, and survey Army
leadership doctrine. Emphasis on improving oral and written communication abilities. Prerequisite: Prior departmental approval required; must obtain call number from department office. 3 hours

MSL 4010 Leadership and Management Develops student proficiency in planning and executing complex operations, functioning as a member of a staff, and mentoring subordinates. Students explore training management, methods of effective staff collaboration, and developmental counselling techniques. Prerequisite: Prior departmental approval required; must obtain call number from department office. 3 hours

MSL 4020 Officership Study includes case study analysis of military law and practical exercises on establishing an ethical command climate. Students must complete a semester-long Senior Leadership Project that requires them to plan, organize, collaborate, analyze, and demonstrate their leadership skills. Prerequisite: Prior departmental approval required; must obtain call number from department office. 3 hours

MSL 4990 Studies in Military Science An opportunity for students who have been unable to take military science courses in sequence to obtain needed course work at more convenient times. Course content is adapted to meet the individual needs of the students. Topics may vary from semester to semester and students may repeat the course. Prerequisite: Approval of department chair. 1 to 4 hours

Music
MUS 1000 Applied Music This level of applied music indicates private music study at a fundamental level. Credit earned may be applied to a Bachelor of Music degree only by special arrangement through the School of Music. 1 to 2 hours

MUS 1010 Music Convocation A series of special musical events required of music majors. Programs include lectures and recitals by faculty, selected students, and guest artists. (A $60 fee is assessed to all music majors in order to provide funds for travel and instruments used by students throughout the music program.) No Credit

MUS 1020 Piano Class I This is a beginning course for the development of piano playing skills for non-music majors/minors. The course will cover fundamentals of music reading, keyboard techniques, sight-reading, and harmonization. 2 hours

MUS 1030 Piano Class II A continuation of MUS 1020 Piano Class I. Because course goals do not align with other keyboard classes in the School of Music, the student will not be prepared to progress into other piano courses offered for music majors/minors. Prerequisite: MUS 1020 or instructor consent. 2 hours

MUS 1060 Western String Chamber Orchestra A select string ensemble that explores the finest string orchestra repertoire, from Baroque to the twentieth century. The group maintains an active on- and off-campus performance schedule and will require a strong commitment and desire for musical and technical excellence. Membership by audition only. Prerequisite: Audition. 1 hour

MUS 1070 University Choruses The University Choruses are composed of students from all disciplines. These ensembles provide students with the fundamentals of artistic choral ensemble singing. As part of that education, performance experiences may include concerts and local tours. Repertoire includes a wide variety of multicultural literature. Examples of ensembles offered include Women's Chorus, Concert Choir, and Special Ensemble. Repeatable for credit. Prerequisite: Audition or instructor consent. Grand Chorus is a large ensemble which performs choral/orchestral compositions. Participation is required of members of the University Chorale, Collegiate Singers, and University Choruses, but membership is open to other singers with the consent of the conductor. 1 hour

MUS 1080 Collegiate Singers A choral ensemble which develops general musicianship and provides training in choral singing. Performances are presented on campus and in the community. Membership by audition. Grand Chorus is a large ensemble which performs choral/orchestral compositions. Participation is required of members of the University Chorale, Collegiate Singers, and University Choruses, but membership is open to other singers with the consent of the conductor. 1 hour

MUS 1090 Marching Band The University Marching Band is the major performing ensemble for Fall football activities. Positions are open to all students who play wind or percussion instruments. Music Education: Instrumental majors
who play a wind or percussion instrument are required to take this course during two Fall semesters. Membership is by audition. 1 hour

MUS 1100 Symphonic Band The University Symphonic Band is dedicated to the performance of outstanding literature, including original works for band, compositions for wind ensemble and orchestral transcriptions. An emphasis is placed on understanding the pieces performed from an aesthetic and stylistic basis as well as from a technical point of view. This ensemble maintains an active performance schedule on campus and in the community, as well as throughout Michigan and the surrounding states. Membership by audition. 1 hour

MUS 1110 University Orchestra The orchestra is open to all students who have had a reasonable amount of orchestral experience. Many fine compositions are studied and played during the year, and the orchestra joins with other campus organizations in joint programs. Instruments are available for the use of students. Membership is by audition. 1 hour

MUS 1120 University Chorale An advanced choral ensemble which maintains a very active performance schedule on campus and in the community as well as throughout Michigan and surrounding states. Membership by audition. Grand Chorus is a large ensemble which performs choral/orchestral compositions. Participation is required of members of the University Chorale, Collegiate Singers, and University Choruses, but membership is open to other singers with the consent of the conductor. 1 hour

MUS 1130 Concert Band The University Concert Band is an all-campus organization dedicated to the performance of fine literature, including original works for band as well as outstanding orchestral transcriptions. The aesthetic aspect of the music is stressed and special emphasis is placed on musical style. This ensemble presents concerts on campus and in the surrounding community. Membership by audition. 1 hour

MUS 1140 Digital Media in the Arts This course will introduce students in Music to the audio, graphics, video and other digital tools used by professionals in the arts. All instruction will be delivered on-line, and students must have a WMU email account before the first class of the semester. Course assignments will be comprised primarily of projects created in the various open computer labs within the College of Fine Arts. The course will be graded on a Credit/No Credit basis. This course will fulfill the College of Fine Art's computer literacy graduation requirement. Prerequisite: Open only to Music majors. 3 hours

MUS 1150 Voice Technique I The students who have been approved for this course by audition will explore and develop the voice as a healthy instrument for musical theatre performance. Vocal technique will be emphasized with some singing and coaching of easy lyric songs and arias from musical comedy and opera. Application of healthy vocal technique to dialogue will be included. Prerequisite: Audition only. 2 hours

MUS 1160 Voice Technique II A continuation of MUS 1150, Voice Technique I. Prerequisite: MUS 1150. 2 hours

MUS 1170 Vocal Techniques for Music Educator A course that develops the understanding of vocal hygiene and vocal production, as well as develop the ability to perform simple phrases with direct application of production principles. Application of vocal production principles will be made using the speaking voice in the classroom. Prerequisite: Music Education major. 1 hour

MUS 1180 Gold Company II A vocal jazz and show entertainment ensemble which gives students the opportunity to develop their vocal skills while performing challenging contemporary choral literature. A small instrumental combo accompanies the ensemble, and choreography and specialty acts are included. The ensemble maintains an active performance schedule on campus and throughout the surrounding west Michigan area. Membership is open to all students by audition. 1 hour

MUS 1190 Gold Company A select ensemble which specializes in Jazz Show Vocal Entertainment. Specialty acts and choreography are included. A small instrumental ensemble accompanies the group. A very active performance schedule is maintained on campus, in the community, in Michigan and out-of-state. Membership is open to all University students by audition. 1 hour
MUS 1200 Keyboard Fundamentals  The course covers basic fundamentals of piano technique, sight-reading, transposition, improvisation, and simple harmonization of melodies using primary harmonies.  Prerequisite: MUS 1600 or concurrent.  1 hour

MUS 1210 Keyboard Fundamentals  A continuation of MUS 1200. The course of study includes major scales, sight-reading of simple pieces with two independent parts or melody with blocked and broken chord accompaniment, transposition, harmonization of melodies using primary and secondary harmonies, and improvisation using penta scales and specified chord progressions.  Prerequisite: MUS 1200 or instructor consent.  1 hour

MUS 1220 Voice Class  A study of the fundamental processes of breath control and tone production, providing some individual instruction in preparing and singing standard song literature. The course is designed to benefit students interested in solo and choral singing.  1 hour

MUS 1230 Voice Class  A continuation of MUS 1220. Repertoire will include early English songs and seventeenth and eighteenth century Italian songs as well as other standard literature, with a minimum of five songs to be memorized during the semester.  Prerequisite: MUS 1220.  1 hour

MUS 1240 Guitar Class I  This class will enable the student with no previous experience to use the guitar as an accompanying instrument. The course will provide basic instruction in the fundamentals of music reading as well as the fundamentals of guitar. The student will be required to own or have access to a Folk or Classical type guitar.  2 hours

MUS 1250 Guitar Class II  This class is intended for the student who has completed Guitar Class I or the student with some guitar ability who wishes to further develop his/her skills. The course will enable the student to use the guitar as a solo or melody-playing instrument. Instructions will be provided on tablature and transposition as it applies to the guitar and on various techniques as used in both the Classical and Folk idioms for melody or single-note playing. The student will be required to own or have access to a Folk or Classical type guitar.  Prerequisite: Completion of MUS 1240 or instructor consent.  2 hours

MUS 1260 Fundamentals of Guitar  This class is for the music major or minor who has an ability to read music and a basic knowledge of harmony but who cannot already play the guitar. The class will focus on the use of guitar in the music education and music therapy professions and will cover the different styles of beginning guitar playing, including an overview of basic chords, barre chords and the various strumming and picking patterns. The student must own or have access to Folk or Classical type guitar.  Prerequisite: MUS 1600.  1 hour

MUS 1280 String Class-Cello, Double Bass  A course in the fundamentals of pedagogy and performance for the cello and double bass presented through materials commonly used in classes in the public schools. Prerequisite: Music Education major.  1 hour

MUS 1290 String Class-Violin, Viola  A course in the fundamentals of pedagogy and performance for the violin and viola presented through materials commonly used in classes in the public schools.  Prerequisite: Music Education major.  1 hour

MUS 1300 Percussion Class  Fundamentals of percussion instrument pedagogy and performance. The student is required to perform on the snare drum in an acceptable manner and to demonstrate a working knowledge of percussion instruments, including methods and materials, care and maintenance, and the function of the percussion section in a band or orchestra. For music majors only.  1 hour

MUS 1330 Clarinet Class  Fundamentals of clarinet pedagogy and performance. For music majors only.  1 hour

MUS 1410 Music in Special Education  Designed for teachers of exceptional children. Study of methods and materials for singing, rhythmic, and creative activities in classes for emotionally, mentally and physically handicapped. The student learns functional use of piano and informal instruments. Values of musical activities for all exceptionalities are emphasized. Substitutes for MUS 2400 for Special Education majors.  3 hours

MUS 1420 Oboe/Bassoon Class  Fundamentals of oboe and bassoon pedagogy and performance. Prerequisite: Music majors only.  1 hour
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<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Description</th>
<th>Prerequisite/Notes</th>
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<tbody>
<tr>
<td>MUS 1430</td>
<td>Trumpet/Horn Class</td>
<td>Fundamentals of trumpet and horn pedagogy and performance.</td>
<td>Music majors only. 1 hour</td>
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<tr>
<td>MUS 1440</td>
<td>Trombone/Tuba Class</td>
<td>Fundamentals of trombone and tuba pedagogy and performance.</td>
<td>Music majors only. 1 hour</td>
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<tr>
<td>MUS 1450</td>
<td>Flute/Saxophone Class</td>
<td>Fundamentals of flute and saxophone pedagogy and performance.</td>
<td>Music majors only. 1 hour</td>
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<tr>
<td>MUS 1480</td>
<td>Direct Encounter with the Arts ($50 fee)</td>
<td>A course that uses a direct approach to introduce students to their cultural world by guiding them through first-hand experiences in a number of arts: cinema, photography, theater, sculpture, music, poetry, dance, and architecture. Classroom discussions are held following the students' participation in the various art events scheduled each semester, with students expected to write journals or response papers about the major events of the course. There will be a course charge in lieu of textbooks. Cross-listed with ART 1480, DANC 1480, THEA 1480. May be taken only once from College of Fine Arts Departments. 4 hours</td>
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<tr>
<td>MUS 1500</td>
<td>Music Appreciation: Live Music</td>
<td>An introduction to music and music literature in conjunction with attendance at music concerts and recitals on campus. Classroom discussion and readings will guide the student through a variety of listening experiences that will stimulate perception and enjoyment of music on a visual as well as aural level. This approach will also insure a wide sampling of musical styles and media while encouraging the student to become more aware of his/her musical surroundings. A schedule of the musical events required for the semester will be issued during the first week of the semester. MUS 1500 may not be elected by music majors to fulfill General Education requirements. 4 hours</td>
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<tr>
<td>MUS 1510</td>
<td>Music Appreciation: Jazz/Pop</td>
<td>A study of the development of jazz and its importance as an American art form. The course includes a survey of the beginnings of jazz as a blending of the musical cultures of Africa and Europe. The development of jazz from the late nineteenth century to the present will be traced. Current trends in jazz and rock, as well as electronic influences in contemporary pop music will be emphasized. Studies will include sociological and cultural trends and their influence on the evolution of the various styles and forms of jazz and pop. Implications for the future will be considered. MUS 1510 may not be elected by music majors to fulfill General Education requirements. 4 hours</td>
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<tr>
<td>MUS 1520</td>
<td>Rock Music: Genesis and Development</td>
<td>A study of rock and roll music since its inception in the mid-1950s. The impact of black rhythm and blues, jazz forms, and radio and television upon early rock will be studied as well as further evolutionary developments such as &quot;do-wop&quot;, soul music, folk rock, psychedelic rock, jazz rock, the various English schools, heavy metal, and punk styles, to mention but a few. The course will cover the material of rock from 1955 to present. It may not be elected by music majors to fulfill General Education requirements. 3 hours</td>
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<tr>
<td>MUS 1580</td>
<td>Jazz/Pop Music Theory</td>
<td>A course in the theory on which Jazz and Popular musics are based. Topics covered will include chord nomenclature, construction, and voicings together with basic keyboard instrumentation and ear training. The course is open to music majors and non-majors who can read music. Prerequisite: MUS 1600 with &quot;C&quot; or better, or permission of the instructor. 2 hours</td>
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<tr>
<td>MUS 1590</td>
<td>Fundamentals of Music</td>
<td>A study of fundamentals, including notation, scales, intervals, basic chord construction, and the rhythmic/metric aspect of music. This course is open to all students as an introductory study in music theory. 2 hours</td>
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<tr>
<td>MUS 1600</td>
<td>Basic Music I</td>
<td>A study of traditional harmony through partwriting and analysis including the inversions of diatonic triads and dominant seventh chords Prerequisite: Acceptance as a music major or minor and the passing of a qualification examination in music fundamentals. 3 hours</td>
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<tr>
<td>MUS 1610</td>
<td>Basic Music II</td>
<td>A continuation of MUS 1600. Includes the study of secondary dominants, augmented sixth chords, borrowed chords, and modulation to foreign keys. Prerequisite: MUS 160 with the grade of &quot;C&quot; or better. 3 hours</td>
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</table>
| MUS 1620    | Aural Comprehension I                            | Aural comprehension strives to produce a listener/performer who can perceive sound in meaningful patterns-developing a hearing mind and thinking ear. This is achieved by the tandem development of two types of activities: listening and performance. Listening includes dictation, recognition or perception of musical events,
and ensemble skills. Performance includes sight-reading, prepared performance, and improvisation. This course concentrates on diatonic melodies, simple and compound divisions of the beat, intervals, and triads. Prerequisite: Acceptance into MUS 1600. 1 hour

MUS 1630 Aural Comprehension II A continuation of MUS 1620. This course develops dictation, error detection, sight-reading, performance, and improvisation skills applied to more advanced diatonic melodies, subdivisions of simple and compound beats, and diatonic chord progressions. Prerequisite: MUS 1620 with a grade of "C" or better. 1 hour

MUS 1700 Music History I An introductory survey of the music from the late Baroque through the early nineteenth century. Prerequisite: MUS 1600 or concurrent. 2 hours

MUS 1900 Accompanying Supervised experience in accompanying vocal and instrumental music, both solo and ensemble. 1 hour

MUS 1990 Applied Music-Music Theatre (voice) This level of Applied Music indicates "lower division" standing for music theatre students who have been approved for this level. Prerequisite: MUS 1160. 1 to 4 hours

MUS 2000 Applied Music This level of applied music indicates "lower division" standing for music students who have been approved for this level through auditions or jury examinations. ($7.00) 1 to 4 hours

MUS 2010 Sophomore Hearing An examination in applied music. All vocal majors must pass this to qualify for upper-level applied study. 1 hour

MUS 2100 Jazz Lab Band The Jazz Lab Band affords students the opportunity to develop performance skills in contemporary and traditional big band jazz. Student compositions and arrangements are encouraged and are a regular part of Lab Band Concerts. The Ensemble performs regularly on campus and in the surrounding community. Membership is by audition. 1 hour

MUS 2110 Studio Accompanying A laboratory experience in accompanying solo music. Students will be assigned three to four hours of varied studio accompanying per week. This course may be repeated for credit not to exceed a total of two semester hours. 1 hour

MUS 2120 Jazz Orchestra The University Jazz Orchestra is a select ensemble which affords students the opportunity to perform outstanding literature in contemporary and traditional big band jazz. Special consideration is given to the rehearsal and performance of student compositions and arrangements. The ensemble performs regularly on and off campus Membership is by audition. 1 hour

MUS 2150 Conducting A course in the fundamentals of conducting, including beat patterns, various gestures for attack, release, phrasing, etc., use of the left hand, and score-reading. The student will be afforded a variety of experiences, i.e., conducting exercises for videotaping, conducting practice laboratories, etc. Prerequisites: MUS 1610, MUS 1630, and MUS 1700 all with a grade of "C" or better. 1 hour

MUS 2180 Instrumental Chamber Music Special ensembles formed to perform standard instrumental chamber music works. Ensembles may include a variety of combinations, i.e., string quartets, woodwind quintets, brass quintets, percussion ensembles, piano trios, etc. Credit will be granted only if a sufficient rehearsal/performance schedule warrants. 1 hour

MUS 2200 Keyboard Musicianship A course primarily designed for those who need to develop more advanced practical skills at the piano. Students learn to play all major and natural minor scales, harmonization using secondary chords, transposition of band parts into concert key, improvisation on specified progressions and rhythms, and sight-reading of pieces with larger range. Prerequisite: MUS 1210 with a grade of "C" or better, or instructor consent. 1 hour

MUS 2210 Keyboard Musicianship A continuation of MUS 2200. Course emphasis is on adding all forms of minor scales to those previously learned, sight-reading 2 parts of SATB vocal scores, hymns and simple accompaniments, playing 3-part scores, harmonizing melodies using secondary dominants, and improvising accompaniments to specified melodies and to physical movement. Prerequisite: MUS 2200 with a grade of "C" or better, or instructor consent. 1 hour

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MUS 2330 Italian/English Diction A phonetic approach to the pronunciation of these languages designed for singers and choral directors. The performance of the language utilizes the vocal literature of major composers in each language. 1 hour

MUS 2340 French/German Diction A phonetic approach to the pronunciation of these languages designed for singers and choral directors. The performance of the language utilizes the vocal literature of major composers in each language. 1 hour

MUS 2400 Music for the Classroom Teacher Designed for elementary education students without regard to previous musical training. Students are prepared to use music functionally and developmentally in the elementary classroom through singing, through playing the piano and informal instruments, and through responding to music rhythmically. Creative aspects and values of music are emphasized, and materials are studied in relation to their future uses in the classroom. 3 hours

MUS 2590 Aural Comprehension III A continuation of MUS 1630. This course develops dictation, error detection, sight-reading, performance, and improvisation skills applied to modal and chromatic melodies, irregular subdivisions of simple and compound beats, and chromatic chord progressions. Prerequisite: MUS 1630 with a grade of "C" or better. 1 hour

MUS 2600 Basic Music III A continuation of MUS 1610 designed to reinforce the melodic, harmonic and rhythmic concepts of traditional music by means of analysis and composition assignments. The main emphasis will be on the study of 18th and 19th-century techniques, styles, composers and forms. Prerequisite: MUS 1610 with a grade of "C" or better. 3 hours

MUS 2610 Basic Music IV A continuation of MUS 2600 designed to reinforce the melodic, harmonic and rhythmic concepts of traditional music by means of analysis and composition assignments. The main emphasis will be on the study of 20th century techniques, styles, composers, and forms. Prerequisite: MUS 2600 with a grade of "C" or better. 3 hours

MUS 2620 Composition Beginning work in composition, with emphasis on the development of short works utilizing small instrumental combinations. Attention is given to melodic, rhythmic and harmonic devices. Prerequisite: MUS 1610, or permission of instructor. 2 hours

MUS 2630 Composition A continuation of MUS 2620. Prerequisite: MUS 2620. 2 hours

MUS 2640 Jazz Composition The fundamental aspects of composition in the jazz idiom, including harmonic progression, melodic design and rhythmic formulation. Intensive study will be made of well-known standard tunes as well as classic jazz compositions. All periods will be studied so that the student will have a well-grounded familiarity with basic compositional idioms, including the blues, standard AABA song forms, modal forms and more complicated sectional forms. All compositions created in class will be performed by class members or by the appropriate ensemble outside of class. Prerequisite: MUS 1580 (or instructor consent); MUS 2600 or concurrently. 2 hours

MUS 2650 Aural Comprehension IV A continuation of MUS 2590. This course develops dictation, error detection, sight-reading, performance, improvisation, and aural analysis skills applied to 20th century melodic, rhythmic, and harmonic idioms. Prerequisite: MUS 2590 with a grade of "C" or better. 1 hour

MUS 2700 Music History II: Medieval/Renaissance An introductory survey of the music of late Antiquity through the early seventeenth century. Prerequisite: MUS 1700. 3 hours

MUS 2710 Music History III: Nineteenth/Twentieth Century An introductory survey to the music of the early Romantic era through the twentieth century. Prerequisite: MUS 1700. 3 hours

MUS 2790 Instruments of the Band and Orchestra Students survey the string, woodwind, brass and percussion instruments commonly used in the band and orchestra. The major aim of the course is to make the student aware of the unique sound which characterizes each instrument and how that sound is produced. In developing perception and discrimination in this regard, the student investigates such things as the acoustical properties of the instruments, the correct formation of the embouchure for the brasses and woodwinds, the techniques of bowing string instruments, and the physical attributes required to perform successfully on certain instruments. All will learn the proper techniques for playing various
percussion instruments commonly used in the classroom and will be given the opportunity to explore one or more of the brasses and woodwinds. Prerequisite: Instructor consent. 1 hour

MUS 2800 Instruments of the Music Classroom Students will survey the instruments commonly used in the music classroom. All will learn the proper techniques for playing and teaching autoharp, ukulele, recorder, dulcimer, and others. Emphasis is placed on inclusion of these instruments in the music classroom. Prerequisite: Acceptance into Music Education curriculum. 1 hour

MUS 2810 Introduction to Music Therapy An orientation to the discipline of music therapy via classroom lectures, video tape presentations, and clinical observations. This course should be taken following or concurrent with PSY 1000. 1 hour

MUS 2890 Music Therapy Activities for Children This class will examine labels and categorizations involved in children populations, offer instruction in social-recreational instruments, allow for a more in-depth study of appropriate music materials and activities, and allow for experience in designing and implementing music therapy treatment procedures for individuals and groups. Class time will be primarily used for instruction with some selected help times to allow for more individualized instruction. Exams will be of a written, playing, and/or presentational format. Prerequisites: MUS 1260 and MUS 2810, or both may be taken concurrently. 2 hours

MUS 2900 Music Therapy Activities for Adults This class will examine labels and categorizations involved in adult populations, offer instruction in social-recreational instruments (e.g., guitar, ukulele, etc.), allow for a more in-depth study of appropriate music materials and activities and allow for experience in designing and implementing music therapy treatment procedures for individualized instruction. Exams will be of a written, playing and/or presentational format. Prerequisites: MUS 1260 and MUS 2810, or both may be taken concurrently. 2 hours

MUS 3000 Applied Music This level of applied music indicates "upper division" standing in applied music and is used to designate junior-and senior-level applied music. A maximum of four credits per semester may be earned at this level. ($7.00) 1 to 4 hours

MUS 3010 Senior Hearing An examination in upper-level applied music. All Wind-Percussion majors must pass this examination to be cleared for graduation. 1 hour

MUS 3170 Opera Workshop A production experience in the acting, singing, accompanying, and producing of musical theatre. The class is offered each semester and culminates in the performance of an opera or operatic scenes. Open to advanced singers, pianists, and persons interested in production techniques. Admission is by personal interview with the instructor. 1 hour

MUS 3200 Advanced Keyboard Musicianship Course emphasis is on the development of sight-reading and harmonization skills, introduction to four-part, open-score reading, modal improvisation, improvisation on specified progressions, and playing by ear. Prerequisite: MUS 2210 with a grade of "C" or better, or instructor consent. 1 hour

MUS 3210 Keyboard Skills for Singers A course designed to concentrate on piano skills necessary for vocal and Elementary Education/Music (EEM) majors. The course will include accompanying techniques, harmonization using secondary dominants, transposition, open-score reading, sight-reading of melodies while improvising accompaniments, and improvisation using blues progression and scales. Prerequisite: MUS 3200 with a grade of "C" or better or instructor consent. 1 hour

MUS 3220 Keyboard Harmonization Skills A course devoted to developing harmonization and improvisation skills necessary for music therapy majors. The types of improvisation covered include use of pentatonic textures, modes, ostinati, use of lead-sheet symbols, playing by ear, functional keyboard harmony, and sight-reading. The course will also be open to piano majors wishing to increase their functional skills on the piano. Prerequisite: MUS 3200 with a grade of "C" or better or instructor consent. 1 hour

MUS 3290 Choral Conducting and Literature for Elementary and Middle School Choirs The fundamentals of choral conducting are presented, including patterns and rehearsal techniques. The study and selection of literature appropriate to elementary and middle school choirs is included. Prerequisite: MUS 2150 with a grade of "C" or better. 2 hours
MUS 3300  Choral Conducting and Literature  The fundamentals of choral conducting are presented, including patterns and rehearsal techniques. The study and selection of literature appropriate to various levels of junior and senior high school choirs is included. Prerequisites: MUS 2150 with a grade of "C" or better and MUS 3390 concurrent.  2 hours

MUS 3310  Instrumental Conducting and Literature  Beginning methods for homogeneous and heterogeneous groups will be used with students acting as conductor-teachers and playing secondary instruments. Literature appropriate to various levels of junior and senior high school bands and orchestras will serve as materials for conducting with students performing on major instruments. Prerequisite: MUS 2150 with a grade of "C" or better.  2 hours

MUS 3360  General Music Methods  A study and survey of sequential musical experiences in general music classes in grades K-8. The course will include education objectives, philosophical concepts, instructional methods and materials and various innovative approaches used in the general music class. Administration and implementation of the class will be examined. The course is especially designed to acquaint the student with various teaching techniques. Each student will have an opportunity to participate in general music classes in area schools one-half day a week. Prerequisite: Acceptance into Music Education curriculum.  3 hours

MUS 3390  Choral Techniques  A course which develops the principles of vocal pedagogy, diction, and improvisation as they apply to choral settings. Study will include the development of the child's and adolescent's voice, selecting and arranging appropriate music for those voices, the problem of vocal abuse, and the rationales behind group vocal warm-up practices. Prerequisites: MUS 2150 with a grade of "C" or better and MUS 3300 concurrent.  2 hours

MUS 3400  Choral Methods  Extensive involvement with actual teaching of choral music in public schools is a central part of this course. Various philosophies of music education, music reading programs, and choral music education will be discussed. Students will focus on the development of aesthetic behaviors and performance objectives for choral ensembles. Administrative duties needed to implement and maintain a choral program will be identified. Advanced techniques for production of musicals and madrigal dinners, and the principles involved with developing show/jazz choirs will be examined. Job seeking and professional growth will be discussed. Prerequisite: MUS 3390 or MUS 3440 with a "C" or better.  3 hours

MUS 3440  Instrumental Methods I  Students will apply various learning theories, behaviorist techniques, and cognitive learning skills to the instrumental music lesson. Students will participate in designing a beginning instrumental music program and a system for initiating goals for program development. Administrative skills needed to implement and maintain an instrumental program will be developed. Various philosophies of music education and curriculum development will be discussed. Field experiences in the schools will constitute some of the assignments in this course. Prerequisite: Acceptance into Music Education curriculum.  3 hours

MUS 3450  String Methods  Extensive involvement with actual teaching of strings in public schools is a central part of this course. The course presents the theoretical, pedagogical, and practical aspects of string instruction in the elementary, middle, and senior high schools. Administrative duties needed to maintain string programs will be examined. Job seeking and professional growth will also be discussed. Prerequisite: MUS 3440 with a "C" or better.  2 hours

MUS 3470  Instrumental Methods II  Advanced study of the materials and methods needed for successful teaching of instrumental music in the schools. Extensive involvement with actual teaching of bands in public schools is a central part of this course. Students will focus on the development of aesthetic behaviors and performance objectives for junior and senior high instrumental ensembles. Highly specialized ensemble techniques such as marching band, arranging, jazz ensemble, solo and ensemble contest and festival preparation, etc., will be discussed. Job seeking and professional growth will be discussed. Prerequisite: MUS 3440 with a "C" or better.  3 hours

MUS 3480  Teaching and Learning in Music  This course is designed to teach students to write outcome statements, to plan and prepare learning activities to reach those outcomes, and to evaluate and assess the process used and outcomes. Classroom management, questioning techniques, conceptual hierarchies, sequencing techniques, program goals, short and long term goals related to program goals, and lesson planning will be discussed. Application will be in the junior high/middle school music classroom. Practicum experiences in junior high/middle school general music classroom which provide the student with opportunities to apply principles developed in the class are a part of course requirements. Prerequisites: MUS 3360 or MUS 3440 with a "C" or better.  3 hours
MUS 3500 American Music  A survey of 20th-Century music in the United States including concert, popular, and jazz styles. Influences of earlier American traditions and of other continents will be traced. The relationships between America's diverse modern music and its complex society will be explored. Ability to read music is not required.  4 hours

MUS 3520 Non-Western Music  A study of the traditional music of China, Japan, Southeast Asia, India and the Arabic countries, as well as of the non-literate cultures around the world, such as American Indian, Australian Aborigine, African, and Micronesian. One or several cultures will be selected for close study and a particular attempt will be made to understand the customs and attitudes of a people through their music. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum.  4 hours

MUS 3600 Style Analysis  An analytic study of the larger forms from the instrumental and vocal repertoire. Prerequisite: MUS 2600 with a grade of "C" or better.  2 hours

MUS 3620 Seminar in Music Composition  Original work in composition accompanied by study and analysis of advanced twentieth century compositions and creative concepts. May be repeated for credit. Prerequisite: MUS 2630 or MUS 1000 (Composition).  4 hours

MUS 3800 Psychology of Music  Physical, psychological and physiological aspects of sound and systems of tonal relationships. The effects of music on the individual and the consideration of music as a form of communication; the nature and measurement of musicality; the nature of musical memory; the underlying bases for musical taste and for aesthetic experience in music with emphasis on cultural influences. Prerequisite: PSY 1000.  2 hours

MUS 3810 Research in the Psychology of Music  Development and employment of research methods and techniques applied to the psychology of music. Experimental projects will be required in areas dealing with music and/or musical behavior. Prerequisite: MUS 3800 with a grade of "C" or better.  2 hours

MUS 3830 Observation and Measurement in Music Therapy  Overview of techniques of behavior measurement and accountability paired with actual clinical observations. Prerequisite: MUS 2810 or concurrent. Reserve time for observation.  1 hour

MUS 3850 Music for the Special Student  This course will provide an overview of disabilities, federal and state requirements, and problems of the gifted, talented, and culturally differentiated student. Methods for providing successful music experiences will be discussed. The course will provide opportunities to plan sample strategies (including individualized) for the special student found in the music classroom. Prerequisite: MUS 3480 or concurrent.  2 hours

MUS 3860 Technology in Music and Music Education  A class to prepare students to use computers and other related tools for professional tasks in music and music education. The class will acquaint students with ethical, legal and social issues related to computer usage, and develop a background in using computers 1) for word processing, creation of graphic images, database management and spreadsheet analysis; 2) to control synthesizers and other devices for digital sampling and synthesis, composing, arranging, and performing; 3) for managing and enriching musical learning through Computer Based Instruction in music; and 4) for information exchange and communication across networks. The course fulfills the University's computer literacy requirement. Prerequisite: Music Education major or Music major.  3 hours

MUS 3950 Performance Development and Technique  A workshop format utilizing exercises, scene rehearsals and performances in order to develop students' performing ability in musical theatre. Content includes sound and motion exercises, routing of a song or aria, and projection and auditioning techniques. Prerequisites: Consent of advisor and THEA 2900 (on either prep or running crews).  3 hours

MUS 4500 Music Appreciation: The Symphony  The course in THE SYMPHONY is a general music course which presents music for symphony orchestra from the listener's point of view. It deals with the materials, structure, texture, sonority, and style of orchestral music since the mid eighteenth century as well as the cultural milieu which gave rise to and brought about changes in musical style. Music reading ability not required. MUS 4500 may not be elected by music majors to fulfill General Education requirements. Not open to graduate music majors.  3 hours

MUS 4720 Clinical Practicum in Music Therapy I  A lecture/lab course to provide an opportunity for the music therapy student to apply music therapy principles with assigned individual/group clientele in the Music Therapy Clinic and/or
affiliated community agencies. Prerequisites: MUS 2810 and MUS 2890 or MUS 2900. Reserve time for clinical participation. 2 hours

MUS 4730 Clinical Practicum in Music Therapy II A continuation of MUS 4720. Prerequisite: MUS 4720. Reserve time for clinical participation. 2 hours

MUS 4790 Influence of Music on Behavior Justification for the use of music to change human behaviors through analysis of historical evidence, theoretical assumptions, and published research. Description of the therapeutic process with the intervention of music from assessment to community transfer. Prerequisite: MUS 4720. Reserve time for clinical participation. Liability insurance required. 3 hours

MUS 4800 Music Therapy Methods and Materials Study of phenomenological, cognitive, and behavioral orientation to treatment as applied to the music therapy setting. Review of contemporary issues affecting the clinical practice of music therapy. Prerequisite: MUS 4720. Reserve time for clinical participation. Liability insurance required. 3 hours

MUS 4810 Music Therapy Internship A six-month internship at an approved facility. Prerequisite: Consent of department. 2 hours

MUS 4900 Undergraduate Workshop in Special Problems Designed for students interested in some special field of music not formally listed for instruction. All special problems must be approved by the Director of the School of Music, but may be under the direct guidance of any member of the Music faculty. This course may be elected as many as three times. 1 to 3 hours

MUS 5010 Master Class The study of literature, performance practices, and techniques for a specific musical medium (instrument or voice). Individual performance assignments will be made appropriate to each student's level of accomplishment. Class meetings may vary from small groups of students with common performance levels to meetings of the entire class for the purpose of dealing with materials and techniques common to all performers. The class may be repeated for credit. Music majors only. 2 hours

MUS 5100 Symphonic Band The University Symphonic Band is dedicated to the performance of outstanding literature, including original works for band, compositions for wind ensemble and orchestral transcriptions. An emphasis is placed on understanding the pieces performed from an aesthetic and stylistic basis as well as from a technical point of view. This ensemble maintains an active performance schedule on campus and in the community, as well as throughout Michigan and the surrounding states. Membership by audition. 1 hour

MUS 5110 University Orchestra The orchestra is open to all students who have had a reasonable amount of orchestral experience. Many fine compositions are studied and played during the year, and the orchestra joins with other campus organizations in joint programs. Instruments are available for the use of students. Membership is by audition. 1 hour

MUS 5120 University Chorale An advanced choral ensemble which maintains a very active performance schedule on campus and in the community as well as throughout Michigan and surrounding states. Membership by audition. 1 hour

MUS 5130 Jazz Orchestra The University Jazz Orchestra is a select ensemble which affords students the opportunity to perform outstanding literature in contemporary and traditional big band jazz. Special consideration is given to the rehearsal and performance of student compositions and arrangements. The ensemble performs regularly on and off campus. Membership is by audition. 1 hour

MUS 5140 Instrumental Chamber Music Special ensembles formed to perform standard instrumental chamber music works. Ensembles may include a variety of combinations, i.e., string quartets, woodwind quintets, brass quintets, percussion ensembles, piano trios, etc. Credit will be granted only if a sufficient rehearsal/performance schedule warrants. 1 hour

MUS 5160 Music Theatre Practicum A production experience in music theatre. Each semester culminates in an opera or musical comedy production. Open to singers, actors, accompanists, instrumentalists, and persons interested in production techniques. Admission by audition or permission of the instructor. May be repeated for credit. 1 hour
MUS 5170 Collegium Musicum  Performance of early Western music. Open to all students of the University. Additional transcription, arranging, editing and conducting of early music is required of Music History majors. Graduate students may count not more than two hours of this course for graduation. Membership by audition. 1 hour

MUS 5190 Gold Company  A select ensemble which specializes in Jazz Show Vocal Entertainment. Specialty acts and choreography are included. A small instrumental ensemble accompanies the group. A very active performance schedule is maintained on campus, in the community, in Michigan and out-of-state. Membership is open to all University students by audition. 1 hour

MUS 5300 Advanced Choral Conducting  Supervised experience in conducting vocal ensembles. The student may be called upon to prepare an ensemble for public performance. Prerequisite: Audition required. Open to Upperclass and Graduate Students 2 hours

MUS 5310 Advanced Instrumental Conducting  Supervised experience in conducting instrumental groups. The student may be called upon to prepare an ensemble for public performance. Prerequisite: Audition required. Open to Upperclass and Graduate Students 2 hours

MUS 5500 Jazz Arranging  Jazz Arranging is a study of the art of arranging for the jazz ensemble-both traditional and contemporary. The course will undertake a detailed study of instrument ranges, transpositions and sound potential, and will cover voicings, scoring practices, calligraphy and contemporary trends within the medium. Prerequisites: MUS 1580 (or instructor consent) and MUS 1610, "C" or better required in each course. Open to Upperclass and Graduate Students 2 hours

MUS 5560 Advanced Jazz Arranging  A study and application of the art of arranging for the jazz ensemble, studio orchestra and show orchestra. The course will undertake a detailed study of scoring for winds, brass, strings, voices and percussion in relation to traditional and contemporary trends within the medium. Prerequisites: MUS 5550 and MUS 2640 or concurrently. Open to Upperclass and Graduate Students 2 hours

MUS 5580 Jazz Improvisation I  A study and directed application of the fundamentals of jazz improvisation including basic chord and scale construction and recognition, harmonic function, chord-scale relationships and basic blues and popular song forms. All students will be required to develop aural and performance skills relative to those theory skills. Prerequisites: MUS 1580 (or instructor consent) and 1610, "C" or better is needed in each class. Open to Upperclass and Graduate Students 2 hours

MUS 5590 Jazz Improvisation II  A study and directed application of advanced techniques of jazz improvisation including chord extension, voicing, inversions and substitutions, chord function and progressions and complex scales and their applications. All students will be required to develop aural and performance skills relative to those theory skills. Prerequisites: MUS 5580 and MUS 2180 Jazz Ensemble or concurrently. Open to Upperclass and Graduate Students 2 hours

MUS 5600 Counterpoint  A study of the contrapuntal techniques of the eighteenth, nineteenth and twentieth centuries. Written assignments are closely correlated with the contrapuntal styles of significant composers. Prerequisite: MUS 1610 with grade of "C" or better. Open to Upperclass and Graduate Students 2 hours

MUS 5610 Counterpoint  A continuation of MUS 5600. Prerequisite: MUS 5600. Open to Upperclass and Graduate Students 2 hours

MUS 5620 Advanced Compositional Topics  This course will cover advanced techniques used by composers. Topics will vary and will be announced when the course is offered. May be repeated for credit. Prerequisite: Permission of instructor. Open to Upperclass and Graduate Students 2 hours

MUS 5640 Seminar in Electronic Music Composition  Original music composition with digital and analogue synthesizers and computers. Creation of sound scores for concert performance, film, video, dance, theatre, or art installations. Includes the investigation of various types of sound synthesis, as well as the operation of studio sound mixers and multi-track recorders. In addition to the weekly seminar, the student will be assigned a number of hours weekly for independent work in the studio for the realization of the project, which will receive periodic guidance and criticism from the instructor. May be
MUS 5650 Seminar in Music Theory  Research projects in music theory. Research methods and analytic discipline are stressed. Study will be focused in an area of the student's need or interest.  Prerequisite: MUS 2610. Open to Upperclass and Graduate Students 2 hours

MUS 5660 Musical Acoustics  A course designed for the music student. Discussion as well as laboratory demonstration of such concepts as: simple vibrating systems, waves and wave propagation; complex vibrations, resonance; intensity and loudness levels; tone quality; frequency and pitch; intervals and scales; turning and temperament; auditorium and room acoustics; psychoacoustics. In addition, the instruments of the orchestra, the human voice, and recent developments in sound system components will be investigated. Prerequisite: MUS 1610. Open to Upperclass and Graduate Students 3 hours

MUS 5670 Orchestration  A study of the characteristics of instruments, and of arranging for the various individual choirs, for combinations of choirs, and for full orchestra. Prerequisite: MUS 2610. Open to Upperclass and Graduate Students 2 hours

MUS 5680 Orchestration  A continuation of MUS 5670. Prerequisite: MUS 5670. Open to Upperclass and Graduate Students 2 hours

MUS 5720 Baroque Music (1600-1750)  A survey of the choral and instrumental music of the Baroque masters such as J.S. Bach and G.F. Handel. Special attention to the development of style from monody through harmonic polyphony. Prerequisites: MUS 2700 and MUS 2710. Open to Upperclass and Graduate Students 3 hours

MUS 5730 Classical Music (1750-1800)  Examination of the chief works of Mozart and Haydn, with intensive study of symphonic form and the development of the classic opera. Prerequisites: MUS 2700 and MUS 2710. Open to Upperclass and Graduate Students 2 hours

MUS 5740 Romantic Music (1800-1910)  Music of the important composers of the period beginning with Beethoven, along with the historical, cultural, and political background of the era. Special attention is given to the development of Nationalism. Prerequisites: MUS 2700 and MUS 2710. Open to Upperclass and Graduate Students 3 hours

MUS 5770 Symphonic Literature  A survey of music written for symphony orchestra during the Classic and Romantic periods. Open to Upperclass and Graduate Students 2 hours

MUS 5780 Chamber Music Literature  A survey of chamber music literature of the Classic and Romantic periods. Open to Upperclass and Graduate Students 2 hours

MUS 5790 Operatic Literature  A survey of opera from 1600 to the present. Open to Upperclass and Graduate Students 2 hours

MUS 5800 Solo Literature: (Topics)  Solo literature for a specific medium (voice, piano, violin, etc.) will be studied from a theoretical, historical, and performance point of view. Topics to be announced. May be repeated for credit. Prerequisites: MUS 2700 and MUS 2710. Open to Upperclass and Graduate Students 2 hours

MUS 5810 Choral Music Literature  A survey of choral music (mass, motet, anthem, cantata, oratorio) from the Renaissance through the Romantic period. Open to Upperclass and Graduate Students 2 hours

MUS 5820 Wind Music Literature  A survey of windband ensembles and literature from the Renaissance period through the twentieth century. Prerequisites: MUS 2700 and MUS 2710. Open to Upperclass and Graduate Students 2 hours

MUS 5830 Jazz History and Literature  A survey of the history of jazz including aspects of sociology and history as they relate to the art form of jazz. All periods in jazz history, from its earliest roots in Africa and the slave culture
in the United States, up through the blues, dixieland, swing, bop, mainstream and the more eclectic period of jazz rock and free-form jazz will be explored. Important works will be examined from each period in order to grasp the essentials of a particular style. Prerequisite: MUS 5580 or department's consent. Open to Upperclass and Graduate Students 3 hours

MUS 5850 Medieval Music A survey of music in Western Europe from the end of Antiquity to the early fifteenth century. The major developments in style, theory, and notation will be explored within the context of the general cultural and political environment of the era. Problems of performance practice will receive special attention with emphasis on primary manuscript sources and scholarly performing editions. Prerequisites: MUS 2700 and MUS 2710. Open to Upperclass and Graduate Students 2 hours

MUS 5860 Renaissance Music A survey of music in Western Europe from the early fifteenth century to the early seventeenth century. Developments in the major musical genre of the era will be examined with emphasis on a comparison of the Franco-Flemish tradition with the emerging national styles. Performance practice options will be explored. Prerequisites: MUS 2700 and MUS 2710. Open to Upperclass and Graduate Students 2 hours

MUS 5870 Contemporary Music A survey of trends in European music and music of the Americans from about 1910 to the present day. Open to Upperclass and Graduate Students 3 hours

MUS 5890 Topics in Ethnomusicology This topics course examines various methods, problems, and issues in ethnomusicological writing and research. Topics will vary and be announced each semester. The approach taken in the course reflects current practice in the field of ethnomusicology, drawing upon theoretical writings in a variety of disciplines including ethnomusicology, musicology, anthropology, theater, cultural studies, and women's studies. May be repeated for credit with different topics. Prerequisite: Consent of instructor for non-music majors. Open to Upperclass and Graduate Students 3 hours

MUS 5900 Studies in Pedagogy Topics to be announced. Selection will be made from the following: Piano Pedagogy, Vocal Pedagogy, String Pedagogy, Brass Pedagogy, Woodwind Pedagogy, Pedagogy of Teaching Theory, or similar topics. May be repeated for credit. Prerequisite: MUS 3000-level applied voice or permission of instructor. Open to Upperclass and Graduate Students 3 hours

MUS 5940 Electronic Media The purpose of this course is to expose the student to the equipment used in various recording situations and its operation, as well as discussing the artistic use of this equipment. Although predominately a techniques course, areas which affect the creative aspects of the final recording will be discussed (such as microphone placement, tasteful vs. inappropriate editing, etc.). In addition to the recording aspects, other electronic instruments used in performances will be surveyed, including synthesizers of various types (both keyboard and non-keyboard) and traditional electronic instruments (guitars, electronic organs, electronic pianos, and various sound modification devices). Open to Upperclass and Graduate Students 2 hours

MUS 5950 Workshops in Music Education Intensive, short term courses that address the instructional and pedagogical issues found in today's schools, as well as issues of specific concern for current teachers in the field of music. Topics will be from all areas of music education. Prerequisite: advisor's consent. Open to Upperclass and Graduate Students 1 to 4 hours

MUS 5960 Multi-track Recording A course in the theory and techniques of multi-track recording and mixing. Students begin with an in-depth study of the mechanics of a multi-track recorder and the signal flow of a recording/mixing console. Microphone techniques as well as various approaches to room set-up are presented through reading assignments and studio demonstrations. Attention is given both to traditional techniques and the need for engineers to try new approaches to familiar circumstances. Students also study the most commonly used signal processors and how they might be used during recording or mixing for best results. Various listening assignments introduce students to the subtleties of mixing. A final project is required wherein each student must organize and execute a full 24-track production, from microphone selection through the final mix. Prerequisite: MUS 5940 or instructor consent. Open to Upperclass and Graduate Students 2 hours

MUS 5970 Projects in Music A program of independent study to provide the unusually qualified music student with the opportunity to explore a topic or problem of interest, under the guidance of one of the faculty of the School of Music. The initiative for planning the project must come from the student and must be approved by the faculty member proposed to
supervise the study. Prerequisite: Application approved by music advisor. Open to Upperclass and Graduate Students 1 to 4 hours

MUS 5990 Projects in Recording Technology An independent study allowing the unusually qualified student the opportunity to explore a topic or problem in recording technology. Prerequisites: MUS 5960 and approval by instructor. Open to Upperclass and Graduate Students 1 to 4 hours

Nursing

NUR 1020 Introduction to the Profession of Nursing This course will introduce students to the health care system and nursing's role and responsibilities within the system. Students will explore the nursing code of ethics, licensure issues, and the functions and purposes of nursing's national and international organizations. Prerequisite: Admission to the Prenursing curriculum. 2 hours

NUR 2020 Nurses' Role in Primary Health Care I Students will be introduced to the concept of Primary Health Care as defined by the World Health Organization. The primary focus will be on nursing process, health assessment, healthy communication, and caring. Nursing practice will involve groups and individuals across the life span who are experiencing common health problems. Prerequisite: Admission to the Professional Nursing curriculum and OT 2250; corequisite HSV 3350. 6 hours

NUR 2030 Nurses' Role in Primary Health Care II A continuation of NUR 202, concepts of partnership, data sources, holism, and common illnesses/health issues will be introduced. Nursing practice will focus on clients who are experiencing developmental transitions as they relate to health status. Prerequisites: Completion of NUR 2020 with a grade of "C" or better, HSV 3350. 6 hours

NUR 2040 Nurses' Role in Primary Health Care (RN) The major foci of this course, in addition to primary health care, will include: a review of nursing process, healthy communication, and self-development. The new concepts of partnership, caring, holism, and health and illness will be introduced. The laboratory component will include health assessment and interviewing techniques for health and wellness screening. Prerequisite: RN licensure and approval of School of Nursing. 6 hours

NUR 2200 Foundations of Nursing and Critical Thinking During this course the student is socialized to the profession of nursing, including roles, responsibilities and dispositions. Topics covered are values, legal implications, standards and codes that inform nursing practice. Theoretical foundations of the nursing process are introduced. Health and illness systems are expanded upon. Prerequisite: Admission to the professional nursing program. Co-requisites: NUR 2210, 2220, and BIOS 2320. 3 hours

NUR 2210 Nursing Therapeutics This course will introduce the beginning nursing student to principles and languages of common nursing interventions and actions in the care of the individual in a modularized format. Communication in nursing with written, oral, and therapeutic components, as well as use of medical terminology will be covered. Prerequisite: Admission to NURJ or RNNJ. Co-requisites: NUR 2200, 2220, BIOS 2320. 5 hours

NUR 2220 Health Assessment Throughout the Lifespan This course introduces the nursing student to the concepts and skills related to health assessment. It is designed to provide the student with an overview of the knowledge and skills needed to assess the health status of the individual from infancy through old age. Emphasis is placed on the assessment of physical, developmental, psychosocial, cultural, and spiritual dimensions of the individual. Prerequisite: Admission to NURJ or RNNJ. Co-requisites: NUR 2200, 2210, and BIOS 2320. 3 hours

NUR 2300 Concepts of Health and Wellness in Nursing Practice This course focuses on the foundations critical to working with clients in all settings. Community focus will begin with community assessment and an emphasis on determining a diagnosis related to a specific community group. Students will learn the nurse's and the community's role in promoting health and preventing illness of its various populations. Students will be introduced to epidemiology, culture, and biostatistics as they begin to understand how the social context and demographics affect health and illness patterns. Health People 2010 will guide the student's introduction to health promotion. The concepts of relationship-centered care and holistic nursing standards and practices will be applied. Prerequisites: NUR 2200, 2210, 2220, BIOS 2320. Co-requisites: NUR 2310, 3220, HSV 3350. 5 hours
NUR 2310 Wellness Care of the Elder
This course focuses on the care of the well and ill elder. Specifically, the course will provide students with the understanding of the physical, mental, emotional, spiritual, and cultural needs of the elder from 65 until death. Variations in the roles and abilities of elders in the various stages of elder care will be explored. End-of-life and hospice care concepts will be introduced. Students will begin their nursing practice with elders in nursing homes, assisted living and community settings. They will learn concepts of grief and loss as they relate to this age group. They will also address the ramifications of aging in societal and global contexts. Prerequisites: NUR 2200, 2210, 2220, BIOS 2320. Co-requisites: NUR 230, 3220, HSV 3350. 3 hours

NUR 3060 Nurses' Role in Facilitating Health and Self-Care I
In the first semester of this two-semester sequence, students will focus on concepts of teaching and learning, self-care, wellness, multi-culturalism, and family and group care. Students will be paired with a child rearing/bearing family that they will follow throughout the remainder of their program. Prerequisites: Completion of NUR 2030 with a grade of “C” or better and BIOS 2320. Corequisite: PHIL 3340. 9 hours

NUR 3070 Nurses' Role in Facilitating Health and Self-Care II
In this second semester of a two-course sequence, students will focus on the concepts of health care systems, nursing as a profession, nursing case management, collaboration, and negotiation and research. Nursing practice will be provided in settings such as Housing and Urban Development (HUD) housing units, group homes and half-way houses, and senior centers. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum (i.e., prelicensure track). Prerequisites: Completion of NUR 3060 with a grade of “C” or better; PHIL 3340. Corequisite: NUR 3330. 9 hours

NUR 3080 Nurses' Role in Facilitating Health and Self-Care (RN)
This course places major emphasis on the concept of forming partnerships that facilitate health in families, populations, and communities. The laboratory component of this course will include comprehensive physical assessment of children and adults, information technology, group dynamics, and counseling techniques. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum (i.e., RN progression track). Prerequisites: RN licensure and completion of NUR 2040 with a grade of “C” or better; PHIL 3340. Corequisite: NUR 3330. 8 hours

NUR 3200 Wellness and Health Promotion of Families
The concepts of health promotion and wellness are applied to childbearing and childrearing families. Reproductive health, family health, health and wellness during the childbearing cycle and health and wellness in childhood and adolescence are the foci of this course. Clinical practice experiences will include settings with healthy childbearing and childrearing families. Prerequisites: NUR 2300, 2310, 3220, HSV 3350. Co-requisites: NUR 3210, STAT 3660. 5 hours

NUR 3210 Care of Families with Alterations in Health Status
Care of Families and Children with Alterations in Health Status is the complementary course to NUR 320: Wellness and Health Promotion of Families. This course examines the common childhood disease states in common complications of pregnancy. The effects of these conditions will be examined in the context of the family. Clinical practice experiences will include settings with childbearing and childrearing families. Prerequisites: NUR 2300, 2310, 3220, HSV 3350. Co-requisites: NUR 3200, 3210, 3220, STAT 3660. 5 hours

NUR 3220 Health Care Ethics
This course is a didactic course that introduces students to principles and issues underlying and surrounding health care ethics. Content includes basic ethical theories, values, moral development, moral reasoning, and day-to-day ethical concerns. These concerns include, but are not limited to, genetics, end-of-life care and decision-making, moral reasoning, moral principles, research ethics, the interface between law and ethics, patient decision-making, rights, duties and obligations of the professional nurse and other health workers, professional codes and standards, and allocation of scarce resources. The course offers the learner an opportunity to develop, implement, and evaluate a variety of approaches to ethical concerns of the 21st century. Prerequisite: Minimum of 45 credit hours completed. 5 hours

NUR 3300 Nursing Therapeutics II
This course addresses advance concepts in nursing therapeutics and their application to the care of individuals with alterations in health status. Content includes advanced therapeutic nursing interventions including complementary modalities. Prerequisites: NUR 3200, 3210, and STAT 3660. Co-requisites: NUR 3310, 3320, 3330. 2 hours

NUR 3310 Care of Adults with Alterations in Health Status
This course introduces the learner to medical surgical nursing of adults with a focus on common illnesses within a culturally diverse global and societal context. Holistic nursing interventions and actions and building relationships are included. Concepts related to nutrition, pharmacology, and pathophysiology as they relate to common illnesses will be included. Nursing practice experiences will be primarily in area
hospitals and related settings. Prerequisites: NUR 3200, 3210, STAT 3660. Co-requisites: NUR 3300, 3320, 3330. 6 hours

NUR 3320 Nursing Research This course is designed to provide a foundation for the use of research findings as a basis for practice. The course focuses on nursing research as it relates to the theoretical foundations of the discipline of nursing and to the development of a scientific basis for nursing practice. It prepares the learner to understand the language of science and the processes of scholarly inquiry. It also prepares the learner to read, interpret and evaluate selected nursing studies and appropriately determine the clinical relevance of study findings and their implications for practice. The primary goals of the course are to explore the impact of research upon the profession of nursing, and to examine the research process as it relates to the practice of nursing. Prerequisites: NUR 2300, 2310, STAT 3660. 3 hours

NUR 3330 Informatics for Health Professionals This course is designed to familiarize the undergraduate health professional student with the present and potential impact of health care informatics on nursing and other allied health disciplines. It will also address how informatics tools and systems can assist in providing solutions to health care provider education and practice. An emphasis is placed upon the provider's role as a leader and advocate for change in this rapidly emerging field. Prerequisites: Minimum of 60 credit hours completed and evidence of computer literacy. 3 hours

NUR 4100 Nurses’ Role in Prevention, Treatment, and Control of Health Problems I This first course in a two-course sequence places major emphasis on the concepts of chronicity, nursing research, and at-risk populations. In the first semester the specific content will include: crisis interventions and mental health concepts with adolescents and young adults; the investigation of relationships between socio-economic status and the health of a community; and the use of automated data bases for epidemiologic and outcome assessment purposes. Clinical experiences will be provided in planned parenthood, government and private community-based health care agencies, the University health center, and mental health hospitals. Prerequisites: Completion of NUR 3070 with a grade of “C” or better, NUR 3330. Corequisite: STAT 3660. 10 hours

NUR 4110 Nurses’ Role in Prevention, Treatment, and Control of Health Problems II This is the second course in a sequence of courses. The course content will focus on the etiology and control of major health problems; conflict resolution; organization, leadership and management; and nursing research. Nursing practice will be designed to continue the development of case management skills with groups and individuals in community and institutional settings. Prerequisites: Completion of NUR 4100 with a grade of “C” or better, NUR 3330 (or HHS 4610), and STAT 3660. 10 hours

NUR 4120 Nurses’ Role in Prevention, Treatment, and Control of Health Problems (RN) Course content will focus on the etiology and control of major health problems, conflict resolution, organization and leadership management, and nursing research. Nursing practice will be designed to continue the development of case management skills with groups and individuals in community and institutional settings. Prerequisites: RN licensure and completion of NUR 3080 with a grade of “C” or better, NUR 3330 (or HHS 4610). Corequisite: STAT 3660. 8 hours

NUR 4200 Psych-Mental Health Nursing This course focuses on the care of patients and families who experience acute and chronic psychiatric disorders. Students will focus on the mutuality level of relationship centered care. Specifically, the course will emphasize cultivating caring relationships; respecting patient's dignity, integrity, and self determination; encouraging patient's autonomy and self help potential; and creating collaborative relationships between patient/practitioner and practitioner/practitioner. Specific content will include crises intervention, group dynamics, therapeutic communication, and the dynamics of dysfunctional families. In addition, nursing interventions for the current diagnostic categories of adult psychiatric illnesses such as addictions, thought disorders, personality disorders, anxiety and mood disorders, violence disorders, and post partum psychosis (DSM IV-TR) will be examined. Nursing practice experiences will focus on the development of case management and interdisciplinary team skills with groups/families and individuals in settings such as psychiatric-mental health inpatient and partial hospitalisation agencies, day care programs, and tertiary psychiatric care centers. Prerequisites: NUR 3300, 3310, 3320, and 3330. Co-requisite: NUR 4210. 5 hours

NUR 4210 Nursing Care of Patients with Complex Conditions This course examines the nursing care needs of patients of all ages with complex/co-morbid or critical conditions. Students will be given opportunities to expand their clinical judgment through the selection of holistic nursing therapies used in conjunction with traditional medical and nursing interventions in the care of patients who are ill. Opportunities to promote health and wellness will be provided. Advance assessment skills and physiologically based therapies will be taught and practiced in a variety of complex clinical settings. Prerequisites: NUR 3300, 3310, 3320, 3330. Co-requisite: NUR 4200. 6 hours
NUR 4300  Special Topics in Nursing  Emerging trends and issues in nursing are a reflection of the health care environment as it evolves. Each semester this course will focus on one of these issues or trends. This course may be repeated for credit.  Prerequisite: Admission to the Professional Nursing curriculum.  1 hour

NUR 4310  Population-based Nursing  This course focuses on at-risk/vulnerable populations with emphasis on primary, secondary and tertiary prevention in the community. Students will focus on the mutuality level of relationship-centered care by cultivating caring relationships with teams and other practitioners and valuing diversity. Students will use epidemiology (biostatistics) to examine significant disease trends and to ascertain significant disparities of care between various groups. Health policies, health economics, models of health care delivery and their effects on the delivery of community health services will be examined from a global perspective. Nursing practice sites will include public health agencies, community nursing agencies, hospice, palliative care sites, and rehabilitation agencies. Students will focus on health education/aggregate care in each site, with particular attention to Healthy People 2010 objectives. The professional nurse's role in influencing health policy, health care, telehealth, health law, public policy, and the health of a community will be examined.  Prerequisites: NUR 4200, 4210. Corequisite: NUR 4320.  6 hours

NUR 4320  Nursing Leadership & Management  This course introduces the leadership roles and management functions expected of a beginning professional nurse within the structure of an organization. Students learn basic organizational assessment, leadership, and health care management from the perspectives of voluntary agencies, health care provider organizations, and service delivery. Topics for discussion include principles of delegation, conflict resolution, peer review and evaluation, changes theories, measurement of quality of care, and professional model of nursing care.  Prerequisites: NUR 4200, 4210. Corequisite: NUR 4310.  4 hours

Occupational Therapy
OT 2000  Human Functional Anatomy  This course involves a detailed study of the human neuro-musculo-skeletal anatomy of the head, neck, upper limbs, back, and lower limbs which underly function. Students will use standard assessment of function to analyze individual and group performance. Corequisite: OT 2010.  3 hours

OT 2020  Orientation to Occupational Therapy  Orientation to the profession of occupational therapy. Will include the history of the profession, current professional roles, issues and trends in the field. Included in this course are self-instructional modules in medical terminology as well as uniform terminology specific to occupational therapy.  3 hours

OT 2250  Growth, Development, and Aging  A study of physical, mental, emotional, and social patterns of growth, development, and aging. Aspects to be given special emphasis for the occupational therapy student will be motor development, physiology of aging, growth patterns, and functional development in any of the above aspects. Prerequisite: Pre-OT or Nursing student.  3 hours

OT 3360  Independent Practicum  Participation in a health service or agency to provide experience with hospital procedure and an orientation to patient groups. A daily log is required. Student must submit a proposal for the course for departmental approval prior to registration.  Prerequisite: OCTJ or OCTM.  2 hours

OT 3700  Occupational Therapy Process  This course relates the occupational therapy service delivery model and scientific inquiry to practice and emphasizes written, oral, and interpersonal aspects of professional communication used in occupational therapy. The course provides an opportunity for the development of beginning competency in professional communication.  Prerequisite: Admission to the professional Occupational Therapy program, successful completion of OT 2020, and sophomore status. Corequisites: OT 3710, 3740, 3750, 3760.  2 hours

OT 3710  Occupational Therapy Process Lab  This course is a companion laboratory for OT 3700. Corequisites: OT 3700, 3740, 3750, 3760.  2 hours

OT 3740  Disabling Conditions  This course will introduce issues in health and illness, as well as pathologic processes and their impact on the total individual. Selected conditions related to the following pathologic processes will be discussed: developmental, traumatic, degenerative, infectious, neoplastic, immunologic, metabolic, psychiatric, and
circulatory/respiratory. Prerequisite: Admission to the professional Occupational Therapy program or permission of instructor. 4 hours

OT 3750 Applied Neurology and Kinesiology An applied study of human neurologic, neuro-muscular, neuro-motor, and sensori-motor function. Emphasis will be placed on development of normal occupational performance, assessment of the performance components, and conditions that affect occupation. This course will have four hours of lecture per week (two hours twice a week) and two hours of scheduled lab per week (additional hours online or CD ROM learning activities are expected). Prerequisite: Admission to the professional Occupational Therapy program. Corequisites: OT 3760, 3700, 3710, 3740. 4 hours

OT 3760 Neurology and Kinesiology Lab This course is a companion laboratory for OT 375. Corequisites: OT 3700, 3740, 3750. 2 hours

OT 3780 Introduction to Assessment: OT Process, Psychometrics, Theory This course provides investigation of occupational therapy theory and its relationship to development of assessment tools. The student will discover the process by which assessments are developed, the evolution of assessments over time, and necessary revisions in standardization. The student will develop the ability to analyze an assessment using statistical information such as validity and reliability. Computer-based assessments, standardized tests, functional and informal assessments will be critiqued and applied to professional practice. Sensorimotor, cognitive, psychosocial, and environmental assessments will be applied to a variety of client groups. Prerequisites: OT 3700, 3740, 3750. Corequisites: OT 3810. 2 hours

OT 3810 Occupational Therapy Practice I (Birth to 18 Years) Using a problem-based learning approach, students will define and apply the occupational therapy process to health maintenance and rehabilitation. Students will consider the interrelationship between occupational therapy performance components, occupational performance areas, and performance contexts. Emphasis on birth to age 18. Prerequisites: OT 3700, 3740, 3750. Corequisite: OT 3820. Graded on a Credit/No Credit basis. 6 hours

OT 3820 Occupational Therapy Practice II (19 Years to Geriatrics) Using a problem-based learning approach, students will define and apply the occupational therapy process to health maintenance and rehabilitation. Students will consider the interrelationship between occupational therapy performance components, occupational performance areas, and performance contexts. Emphasis on mid-life and older adults. Prerequisites: OT 3700, 3740, 3750. Corequisite: OT 3810. Graded on a Credit/No Credit basis. 6 hours

OT 4360 Independent Study in Occupational Therapy Designed to allow outstanding students to work independently under faculty supervision. Consent of department chair. 2 to 4 hours

OT 4700 Functioning of the Older Adult The objective of this course is to provide understanding of the basic psychological and physiological changes characteristic of human aging and pathological conditions which have consequences for function and behavior. 3 hours

OT 4710 Research in Health and Human Services This course explores research in health related fields while developing research skills at the undergraduate level. It will include the principles of research design, analysis and critique of research, ethical research practices, and an introduction to and familiarity with proposal development and statistical analysis. Students will learn to use evidence-based practice in making clinical decisions. Prerequisite: Junior status. 3 hours

OT 4720 Occupational Analysis and Adaptation This course provides students with experience in activity analysis and adaptation. Breaking down activities into subtasks for individuals with disabilities and then creating or providing adaptations or accommodations is a primary role. In addition, this course introduces students to basic technology related to adaptation for mobility, communication, splinting, vocation, and leisure. Prerequisites: OT 3810 and 3820. 3 hours

OT 4750 Occupational Therapy Practicum I In this course, students will provide Occupational Therapy evaluation and treatment in a supervised community-based setting. Prerequisites: OT 3810 and 3820. Corequisite: OT 4720. 4 hours

OT 4780 U.S. Policy in Health and Human Services This course will allow the student to critically read, analyze, and understand current U.S. policy in health and human services and to understand how these policies affect specific people in the community. Students will write advocacy letters, explanations (at the appropriate level of understanding) and
recommendations for potential revisions of current health policies. Prerequisites: Completion of Proficiency 1 with a grade of "C" or better. Limited to students in the Bachelor of Science in Interdisciplinary Health Services program. 3 hours

OT 4790 Occupational Therapy in Mental Health This course explores current Occupational Therapy practice in mental health. Students will define Frames of Reference and their application to a variety of practice settings. Students will learn treatment techniques appropriate for groups and individuals. Prerequisites: OT 2020, 2250, 3700, 3740, 3750, and PSY 2500. 3 hours

OT 4800 Health Services Practice Management This course introduces the student to the health care delivery system from an administrative and management perspective. The student will learn about different delivery models and how these relate to the management process. Prerequisites: Enrollment in the OCTJ or HSVJ curriculum and junior status. 3 hours

OT 4820 Occupational Therapy Practicum II This course is designed to provide in-depth clinical experience in order to develop skill in the utilization of assessment, the development of treatment plans, the implementation of treatment, and the evaluation of patient's progress related to the treatment plan. Prerequisites: OT 4720 and 4750. 4 hours

OT 4830 Capstone Experience in Occupational Therapy This course will result in demonstration of integration of knowledge and technical competencies required for occupational therapy clinical practice. Students will prepare a portfolio of professional skills and knowledge and present a project incorporating implementation of the occupational therapy process. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisites: OT 4700, 4710, 4720, and 4730. 1 hour

OT 4900 Field Work Level II A three-month affiliation in hospitals or community agencies providing the student experience in designated areas of occupational therapy. Departmental consent only. Prerequisites: Completion of all basic professional course work and prerequisite courses. Graded on a Credit/No Credit basis. 3 to 12 hours

OT 4910 Field Work Level II A three-month affiliation in hospitals or community agencies providing the student experience in designated areas of occupational therapy. Graded on a Credit/No credit basis only. Prerequisites: Completion of all academic course work required for graduation. 3 to 12 hours

OT 4920 Fieldwork Level II An optional three-month affiliation in hospitals or agencies providing the student experience in designated areas of occupational therapy. Prerequisites: OT 4900 and OT 4910. Graded on a Credit/No Credit basis. 2 to 3 hours

OT 5300 Sensory Integration and The Child Study of theoretical principles and their application to evaluation and treatment of the child with sensory integration dysfunction. Students will observe and participate in screening and evaluation of children, and they will design treatment plans for selected clients. Prerequisites: OT 4750 or concurrent; or OTR, RPT, or consent. 3 hours

OT 5730 Assistive Technology This course explores how a professional goes about evaluating, designing, and adapting technology to improve people's participation in activities of their choice. The course also explores current commercially available technology and available community-based services for people with impairments and/or activity limitations. Prerequisites: Senior standing or permission of instructor. 3 hours

OT 5800 Advanced Clinical Application of OT Clinical Reasoning This course will provide advanced knowledge of clinical evaluation tools and techniques. Students will be given additional training on the most commonly used and the state-of-the-art clinical evaluation tools. Advanced use of guidelines for practice and the integration of knowledge for clinical reasoning will be emphasized. Students will develop treatment plans for people with a variety of conditions and diagnoses. Evidence-based practice in OT will be used for analysis of evaluation tools and guidelines for practice. Prerequisites: OT 3700, 3740, 3750, 3810, 3820. 3 hours

OT 5810 Work Analysis and Consultation This course introduces students to work analysis in a variety of settings. Students learn to write job descriptions using ADA (Americans with Disabilities Act) standards (essential and nonessential job functions) and will learn to evaluate workers to determine their individual capability to perform a certain job (work capacity evaluation). Students will evaluate actual jobs to make recommendation (following current legislation) for
modifications for the worker, work site, and work organization to decrease potential job-related injuries. Students will also develop a wellness and injury prevention program to address injury prevention for a specific population. Prerequisites: OT 4720 and 4750 or neurology, kinesiology, biomechanical background, and one successful internship with consent of instructor. 3 hours

Public Affairs and Administration

PADM 2000 Introduction to Nonprofit Leadership An overview of American nonprofit organizations, including historical and philosophical foundations of nonprofit organizations, career development and exploration, attributes of successful nonprofit leaders, youth and adult development, and program planning. 3 hours

PADM 2100 Introduction to Nonprofit and Public Sector Leadership This course provides an overview of public administration, introduces the characteristics and environments of the public and nonprofit sectors, and examines the relationships among the public, private, and nonprofit sectors. 3 hours

PADM 3000 Nonprofit Advancement Study and practice of nonprofit advancement, including stakeholder assessment, development of nonprofit communication plans, project management, and fund-raising. Prerequisite: PADM 2000. 3 hours

PADM 3100 Hard Choices in Public Policy This course examines ethical, constitutional, resource availability, political, and other issues that are raised in relation to America's most challenging public policy dilemmas. Examples of policies to be discussed include environment/economic development tradeoffs, drug legalization, inter-generational equity, social welfare, education reform, and medical ethics. Prerequisite: PADM 2100. 3 hours

PADM 4000 Seminar in Nonprofit Leadership An advanced seminar in nonprofit leadership. Topics include nonprofit financial management, human resource development, nonprofit board relations and development, risk management, and environmental assessment. Prerequisites: PADM 2000 and senior status. 3 hours

PADM 4100 Internship in Nonprofit Leadership The goal of the internship is to provide students with a work experience that will afford realistic exposure to nonprofit leadership. The internship also allows students to complete their core competencies for American Humanics Certification. This course is graded on a Credit/No Credit basis. Prerequisites: PADM 2000 and 3000. Ideally, the internship will coincide with PADM 4000. 3 hours

PADM 5800 Nonprofit Board-Staff Relations This course examines the unique relationship between the governing board and staff of nonprofit organizations. Special attention is given to the relationship between the board and the chief executive officer (CEO) along with strategies for the CEO to build an effective working relationship with the governing board. The role of the governing board with respect to staff in the organization is also examined. Undergraduates with senior status in appropriate major fields may enroll in 5000-level courses with prior approval of the student's advisor or with the consent of the program director. 1 hour

PADM 5810 Strategic Planning Strategic planning in nonprofit organizations should be a leadership activity that is proactive, comprehensive, and long-range. This course examines the theory and practice involved in strategic work and provides real world practice through the creative development and discussion of cases. The discussion includes an introduction to the skills needed to determine the guiding values of the organization in its environmental context, and to develop a corresponding mission, goals, and strategies to achieve these value-grounded ends. Undergraduates with senior status in appropriate major fields may enroll in 5000-level courses with prior approval of the student's advisor or with the consent of the program director. 1 hour

PADM 5820 Volunteer Recruitment and Retention This course will draw on empirical research on volunteers, practice-oriented experiences, and case studies to examine central issues in the recruitment, retention, and development of effective volunteers. Undergraduates with senior status in appropriate major fields may enroll in 5000-level courses with prior approval of the student's advisor or with the consent of the program director. 1 hour

PADM 5830 Grant Writing for Nonprofit Organizations This course takes students through a proactive grant proposal writing process. The course is conducted in a workshop format with emphasis on writing a grant proposal and on logical

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relationships between sections of a proposal. Undergraduates with senior status in appropriate major fields may enroll in 5000-level courses with prior approval of the student's advisor or with the consent of the program director. 2 hours

**PADM 5840 Promoting Nonprofit Organizations** A practical course in the application of marketing principles to nonprofit organizations. Emphasis will be placed on techniques for defining and identifying the organization's contributor, volunteer, and client markets based on an organization's mission. The organization's commitment to quality and measurement of market satisfaction will also be covered. Participants will develop marketing strategies to meet the needs of identified markets. These strategies will include the identification of market offers, communication messages and methods, location issues, and the development of market budgets. Undergraduates with senior status in appropriate major fields may enroll in 5000-level courses with prior approval of the student's advisor or with the consent of the program director. 2 hours

**PADM 5860 Budget Development for Nonprofit Organizations** This course will examine procedures for projecting revenues, the extent to which tax policies affect private contributions to nonprofits, and the process for developing budgets. Line item and alternative budget formats will also be considered. An ability to use spreadsheets (e.g., Excel or Lotus) is strongly recommended. Undergraduates with senior status in appropriate major fields may enroll in 5000-level courses with prior approval of the student's advisor or with the consent of the program director. 2 hours

**PADM 5870 Fund Raising for Nonprofit Organizations** A practical course for those who wish to develop their fund raising skills. Emphasis is on understanding the various forms of fund raising, such as the annual fund, special events, deferred giving, major gifts, special project campaigns, corporate/foundation gifts, and direct mail. Students will learn to assess their own organizations' fund raising readiness and develop fund raising plans unique to their organizations. Undergraduates with senior status in appropriate major fields may enroll in 5000-level courses with prior approval of the student's advisor or with the consent of the program director. 2 hours

**PADM 5880 Endowment Development/Investments** This course will provide students with the working knowledge of permanent endowment funds. The course will address the appropriate rationale for creating an endowment, endowment management, investment strategy, and utilization of earnings in the nonprofit environment. Undergraduates with senior status in appropriate major fields may enroll in 5000-level courses with prior approval of the student's advisor or with the consent of the program director. 2 hours

**PADM 5890 Accounting and Financial Reporting by Nonprofit Organizations** A study of the accounting and financial reporting standards applicable to nonprofit organizations. Primary topics in the course include an overview of the fund structure used by different types of nonprofit organizations, basic fund accounting entries, and a review of financial reporting models for nonprofit organizations. Additional topics to be studied include budgeting and financial analysis techniques, applicable internal controls components, as well as the organization's relationship with internal and external auditors. Undergraduates with senior status in appropriate major fields may enroll in 5000-level courses with prior approval of the student's advisor or with the consent of the program director. 2 hours

**PADM 5980 Readings in Public Administration** This course offers a program of independent study to provide well qualified MPA candidates with an opportunity to explore in depth a topic or problem of interest under the guidance of a faculty member. Planning a topic for investigation is the joint responsibility of the candidate and supervising faculty. Approval is contingent upon the merits of the proposal. Consent of both the supervising faculty member and the School Director is required prior to enrolling in this course. Undergraduates with senior status in appropriate major fields may enroll in 5000-level courses with prior approval of the student's advisor or with the consent of the program director. 1 to 3 hours

**PADM 5990 Topics in Public Administration** This changing topics course deals with particular issues of interest and concern to students of public affairs and administration. Since content varies, students are advised to read course descriptions distributed by the School prior to enrollment. The course may vary in the number of credit hours awarded and may last more or less than a semester's or session's length. Undergraduates with senior status in appropriate major fields may enroll in 5000-level courses with prior approval of the student's advisor or with the consent of the program director. 1 to 4 hours

**Paper Science and Paper Engineering**

**PAPR 1000 Introduction to Pulp and Paper Manufacture** A lecture-laboratory consideration of the fundamentals of paper manufacturing processes and equipment. Some time will also be spent on coating, printing and other uses of paper. The
student will acquire a basic understanding of the nature and scope of the paper industry. Corequisites: CHEM 1100 and 1110, or equivalent. 3 hours (2 to 3)

PAPR 1030 Printing Processes A course designed to provide non-printing majors a working knowledge of various printing processes; printability, performance factors of substrates, and different types of printing inks. Prerequisite: PAPR 1000 or CHEG 1010. 2 hours (1 to 3)

PAPR 1040 Introduction to Paper Industry and Technology A laboratory study of the fundamentals of papermaking and equipment. End-use processing, such as coating and printing will be included. From this course, the student should acquire a basic understanding of the nature and scope of the paper and printing industries, including job opportunities. Prerequisite: High school chemistry; Corequisites: CHEM 1000 and CHEM 1110. 1 hour (0 to 3)

PAPR 1600 Introduction to Environmental Technology Designed for non-engineering majors, the course presents the major concepts and tools of environmental control applied to industrial as well as municipal emissions. The sources, behavior, effects and detection of pollutants are studied along with effluent management methods and regulations. The topics are covered in concert with public health, ethical, social, legal and economic concerns. 3 hours (3 to 0)

PAPR 2040 Stock Preparation and Papermaking An advanced study of the processes involved in the formation, consolidation, and drying of a web of paper. Areas covered include refining, fourdrinier and multi-ply operation, pressing and drying. Internal and surface treatments of paper are discussed along with the effects of additives and fiber types. Analysis is made using chemical, physical, and engineering principles. Lectures are augmented by laboratory exercises, pilot plant operation, and field trips. Prerequisite: PAPR 1000 or PAPR 1040. 4 hours (3 to 3)

PAPR 3030 Pulping and Bleaching Advanced study of the processes involved in the production of papermaking fibers. Wood anatomy, ultrastructure, and chemistry, wood yard operations, chemical, and high yield pulping, bleaching, alternate fiber sources, and pulping and bleaching chemistry. Process engineering perspective emphasizing mass and energy balances, process design and control. Lab work in wood characterization, pulping, and bleaching, and field trips. Prerequisites: PAPR 1000 or PAPR 1040 or CHEG 1010; CHEG 2960, CHEM 1100 and 1110. 4 hours (3 to 3)

PAPR 3040 Chemical Recovery Advanced study of chemistry of kraft pulping, washing and cleaning after pulping and recovery of the kraft pulp chemicals. Process engineering perspective emphasizing mass and energy balances, process design and control. Reactions occurring in kraft pulping, pulp washing, centrifugal cleaning, screening, black liquor concentration, black liquor combustion, slaking and causticizing. Prerequisites: PAPR 3030, CHEM 3750, and MATH 2720. 3 hours (3 to 0)

PAPR 3050 Paper Physics Fundamentals A lecture and laboratory study of wood fibers and their properties. Fundamentals of fiber and sheet strength properties are critically discussed, including the effect of paper-making operations. Both fracture and optical properties of paper are considered. Basics of paper testing and reclaimed fibers are also studied. The laboratory consists of fiber identification and a papermachine trial. Prerequisites: PAPR 2040, IME 2610 or STAT 3640. 4 hours (3 to 3)

PAPR 3100 Work Experience / Co-op Full-time employment in a pulp, paper, printing, or related industry that provides first-hand experience in a job capacity directly related to the student's major. A written report is required. Departmental consent is required. Open only to department majors. Prerequisite: Junior standing. 1 to 3 hours

PAPR 3140 Materials Characterization for Paper and Imaging This is a lecture and laboratory class in utilizing the instruments required to measure the physical and chemical properties of inks, coatings, and paints in both the liquid state and the solid state (after application). It includes the measurement of surface energy, surface tension, contact angle and wetting, rheological properties, densitometry, colorimetry, opacity, image analysis, and microscopy. Prerequisites: PAPR 1000 and PAPR 1030 or 1500. 2 hours (1 to 3)

PAPR 3410 Converting Processes A lecture consideration of converting operations for paper and paperboard. Paper and paperboard properties, special manufacturing processes, and other packaging materials will be covered. Prerequisite: PAPR 2040. 2 hours (2 to 0)
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Description</th>
<th>Prerequisites</th>
<th>Credits (Lecture:Lab)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PAPR 3420</td>
<td>Coating</td>
<td>A lecture-lab course dealing with the fundamentals of pigmented and functional coating of paper and board. Coating rheology, evaluation of coated paper, and the performance of paper in the graphic arts will also be covered. Prerequisite: PAPR 3050.</td>
<td>4 hours (3 to 3)</td>
<td></td>
</tr>
<tr>
<td>PAPR 3480</td>
<td>Water Quality and Regulations</td>
<td>Physical, chemical and biological characteristics of water. Hydrology, governmental regulations, water and wastewater evaluation and treatment processes.</td>
<td>CHEM 1100 and 1110.</td>
<td>2 hours (2 to 0)</td>
</tr>
<tr>
<td>PAPR 3490</td>
<td>Water Quality and Regulations (Lab)</td>
<td>Physical, chemical and biological characteristics of water and wastewater treatment processes.</td>
<td>CHEM 1100 and 1110; Corequisite: PAPR 3480.</td>
<td>1 hour (0 to 3)</td>
</tr>
<tr>
<td>PAPR 3510</td>
<td>Water Quality and Microbiology</td>
<td>The physical, chemical, and biological characteristics of water. Topics stressed include hydrology, treatment of water, water quality, governmental regulations, evaluation, and the microbiology of water. (This is a non-laboratory course offered for adult education. Credit will not be earned in PAPR 3510 by paper science or paper engineering majors.)</td>
<td>2 hours (2 to 0)</td>
<td></td>
</tr>
<tr>
<td>PAPR 3520</td>
<td>Recycling and Deinking</td>
<td>The recovery of waste paper and other fiber sources for use in the manufacturing of paper and paperboard products and other commercial applications. Waste fiber collection, dispersion, contaminant separation, deinking, and product characteristics.</td>
<td>PAPR 3030.</td>
<td>3 hours (3 to 0)</td>
</tr>
<tr>
<td>PAPR 3530</td>
<td>Wastewater Treatment Systems</td>
<td>A study of the fundamental principles, design considerations, and use of the unit processes and operations employed in waste water treatment. Physical, physicochemical, and biological treatments are considered.</td>
<td>CHEG 2960, PAPR 3480, PAPR 3490.</td>
<td>4 hours (3 to 3)</td>
</tr>
<tr>
<td>PAPR 4300</td>
<td>Surface and Wet End Science</td>
<td>This course presents the important concepts of surface science, colloid chemistry and polymers. The concepts are illustrated by considering their application to operations in the paper industry. Subjects covered include surface tension, adsorption and wetting, colloids, foams and emulsions and wet end additives such as retention aids, strength resins, defoamers and drainage aids.</td>
<td>CHEM 3750 and 3760.</td>
<td>3 hours (3 to 0)</td>
</tr>
<tr>
<td>PAPR 4400</td>
<td>Seminar A</td>
<td>A seminar course using guest speakers, university staff and field trips to add depth and breadth to the background of students.</td>
<td>Junior standing.</td>
<td>1 hour</td>
</tr>
<tr>
<td>PAPR 4500</td>
<td>Solid Waste Treatment</td>
<td>The practice, technology, and economics of the treatment of solid wastes generated by municipal and industrial sources are studied. Discussion will include treatment, disposal, in-process utilization, and conversion to useful by-products for solid and semi-solid wastes.</td>
<td>Junior standing.</td>
<td>3 hours (2 to 3)</td>
</tr>
<tr>
<td>PAPR 4510</td>
<td>Air Pollution Control</td>
<td>The origins, effects, measurement and control of air pollution are examined. Pollution abatement methods are studied and applied to private, municipal and industrial sources.</td>
<td>CHEG 2960.</td>
<td>3 hours (2 to 3)</td>
</tr>
<tr>
<td>PAPR 4600</td>
<td>Plant Economics and Project Design</td>
<td>A lecture and laboratory consideration of Process synthesis and operability characteristics; dynamics of chemical process industries; project evaluation and review; optimisation in design and selection of process and/or equipment alternatives; environmental, health, and safety in the design of chemical processes; basis for cost estimation. Oral and written reports of individual and team efforts. PAPR 4600 is cross-listed with CHEG 4600.</td>
<td>CHEG 2960, 3110, 3120 and (PAPR 2040, 3030, and 3520) or (CHEG 330, 381).</td>
<td>3 hours (2 to 3)</td>
</tr>
<tr>
<td>PAPR 4640</td>
<td>Modern Printing Practices</td>
<td>Study, development, application of printing management/marketing production practices. Technical short courses offered by production and service industries may be utilized. May be elected in two hour blocks to a maximum of six hours.</td>
<td>Junior standing.</td>
<td>2 hours (2 to 0)</td>
</tr>
<tr>
<td>PAPR 4840</td>
<td>Process Control II</td>
<td>The use of instrument systems, digital computers and programmable logic controllers to control pulping, papermaking and chemical recovery process. Design of control systems, principles of analog and digital systems, digital signal processing and architecture of programmable logic controllers.</td>
<td>CHEG 4830.</td>
<td>4 hours (4 to 0)</td>
</tr>
</tbody>
</table>
PAPR 4850  Research Design  Research selection, planning, design, and writing. A research problem selected in consultation with faculty. Student will define and analyze the problem; do a critical review of the literature; and propose a documented research program to increase understanding and knowledge about the problem. This course is approved as a writing-intensive course which fulfills the baccalaureate-level writing requirement of the student's curriculum. Prerequisite: Senior standing in major. 3 hours

PAPR 4860  Independent Research  Adds the laboratory research component to PAPR 4850. Student may continue the problem defined and analyzed in PAPR 485 or select a new topic. A detailed report which includes literature analysis, experimental design, results and conclusions is required. Prerequisite: PAPR 4850. Will be offered as honors courses for interested students 3 hours

PAPR 4950  Topics in Paper and Printing  A special course dealing in some particular subject of interest in Pulp and Paper and/or Printing. May be repeated for credit with different topics. Prerequisite: Permission of instructor. 1 to 4 hours

PAPR 4990  Independent Studies  Offers paper science and engineering and printing majors with good scholastic records a program of independent study in an area arranged in consultation with the instructor. One to three hours credit per semester, cumulative to six hours. Prerequisite: Permission of instructor. 1 to 6 hours

**General Physical Education**

PEGN 1000  Adapted P.E. Med. Rec  Open to all students and emphasize the beginning skills in the activity given. 1 hour

PEGN 1020  Badminton  Open to all students and emphasize the beginning skills in the activity given. 1 hour

PEGN 1030  Aerobic Exercise  Course consists of a broad spectrum of fitness exercises to music. Open to all students and emphasize the beginning skills in the activity given. 1 hour

PEGN 1040  Basketball  Open to all students and emphasize the beginning skills in the activity given. 1 hour

PEGN 1050  Bowling  Open to all students and emphasize the beginning skills in the activity given. 1 hour

PEGN 1060  Canoe Camping  The course combines the fundamentals of camping with canoeing. Culminates with a weekend camping trip by canoe. Open to all students and emphasize the beginning skills in the activity given. 1 hour

PEGN 1070  Canoeing  Open to all students and emphasize the beginning skills in the activity given. 1 hour

PEGN 1080  Backpacking  Open to all students and emphasize the beginning skills in the activity given. 1 hour

PEGN 1090  Cycling  Open to all students and emphasize the beginning skills in the activity given. 1 hour

PEGN 1220  Golf I  "Beginners Only" should enroll in 2000/3000 level courses. Open to all students and emphasize the beginning skills in the activity given. The student with some experience this activity 1 hour

PEGN 1280  Jogging  Open to all students and emphasize the beginning skills in the activity given. 1 hour

PEGN 1310  Beginning Karate  "Beginners Only" should enroll in 2000/3000 level courses. Open to all students and emphasize the beginning skills in the activity given. The student with some experience this activity 1 hour

PEGN 1320  Military Fitness  Open to all students and emphasize the beginning skills in the activity given. 1 hour

PEGN 1350  Outdoor Challenge  This course, taught in cooperation with Pretty Lake Camp, teaches teamwork, trust of others, and responsibility through outdoor physical activities. Students work together to solve problems of survival in the outdoors. Open to all students and emphasize the beginning skills in the activity given. 1 hour

PEGN 1360  Physical Fitness  Open to all students and emphasize the beginning skills in the activity given. 1 hour
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Description</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>PEGN 1370</td>
<td>Racquetball - &quot;Beginners Only&quot;</td>
<td>Open to all students and emphasize the beginning skills in the activity given. The student with some experience this activity</td>
<td>1</td>
</tr>
<tr>
<td>PEGN 1380</td>
<td>Rock Climbing</td>
<td>Open to all students and emphasize the beginning skills in the activity given.</td>
<td>1</td>
</tr>
<tr>
<td>PEGN 1390</td>
<td>Relaxation</td>
<td>Open to all students and emphasize the beginning skills in the activity given.</td>
<td>1</td>
</tr>
<tr>
<td>PEGN 1440</td>
<td>Skiing - Alpine - &quot;Beginners Only&quot;</td>
<td>Open to all students and emphasize the beginning skills in the activity given. The student with some experience this activity</td>
<td>1</td>
</tr>
<tr>
<td>PEGN 1460</td>
<td>Soccer</td>
<td>Open to all students and emphasize the beginning skills in the activity given.</td>
<td>1</td>
</tr>
<tr>
<td>PEGN 1470</td>
<td>Softball</td>
<td>Open to all students and emphasize the beginning skills in the activity given.</td>
<td>1</td>
</tr>
<tr>
<td>PEGN 1490</td>
<td>Swimming - Unable to swim in deep water - &quot;Beginners Only&quot;</td>
<td>Open to all students and emphasize the beginning skills in the activity given. The student with some experience this activity</td>
<td>1</td>
</tr>
<tr>
<td>PEGN 1500</td>
<td>Advanced Beginning Swimming</td>
<td>Open to all students and emphasize the beginning skills in the activity given.</td>
<td>1</td>
</tr>
<tr>
<td>PEGN 1600</td>
<td>Tennis I - &quot;Beginners Only&quot;</td>
<td>Open to all students and emphasize the beginning skills in the activity given.</td>
<td>1</td>
</tr>
<tr>
<td>PEGN 1630</td>
<td>Volleyball</td>
<td>Open to all students and emphasize the beginning skills in the activity given.</td>
<td>1</td>
</tr>
<tr>
<td>PEGN 1660</td>
<td>Weight Training</td>
<td>Open to all students and emphasize the beginning skills in the activity given.</td>
<td>1</td>
</tr>
<tr>
<td>PEGN 1700</td>
<td>Health and Wellness - Aerobics</td>
<td>Open to all students and emphasize the beginning skills in the activity given.</td>
<td>2</td>
</tr>
<tr>
<td>PEGN 1710</td>
<td>Health and Wellness - Water Aerobics</td>
<td>Open to all students and emphasize the beginning skills in the activity given.</td>
<td>2</td>
</tr>
<tr>
<td>PEGN 1720</td>
<td>Health and Wellness - Circuit Fitness</td>
<td>Open to all students and emphasize the beginning skills in the activity given.</td>
<td>2</td>
</tr>
<tr>
<td>PEGN 1730</td>
<td>Health and Wellness - Jogging</td>
<td>Open to all students and emphasize the beginning skills in the activity given.</td>
<td>2</td>
</tr>
</tbody>
</table>
Physical fitness skills, and (3) develop a positive attitude toward wellness and physical activity which will facilitate a healthy lifestyle. Open to all students and emphasize the beginning skills in the activity given. Health and Wellness courses are approved for fulfillment of General Education Area VIII. The content included addresses the topics of health, including nutrition, substance abuse, STDs, and the concepts of physical fitness. Dual enrollment in 1700-1830 courses offered in one semester is prohibited. Courses are not repeatable for credit. 2 hours

PEGN 1740 Health and Wellness - Walking Students are provided information and experience allowing them to (1) acquire knowledge about human wellness from physical, mental, personal-social and spiritual perspectives, (2) develop physical fitness skills, and (3) develop a positive attitude toward wellness and physical activity which will facilitate a healthy lifestyle. Open to all students and emphasize the beginning skills in the activity given. Health and Wellness courses are approved for fulfillment of General Education Area VIII. The content included addresses the topics of health, including nutrition, substance abuse, STDs, and the concepts of physical fitness. Dual enrollment in 1700-1830 courses offered in one semester is prohibited. Courses are not repeatable for credit. 1 hour

PEGN 1750 Special Activities, e.g., Scuba, Snowboarding, Wall Climbing Students are provided information and experience allowing them to (1) acquire knowledge about human wellness from physical, mental, psychosocial, and spiritual perspectives, (2) develop physical fitness skills, and (3) develop a positive attitude toward wellness and physical activity which will facilitate a healthy lifestyle. Open to all students and emphasize the beginning skills in the activity given. Health and Wellness courses are approved for fulfillment of General Education Area VIII. The content included addresses the topics of health, including nutrition, substance abuse, STDs, and the concepts of physical fitness. Dual enrollment in 1700-1830 courses offered in one semester is prohibited. Courses are not repeatable for credit. 2 hours

PEGN 1760 Health and Wellness - Racquet Sports Students are provided information and experience allowing them to (1) acquire knowledge about human wellness from physical, mental, psychosocial, and spiritual perspectives; (2) develop physical fitness skills; and (3) develop a positive attitude toward wellness and physical activity which will facilitate a healthy lifestyle. Open to all students and emphasize the beginning skills in the activity given. Health and Wellness courses are approved for fulfillment of General Education Area VIII. The content included addresses the topics of health, including nutrition, substance abuse, STDs, and the concepts of physical fitness. Dual enrollment in 1700-1830 courses offered in one semester is prohibited. Courses are not repeatable for credit. 2 hours

PEGN 1770 Health and Wellness - Climbing Techniques Students are provided information and experience allowing them to (1) acquire knowledge about human wellness from physical, mental, psychosocial, and spiritual perspectives; (2) develop physical fitness skills; and (3) develop a positive attitude toward wellness and physical activity which will facilitate a healthy lifestyle. Open to all students and emphasize the beginning skills in the activity given. Health and Wellness courses are approved for fulfillment of General Education Area VIII. The content included addresses the topics of health, including nutrition, substance abuse, STDs, and the concepts of physical fitness. Dual enrollment in 1700-1830 courses offered in one semester is prohibited. Courses are not repeatable for credit. 2 hours

PEGN 1780 Health and Wellness - Self-Defense Students are provided information and experience allowing them to (1) acquire knowledge about human wellness from physical, mental, psychosocial, and spiritual perspectives; (2) develop physical fitness skills; and (3) develop a positive attitude toward wellness and physical activity which will facilitate a healthy lifestyle. Open to all students and emphasize the beginning skills in the activity given. Health and Wellness courses are approved for fulfillment of General Education Area VIII. The content included addresses the topics of health, including nutrition, substance abuse, STDs, and the concepts of physical fitness. Dual enrollment in 1700-1830 courses offered in one semester is prohibited. Courses are not repeatable for credit. 2 hours

PEGN 1790 Health and Wellness - Figure Skating Students are provided information and experiences which allow them to: (1) acquire knowledge about human wellness from physical, mental, personal-social and spiritual perspectives; (2) develop physical fitness skills; and (3) develop a positive attitude toward wellness and physical activity which facilitates a healthy lifestyle. Open to all students and emphasize the beginning skills in the activity given. Health and Wellness courses are approved for fulfillment of General Education Area VIII. The content included addresses the topics of health, including nutrition, substance abuse, STDs, and the concepts of physical fitness. Dual enrollment in 1700-1830 courses offered in one semester is prohibited. Courses are not repeatable for credit. 2 hours

PEGN 1800 Health and Wellness - Beginning Swimming Students are provided information and experiences which allow them to: (1) acquire knowledge about human wellness from physical, mental, personal-social and spiritual perspectives; (2) develop physical fitness skills; and (3) develop a positive attitude toward wellness and physical activity which facilitates a healthy lifestyle. Open to all students and emphasize the beginning skills in the activity given. Health and Wellness courses are approved for fulfillment of General Education Area VIII. The content included addresses the topics of health, including nutrition, substance abuse, STDs, and the concepts of physical fitness. Dual enrollment in 1700-1830 courses offered in one semester is prohibited. Courses are not repeatable for credit. 2 hours
Wellness courses are approved for fulfillment of General Education Area VIII. The content included addresses the topics of health, including nutrition, substance abuse, STDs, and the concepts of physical fitness. Dual enrollment in 1700-1830 courses offered in one semester is prohibited. Courses are not repeatable for credit.  2 hours

PEGN 1810 Health and Wellness - Intermediate Swimming  Students are provided information and experiences which allow them to: (1) acquire knowledge about human wellness from physical, mental, personal-social and spiritual perspectives; (2) develop physical fitness skills; and (3) develop a positive attitude toward wellness and physical activity which facilitates a healthy lifestyle. Open to all students and emphasize the beginning skills in the activity given. Health and Wellness courses are approved for fulfillment of General Education Area VIII. The content included addresses the topics of health, including nutrition, substance abuse, STDs, and the concepts of physical fitness. Dual enrollment in 1700-1830 courses offered in one semester is prohibited. Courses are not repeatable for credit.  2 hours

PEGN 1820 Health and Wellness - Swim Conditioning  Students are provided information and experiences which allow them to: (1) acquire knowledge about human wellness from physical, mental, personal-social and spiritual perspectives; (2) develop physical fitness skills; and (3) develop a positive attitude toward wellness and physical activity which facilitates a healthy lifestyle. Open to all students and emphasize the beginning skills in the activity given. Health and Wellness courses are approved for fulfillment of General Education Area VIII. The content included addresses the topics of health, including nutrition, substance abuse, STDs, and the concepts of physical fitness. Dual enrollment in 1700-1830 courses offered in one semester is prohibited. Courses are not repeatable for credit.  2 hours

PEGN 2000 Physical Education Learning Lab Activities  Guided individual instruction in a variety of physical education activities. Resources such as films, books and workshops are available to aid the student to learn in a manner and rate suitable to the individual skill and knowledge. Competency testing will be used to determine achievement and place individuals at beginning, intermediate or advanced levels. Course is repeatable for up to 8 hours credit (University limit) under 2000 number, with different course titles. Prerequisite: GPA of 3.0 overall. Open to all students who have completed a 1000-level course in the activity or the equivalent. 1 hour

PEGN 2080 Intermediate Backpacking  Open to all students who have completed a 1000-level course in the activity or the equivalent. 1 hour

PEGN 2440 Intermediate Alpine Skiing  Open to all students who have completed a 1000-level course in the activity or the equivalent. 1 hour

PEGN 2490 Swimming - Intermediate  Open to all students who have completed a 1000-level course in the activity or the equivalent. 1 hour

PEGN 2500 Swimmer  Students will build on skills learned in Intermediate Swimming and learn to develop these skills in order to enter the Lifeguard Training course. Prerequisite: PEGN 2490. Open to all students who have completed a 1000-level course in the activity or the equivalent. 1 hour

PEGN 2510 Advanced Swimming and Emergency Water Safety  Prerequisite 2490 or Red Cross Intermediate Card  Open to all students who have completed a 1000-level course in the activity or the equivalent. 1 hour

PEGN 2520 Swim Conditioning  Students will build on skills learned in PEGN 250, and learn how to respond in an aquatic emergency. This course will serve as a sound foundation for further training in lifeguarding and aquatics. Prerequisite: PEGN 2500 or equal skills. Open to all students who have completed a 1000-level course in the activity or the equivalent. 1 hour

PEGN 2630 Volleyball Intermediate  Open to all students who have completed a 1000-level course in the activity or the equivalent. 1 hour

PEGN 3490 Lifeguard Training  To provide the necessary minimum skills training for a person to serve as a non-surf lifeguard. Prerequisite: PEGN 2510 or equal skills. Open to all students desiring additional experience in an activity and who have completed the 2000-level course or permission of instructor to enroll. 2 hours
PEGN 3500 Water Safety Instructor American Red Cross revised course (1992) will prepare the student to be able to instruct all progressive levels of swimming, infant/preschool aquatics and emergency water safety. This course will not qualify a participant to be a lifeguard. Prerequisite: PEGN 2510 or equal skills. Current Life Saving Certificate required. Open to all students desiring additional experience in an activity and who have completed the 2000-level course or permission of instructor to enroll. 2 hours

PEGN 3510 Lifeguard Training Instructor (LGI) American Red Cross Revised (1992) will prepare the student already certified as a lifeguard to instruct Basic Water Safety, Emergency Water Safety and Lifeguard Training. Prerequisite: PEGN 3490. Open to all students desiring additional experience in an activity and who have completed the 2000-level course or permission of instructor to enroll. 2 hours

PEGN 4000 Baseball A varsity athlete may receive PEGN credit by enrollment and completion of these courses. (1 credit hour each.) Enrollment by permission of instructor. 1 hour

PEGN 4010 Basketball A varsity athlete may receive PEGN credit by enrollment and completion of these courses. (1 credit hour each.) Enrollment by permission of instructor. 1 hour

PEGN 4030 Cross Country A varsity athlete may receive PEGN credit by enrollment and completion of these courses. (1 credit hour each.) Enrollment by permission of instructor. 1 hour

PEGN 4050 Football A varsity athlete may receive PEGN credit by enrollment and completion of these courses. (1 credit hour each.) Enrollment by permission of instructor. 1 hour

PEGN 4060 Golf A varsity athlete may receive PEGN credit by enrollment and completion of these courses. (1 credit hour each.) Enrollment by permission of instructor. 1 hour

PEGN 4070 Gymnastics A varsity athlete may receive PEGN credit by enrollment and completion of these courses. (1 credit hour each.) Enrollment by permission of instructor. 1 hour

PEGN 4080 Ice Hockey A varsity athlete may receive PEGN credit by enrollment and completion of these courses. (1 credit hour each.) Enrollment by permission of instructor. 1 hour

PEGN 4090 Soccer A varsity athlete may receive PEGN credit by enrollment and completion of these courses. (1 credit hour each.) Enrollment by permission of instructor. 1 hour

PEGN 4100 Softball A varsity athlete may receive PEGN credit by enrollment and completion of these courses. (1 credit hour each.) Enrollment by permission of instructor. 1 hour

PEGN 4110 Synchronized Skating A varsity athlete may receive PEGN credit by enrollment and completion of these courses. (1 credit hour each.) Enrollment by permission of instructor. 1 hour

PEGN 4130 Tennis A varsity athlete may receive PEGN credit by enrollment and completion of these courses. (1 credit hour each.) Enrollment by permission of instructor. 1 hour

PEGN 4140 Track/Field A varsity athlete may receive PEGN credit by enrollment and completion of these courses. (1 credit hour each.) Enrollment by permission of instructor. 1 hour

PEGN 4150 Volleyball A varsity athlete may receive PEGN credit by enrollment and completion of these courses. (1 credit hour each.) Enrollment by permission of instructor. 1 hour

Philosophy
PHIL 2000 Introduction to Philosophy An introduction to the nature of philosophy by a consideration of major types of philosophical questions, such as the principles of rational belief, the existence of God, what is the good life, the nature of knowledge, the problem of truth and verification. Selected texts from representative philosophers are used to define the questions and to present typical answers. 4 hours
PHIL 2010  Introduction to Ethics  An introduction to the philosophic study of morality. Deals with questions such as: What is the good life? Why should I be moral? What is the meaning of right and wrong?  4 hours

PHIL 2200  Critical Reasoning  A systematic study of extended arguments aimed at helping students develop the skills necessary for understanding, analyzing, and evaluating argumentative rhetoric. Topics included are argument identification and argument structure, definitions and disputes, deduction and induction, premise verification and informal fallacies.  3 hours

PHIL 2250  Deductive Logic  A study of the rules and techniques of deductive reasoning, including truth tables and the propositional calculus. Applications to verbal reasoning and translation from ordinary language into the propositional calculus are emphasized.  3 hours

PHIL 2550  Science, Technology, and Values  A critical examination of the interactions between science, technology and society. The social implications of science and technology will be examined by placing them within the larger context of society, politics, ethics and economics. Issues and problems generally recognized as societal concerns will be emphasized. The detailed analysis of a case study will include teaching of the relevant science and technology.  3 hours

PHIL 3000  Ancient and Medieval Philosophy  A study of the history of selected philosophical topics up to the sixteenth century. Great thinkers, such as Plato, Aristotle, Augustine, and Aquinas will be emphasized. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum.  3000-LEVEL COURSES - Each semester detailed course descriptions are posted outside room 320 Moore Hall prior to pre-registration. If you are in doubt about whether you have adequate background for taking a course, talk with the instructor.  4 hours

PHIL 3010  History of Modern Philosophy  A survey of modern philosophy from the Renaissance through Kant, with particular attention to epistemological and metaphysical themes in the works of Descartes, Spinoza, Leibniz, Locke, Berkeley, Hume, and Kant. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum.  3000-LEVEL COURSES - Each semester detailed course descriptions are posted outside room 320 Moore Hall prior to pre-registration. If you are in doubt about whether you have adequate background for taking a course, talk with the instructor.  4 hours

PHIL 3030  Existentialist Philosophies  A concentrated study of leading thinkers in modern philosophical existentialism: Kierkegaard, Nietzsche, Jaspers, Sartre, and Camus.  3000-LEVEL COURSES - Each semester detailed course descriptions are posted outside room 320 Moore Hall prior to pre-registration. If you are in doubt about whether you have adequate background for taking a course, talk with the instructor.  3 hours

PHIL 3070  Philosophy in the American Context  American philosophy from the 17th century to the present. Major schools, figures and tendencies will be considered. Included are early theology, the enlightenment, Transcendentalism, Darwinianism, Pragmatism, Idealism, realism and naturalism, liberalism, post-modernism, feminism, and the minority experience. Among the figures to be read are Jonathan Edwards, Jefferson, Emerson, Thoreau, Margaret Fuller, C.S. Peirce, Dewey, Morris Cohen, Richard Rorty, WVO Quine, Susan Haack, Cornell West, Carol Gilligan, Rawls, Robert Nozick.  3000-LEVEL COURSES - Each semester detailed course descriptions are posted outside room 320 Moore Hall prior to pre-registration. If you are in doubt about whether you have adequate background for taking a course, talk with the instructor.  3 hours

PHIL 3110  Political Philosophy  An examination of fundamental problems arising from political and social relationships. The main emphasis is on such political value concepts as liberty, equality, human rights and justice. Topics that might be considered include, but are not necessarily restricted to: the nature and basis of political authority and obligation; civil disobedience; tolerance and dissent; the aims of political institutions; law and morality.  3000-LEVEL COURSES - Each semester detailed course descriptions are posted outside room 320 Moore Hall prior to pre-registration. If you are in doubt about whether you have adequate background for taking a course, talk with the instructor.  3 hours

PHIL 3120  Philosophy of Art  A study of the nature of art and aesthetic experience, and its significance in human life. The course may cover all forms of art, or concentrate on a few, for instance, literature, drama and music.  3000-LEVEL COURSES - Each semester detailed course descriptions are posted outside room 320 Moore Hall prior to pre-registration. If you are in doubt about whether you have adequate background for taking a course, talk with the instructor.  3 hours
PHIL 3130 Philosophy of Law  The nature of law and legal systems. Questions studied include: the relation between law and morality; theories of constitutional and statutory interpretation; basic rights including the rights to privacy and maximum liberty; the definition of criminality and the justification of punishment; excuses.  

3000-LEVEL COURSES - Each semester detailed course descriptions are posted outside room 320 Moore Hall prior to pre-registration. If you are in doubt about whether you have adequate background for taking a course, talk with the instructor.  

PHIL 3140 Philosophy and Public Affairs  A philosophical examination of principles and values underlying contemporary social issues. The course will focus on specific issues such as environmental concerns, animal rights, abortion, privacy, censorship, world hunger, economic justice, business ethics, violence, war, peace, and utopian ideals. Topics to be announced in the Schedule of Classes. May be repeated for credit when topics vary.  

3000-LEVEL COURSES - Each semester detailed course descriptions are posted outside room 320 Moore Hall prior to pre-registration. If you are in doubt about whether you have adequate background for taking a course, talk with the instructor.  

PHIL 3150 Race and Gender Issues  A philosophical examination of principles and values underlying contemporary social issues involving race, gender, and related concepts. Topics include: identity, equality/inequality, equity, harassment, prejudice, discrimination, affirmative action.  

3000-LEVEL COURSES - Each semester detailed course descriptions are posted outside room 320 Moore Hall prior to pre-registration. If you are in doubt about whether you have adequate background for taking a course, talk with the instructor.  

PHIL 3160 Ethics in Engineering and Technology  An examination of ethical issues in engineering. Topics include: engineering as a profession; codes of ethics; engineering in business, industry and government; responsibilities to employers, clients, and society; conflicts of interest; safety and risk; whistle blowing; environmental concerns; and choosing careers in engineering and technology.  

3000-LEVEL COURSES - Each semester detailed course descriptions are posted outside room 320 Moore Hall prior to pre-registration. If you are in doubt about whether you have adequate background for taking a course, talk with the instructor.  

PHIL 3200 Introduction to Formal Logic  A study of formal deductive systems with a special emphasis on the first-order predicate calculus. Arguments expressed in everyday language are analyzed and translated into symbolic logic both to make meanings precise and explicit and to check the validity of arguments.  

3000-LEVEL COURSES - Each semester detailed course descriptions are posted outside room 320 Moore Hall prior to pre-registration. If you are in doubt about whether you have adequate background for taking a course, talk with the instructor.  

PHIL 3250 Inductive and Scientific Reasoning  The study of scientific reasoning and scientific methods. The focus is on probable inference, which is distinct from demonstrative or necessary inference. The course covers reasoning from particular cases, reasoning from analogy, and the Bayesian inference. The course covers enough deductive logic to introduce the basic notions needed from probability theory.  

3000-LEVEL COURSES - Each semester detailed course descriptions are posted outside room 320 Moore Hall prior to pre-registration. If you are in doubt about whether you have adequate background for taking a course, talk with the instructor.  

PHIL 3310 Moral Philosophy  A study of some basic problems in moral philosophy. Special attention is given to the question of the relationship between the justification of actions, and motives, excuses, intentions, consequences. Contemporary works are emphasized. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum.  

3000-LEVEL COURSES - Each semester detailed course descriptions are posted outside room 320 Moore Hall prior to pre-registration. If you are in doubt about whether you have adequate background for taking a course, talk with the instructor.  

PHIL 3320 Theory of Knowledge  An examination of basic problems concerning knowledge and belief, discussing traditional approaches but stressing recent analyses. Possible topics: skepticism and certainty, knowing and believing, perception, memory, "a priori" vs. "a posteriori" knowledge, self-knowledge, knowledge of others. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum.  

3000-LEVEL COURSES - Each semester detailed course descriptions are posted outside room 320 Moore Hall prior to pre-registration. If you are in doubt about whether you have adequate background for taking a course, talk with the instructor.  

PHIL 3330 Metaphysics  A study of basic metaphysical questions, discussing traditional solutions but emphasizing recent approaches. Questions will be selected from such topics as: substances, qualities and relations, universals and
particulars, identity, space and time, causation, mind and body, persons, free will. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. 3000-LEVEL COURSES - Each semester detailed course descriptions are posted outside room 320 Moore Hall prior to pre-registration. If you are in doubt about whether you have adequate background for taking a course, talk with the instructor. 4 hours

PHIL 3340 Biomedical Ethics In this course, the ethical principles (respect for autonomy, non maleficence, beneficence justice) and other ethical concerns (e.g. privacy, confidentiality, compassion, relationships among patients and professionals) are studied and applied to contemporary problems in medicine and biomedical research. These problems include genetic testing and therapy; organ transplantation; decision-making regarding treatment and care at the end of life; research involving human subjects; and treatment issues in the AIDS epidemic. Case study methods are used. 3000-LEVEL COURSES - Each semester detailed course descriptions are posted outside room 320 Moore Hall prior to pre-registration. If you are in doubt about whether you have adequate background for taking a course, talk with the instructor. 4 hours

PHIL 3500 Foundations of the Modern Worldview The study of some basic ideas with which today's knowledgeable people make sense of their world and themselves. Topics may vary from term to term, but will include a philosophical study of the physical, biological or social sciences and some areas in the humanities that reflect changes in values associated with the modern worldview. 3000-LEVEL COURSES - Each semester detailed course descriptions are posted outside room 320 Moore Hall prior to pre-registration. If you are in doubt about whether you have adequate background for taking a course, talk with the instructor. 4 hours

PHIL 3550 Philosophy of Science A philosophical exploration of the basic concepts, methods, and aims of the natural sciences. The course explores issues such as confirmation, explanation, reduction, and the observation/theory dichotomy through philosophical analysis and case studies. The detailed analyses of historic and contemporary scientific practice will include teaching of the relevant science. 3000-LEVEL COURSES - Each semester detailed course descriptions are posted outside room 320 Moore Hall prior to pre-registration. If you are in doubt about whether you have adequate background for taking a course, talk with the instructor. 3 hours

PHIL 4100 Professional Ethics A philosophical examination of the foundations of ethics in the professions. Topics to be considered include the professions and professionalism, relationships between professional and ordinary ethics, social responsibilities of the professions, professional/client relationships, regulation of the professions, and codes of ethics. 3 hours

PHIL 4700 Seminar in Philosophy - Variable Topics Seminars deal with selected advanced topics in philosophy. Since content varies from semester to semester, students are advised to check course descriptions which are available in the department office. Suggestions for seminar topics from students are welcomed. Seminars may be set up to be taken for variable credit and to last more or less than a semester's length. May be repeated for credit when topics vary. 2 to 4 hours

PHIL 4800 Senior Seminar A comprehensive and in depth examination of a central area or areas of philosophy. Topics may vary from term to term. The course may be about 1) the philosophy of one or more significant historical or 20th century thinkers; 2) a philosophical movement; or 3) a major philosophical issue that draws on a variety of sources. Prerequisites: Completion of 12 hours of philosophy, including either PHIL 3000 or 3010 and completion of the Baccalaureate level writing requirement. May be repeated for credit when topics vary. 4 hours

PHIL 4980 Independent Study Independent study is for those students who have attained a degree of competence in philosophy and wish to embark upon a project to be carried out without the usual close guidance of the instructor in the classroom. Independent study may not be elected as a substitute for a regularly scheduled course. Prerequisite: Permission of the instructor with whom the student wishes to work. 2 to 4 hours

PHIL 5070 The Continental Tradition in Philosophy An examination of the Continental tradition in philosophy. Topics may vary from term to term. Examples include: phenomenology, existentialism, post-modernism, structuralism, deconstructionism, critical theory, and hermeneutics. Prerequisites: 12 credit hours in Philosophy, including PHIL 3010. May be repeated for credit, with advisor's approval, when topics vary. 5000-LEVEL COURSES - The prerequisites for admission into 5000-level courses are: Junior status and 12 hours of philosophy. Specific prerequisites may be added to individual courses. 2 to 4 hours
PHIL 5120 Aesthetics  An investigation of the many philosophical issues which arise from the study of the arts and aesthetic experience. Topics include such issues as the ontology and identity of works of art, whether art can be defined so as to distinguish art from non-art, the status of aesthetic values, the relation of ethics to aesthetics, the status of feminist perspectives in the arts, and significance of the arts in human life  Prerequisite: 12 credit hours in philosophy.  5000-LEVEL COURSES - The prerequisites for admission into 5000-level courses are: Junior status and 12 hours of philosophy. Specific prerequisites may be added to individual courses.  3 hours

PHIL 5200 Philosophical Applications of Symbolic Logic  This course is designed to expose students to the range of philosophical applications of modern symbolic logic. Starting with the sentential and predicate calculi, the course explores various extensions which may include alethic model logic, deontic logic, tense logic, relevance logic and counterfactuals. In addition, the course will address salient issues in the philosophy of logic and may include an investigation of the logical paradoxes and/or the controversy surrounding quantified modal logic.  Prerequisites: 12 hours of philosophy, including PHIL 2250 or 3200.  5000-LEVEL COURSES - The prerequisites for admission into 5000-level courses are: Junior status and 12 hours of philosophy. Specific prerequisites may be added to individual courses.  3 hours

PHIL 5250 Decision Theory  Can there be a formal theory of what it is to be rational in one's beliefs and actions? This course is an introduction to decision theory, which claims to be just such a theory of rationality. Attention will be given to both its mathematical development and the issues it raises in the philosophy of science, the theory of knowledge, and action theory. A working knowledge of high school algebra is assumed.  Prerequisite: PHIL 2200, 2250, or 3200; and two other courses in philosophy, mathematics (above the level of MATH 1100), or computer science (above the level of CS 1050).  5000-LEVEL COURSES - The prerequisites for admission into 5000-level courses are: Junior status and 12 hours of philosophy. Specific prerequisites may be added to individual courses.  3 hours

PHIL 5340 Moral and Philosophical Foundations of Health Care  In this course philosophical reflection and biological science are combined in a critical examination of the nature and purpose of the health sciences. Topics to be considered include: the aims of the health sciences; the interplay of fact and value in health care; competing images of humankind embedded in health science; patient autonomy, dignity, and medical paternalism. Prerequisite: Permission of the instructor.  5000-LEVEL COURSES - The prerequisites for admission into 5000-level courses are: Junior status and 12 hours of philosophy. Specific prerequisites may be added to individual courses.  4 hours

PHIL 5400 Philosophy of Mind  A study of the philosophical problems surrounding our understanding of the nature of mind, mental states, and consciousness, and their relation to matter, and states of the brain and/or central nervous system. Possible topics include cognitive science, artificial intelligence, the relation of mind to body and/or behavior, teleological and mechanistic explanations of human behavior, the philosophical foundations of psychology, behaviorism, functionalism, the nature of intentionality, the concept of a person, the privacy of mental states, knowledge of other minds, and questions regarding free will and determinism. May be repeated for credit, with advisor's approval, when topics vary. Prerequisites: 12 credit hours in Philosophy, including PHIL 3010.  5000-LEVEL COURSES - The prerequisites for admission into 5000-level courses are: Junior status and 12 hours of philosophy. Specific prerequisites may be added to individual courses.  3 hours

PHIL 5440 Practical Ethics  This course will examine the relationships between ethical theory and practice, especially in the area of professional life. We will consider questions concerning moral imagination, deliberation, and justification, as well as how principles and norms guide our complex activities. Case illustrations from various professions (e.g., medicine, laws, government, science, psychiatry, etc.) will be used to highlight some of these issues. May be repeated for credit, with advisor's approval, when topics vary. Prerequisites: 12 credit hours in philosophy.  5000-LEVEL COURSES - The prerequisites for admission into 5000-level courses are: Junior status and 12 hours of philosophy. Specific prerequisites may be added to individual courses.  3 hours

PHIL 5550 Advanced Philosophy of Science  A detailed examination of some of the central problems in contemporary philosophy of science. Topics may vary from term to term. Typical topics include: nature of scientific explanation, theory structure and change, scientific realism vs. various anti-realisms, or issues in the special sciences, e.g., the physical, biological or social sciences. Prerequisites: 12 credit hours in Philosophy. May be repeated for credit, with advisor's approval, when topics vary.  5000-LEVEL COURSES - The prerequisites for admission into 5000-level courses are: Junior status and 12 hours of philosophy. Specific prerequisites may be added to individual courses.  2 to 4 hours

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PHIL 5600 Philosophy at Pre-College Levels A content-oriented course that explores topics, reading materials, and
different ways of approaching them in the teaching of philosophy at the pre-college level. A special emphasis is put on critical and
creative thinking.  

5000-LEVEL COURSES - The prerequisites for admission into 5000-level courses are: Junior status and 12 hours of philosophy. Specific prerequisites may be added to individual courses.  

2 to 4 hours

PHIL 5700 Philosophical Topics An examination of special philosophical topics. Topics to be listed in the Schedule of Classes.  
Prerequisite: Specific course prerequisites may be stipulated for specific topics and substitutions for philosophy may be allowed. Usually at least one of PHIL 3000 or PHIL 3010 will be required. May be repeated for credit, with advisor's approval, when topics vary. May be offered in an accelerated format. Prerequisite: Permission of the instructor. 

5000-LEVEL COURSES - The prerequisites for admission into 5000-level courses are: Junior status and 12 hours of philosophy. Specific prerequisites may be added to individual courses.  

1 to 4 hours

PHIL 5980 Readings in Philosophy Research on some selected period or topic under supervision of a member of the Philosophy faculty.  

5000-LEVEL COURSES - The prerequisites for admission into 5000-level courses are: Junior status and 12 hours of philosophy. Specific prerequisites may be added to individual courses.  

1 to 4 hours

Physics

PHYS 1000 How Things Work This is a course in the physics of everyday life employing a minimum of mathematics. It explores the principles of automobiles, ice skating, roller coasters, CD/DVD players, television receivers, electronic computers and other common devices and situations. The course emphasizes basic physical principles rather than details of operation. The laboratory shows students how to ask questions, and how to collect and analyze data.  

4 hours

PHYS 1010 The Science of Music This course is an introduction to the physics of sound and music. Topics covered include the nature of sound; sources of sound, including musical instruments; musical tone; sound propagation; musical recording; synthesized music; sound perception.  
Prerequisite: MATH 1100 or equivalent.  

3 hours

PHYS 1020 Energy and the Environment This course is a study of the interplay of energy production and use, advances in technology, and their effects on the environment. Topics covered include energy fundamentals, fossil fuels, generation of electricity, solar and other renewable energy sources, nuclear energy, energy conservation, transportation, air pollution, and their global effects. The course is intended to give students the tools to think critically and make informed decisions about energy use in their daily lives. Mathematical skills at the level of introductory algebra are required. This course is in Distribution Area VII of the General Education Program. This course may not be applied toward either a major or minor in Physics. Prerequisite: MATH 1100 or equivalent.  

3 hours

PHYS 1030 Sky and Solar System Laboratory This is an astronomy laboratory course designed to illustrate and explore some of the topics covered in PHYS 1040 Introduction to the Sky and Solar System. Corequisite: PHYS 1040.  

1 hour

PHYS 1040 Introduction to the Sky and Solar System This is an introduction to the night sky and our solar system. The student will learn about the cycles of the Sun, Moon, planets, and constellations; the historical development of astronomy; basic properties of light and telescopes; nature and properties of the planets and the Sun; asteroids, meteorites, and comets; and the origin and evolution of the solar system. Students must take PHYS 1030 concurrently with PHYS 1040 if they wish to fulfill the requirement of General Education Area VI. Prerequisite: MATH 1100 or equivalent.  

3 hours

PHYS 1050 Stars and Galaxies Laboratory This is an astronomy laboratory course designed to illustrate and explore some of the topics covered in PHYS 1060 Introduction to Stars and Galaxies. Corequisite: PHYS 1060.  

1 hour

PHYS 1060 Introduction to Stars and Galaxies This course introduces the student to the origin and evolution of stars, galaxies, and the universe. Topics covered include the basic properties of stars; the birth, life, and death of stars; stellar explosions; the origin of the elements; white dwarf stars, neutron stars, and black holes; the interstellar medium; structure and evolution of the Milky Way and other galaxies; the origin and fate of the Universe. Students must take PHYS 1050 concurrently with PHYS 1060 if they wish to fulfill the requirements of General Education Area VI. Prerequisite: MATH 1100 or equivalent.  

3 hours

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PHYS 1070 Elementary Physics  This course surveys physics from mechanics to modern physics in one semester. It is designed for students in curricula requiring a one-semester course at the level of general college physics. A student may elect to take this course as preparation if he/she wishes an introduction to physics before taking PHYS 1130 or PHYS 2050. Prerequisite: MATH 1100 or equivalent. Corequisite: PHYS 1080. 4 hours.

PHYS 1080 Elementary Physics Laboratory  This is a laboratory course which includes exercises related to topics covered in PHYS 1070. Corequisite: PHYS 1070. 1 hour.

PHYS 1130 General Physics I  A general college physics course in the principles and practical application of mechanics, sound, and heat. Recommended for students in curricula other than science and students desiring a non-calculus course in physics. Many schools of engineering will not accept PHYS 1130 to 1160 for transfer credit. Prerequisite: MATH 1100. 4 hours.

PHYS 1140 General Physics I Laboratory  This is a laboratory course which includes exercises related to topics covered in PHYS 1130. Normally this course is taken concurrently with PHYS 1130. A student can receive credit for only one of the following courses: PHYS 1140 or PHYS 2060. 1 hour.

PHYS 1150 General Physics II  This course follows PHYS 1130 and consists of studies in electricity, magnetism, light, and atomic and nuclear physics. Prerequisite: PHYS 1130. 4 hours.

PHYS 1160 General Physics II Laboratory  This is a laboratory course which includes exercises related to topics covered in PHYS 1150. Normally this course is taken concurrently with PHYS 115. A student may not receive credit for both PHYS 1160 and PHYS 2080. Corequisite: PHYS 1150. 1 hour.

PHYS 1800 Physical Science for Elementary Educators I  This is a laboratory-Based course specifically designed for prospective elementary teachers. The objectives of the course are to aid students in developing meaningful and functional understanding of key physics concepts and their interrelations; to provide students with open-ended problem solving environments that facilitate insight in the nature of science as an intellectual activity; to explore alternate conceptions of scientific phenomena; to help students develop more positive attitudes about science and increase their confidence in their ability to do science. 3 hours.

PHYS 2050 Mechanics and Heat  This first course in a sequence of three in calculus-based physics deals with mechanics and heat. PHYS 2050 is intended for physics majors, engineering students, and future physics teachers, and is recommended for majors in other sciences. A student cannot receive credit for both PHYS 1130 and PHYS 2050. Corequisite: MATH 1710 or 1230. Prerequisite: MATH 1700 or 1220. 4 hours.

PHYS 2060 Mechanics and Heat Laboratory  This is a laboratory course which includes exercises related to topics covered in PHYS 2050. A student may not receive credit for both PHYS 2060 and PHYS 1140. Corequisite: PHYS 2050. 1 hour.

PHYS 2070 Electricity and Light  This course follows PHYS 2050 and consists of studies in electricity, magnetism, and light. A student cannot obtain credit for both PHYS 1150 and PHYS 2070. Prerequisites: PHYS 2050, MATH 1710 or 1230, and either MATH 2720 or 2300 (2720 or 2300 may be taken concurrently). 4 hours.

PHYS 2080 Electricity and Light Laboratory  This is a laboratory course which includes exercises related to topics covered in PHYS 2070. A student may not receive credit for both PHYS 2080 and PHYS 1160. Corequisite: PHYS 2070. 1 hour.

PHYS 2140 Mechanics and Heat Problems  This course is intended for those who have had PHYS 1130 General Physics I, or its equivalent at another school, and who need to show credit in 2050 Mechanics and Heat. The emphasis is on problem solving using calculus with the mathematical rigor required in PHYS 2050. This course plus PHYS 1130 is equivalent to Physics 2050. Prerequisites: PHYS 1130 or equivalent and MATH 1710 or 1230, (MATH 1710 or 1230 may be taken concurrently). 1 hour.

PHYS 2150 Electricity and Light Problems  This course is intended for those who have had 1150 General Physics II, or its equivalent at another school, and who need to show credit in 2070 Electricity and Light. The emphasis is on problem...
solving using calculus with the mathematical rigor required in PHYS 2070. This course plus PHYS 1150 is equivalent to PHYS 2070. Prerequisites: PHYS 1150 or equivalent, MATH 1710 or 1230, and MATH 2300 or MATH 2720 (MATH 2300 or 2720 may be taken concurrently). 1 hour

PHYS 3090 Introductory Modern Physics This course, with PHYS 2050/2060 and PHYS 2070/2080, completes the sequence making up the introductory courses in physics with calculus. Topics include special relativity, quantum physics, and atomic, nuclear, and solid state physics. This course consists of three lectures per week. Prerequisites: PHYS 2070 and MATH 2300 or MATH 2720. 3 hours

PHYS 3100 Introductory Modern Physics Lab A laboratory course which includes exercises related to the topics covered in PHYS 3090. Corequisite: PHYS 3090. 1 hour

PHYS 3200 Problems in Mechanics and Thermodynamics This course is designed to enhance the problem-solving techniques needed by Secondary Education instructors in the teaching of mechanics and thermodynamics. Emphasis is on free-body diagrams, action-reaction pairs, and the energy balance in simple mechanical systems. The thermodynamics component will emphasize the First and Second Laws, P-V diagrams and energy balance in simple thermodynamic systems. Prerequisite: PHYS 2050. 3 hours

PHYS 3250 Introduction to Astrophysics This course is an introduction to modern astrophysics, and covers topics such as the properties of light and matter as relevant to astronomy; analysis of spectra; the properties, structure, and evolution of stars; binary stars; nucleosynthesis and supernova; physics of white dwarf stars, neutron stars, and black holes; and basic cosmology. Prerequisite: PHYS 3090 (PHYS 1060 is recommended). 3 hours

PHYS 3300 Thermodynamics and Kinetic Theory Classical equilibrium thermodynamics is developed from the macroscopic viewpoint. Postulates, empirically founded, are put forth and the consequences are developed and applied to systems of interest in physics and chemistry. Introductory kinetic theory with selected topics is also included, as is an introduction to quantum statistics. Prerequisite: PHYS 3090. 3 hours

PHYS 3310 Problems in Thermodynamics This course is designed to enhance the problem-solving techniques needed by Secondary Education instructors in the teaching of thermodynamics. Emphasis is on the First and Second Laws, P-V diagrams, and the energy balance in simple thermodynamic systems. Prerequisite: PHYS 2050. 1 hour

PHYS 3420 Electronics This course deals with analyses of transistor and integrated circuits and includes practical experience in the laboratory. There are three lectures and one 3-hour laboratory per week. A student cannot receive credit for both PHYS 3420 and ECE 2100. Prerequisite: PHYS 3090 (may be taken concurrently). 4 hours

PHYS 3520 Waves and Optics This course covers the basic properties of mechanical and electromagnetic waves including extensive laboratory experience. Topics include: waves and the wave equation, wave energy, sinusoidal waves, reflection and transmission, waves in two and three dimensions, refraction, geometrical optics, interference, diffraction, polarization and spectroscopy. Prerequisite: PHYS 3090 (may be taken concurrently). 3 hours

PHYS 4040 Teaching of Secondary Science This course addresses the topics of teaching and learning of science at the secondary level. It is designed for those in secondary education who intend to be certified to teach the earth, life, or physical sciences (physics and chemistry) and focuses on the issue of how students learn science concepts and problem-solving skills in meaningful ways. The course develops models of effective instructional strategies designed to promote student learning and understanding of science concepts and processes. Practical methods for demonstrating, using models, planning laboratory experiences, managing science equipment, and safety concerns are developed and discussed. Students also work in discipline-specific groups to address issues unique to that area of science and the science classroom. Prerequisites: 15 hours of course work in a certifiable science discipline and ED 3020 which may be taken concurrently with this course. Cross-listed with SCI 4040. 3 hours

PHYS 4200 Analytical Mechanics The topics studied include the dynamics of single particles and the motion of systems of interacting particles. Techniques of vector analysis are used frequently, and conservation laws are developed and applied. The Lagrangian formulation of mechanics is introduced. Prerequisites: PHYS 2070 and MATH 3740. The mathematics course may be taken concurrently. 3 hours

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PHYS 4400 Electromagnetism  This course provides an upper-level theoretical treatment of electromagnetic phenomena, using methods of vector calculus. Electro- and magneto-statics, induction, Maxwell's equations, and electromagnetic radiation are treated. Prerequisites: PHYS 3090 and MATH 5720. MATH 5720 may be taken concurrently.  4 hours

PHYS 4600 Quantum Mechanics  This is a first course in quantum theory. It treats the historical basis of the quantum concept in the theory of cavity radiation and the photoelectric effect. Topics include the Schroedinger wave equation, hydrogenic atoms, two-electron atoms, angular momentum coupling, and perturbation theory. Prerequisites: PHYS 3090 and 4200 or consent of instructor.  3 hours

PHYS 4660 Advanced Laboratory  The objectives of this course are to provide the student with experience in the use of laboratory equipment and with an understanding of several important physical phenomena. The student will perform experiments in these three areas: atomic, solid state, and nuclear physics. A portion of the semester may be devoted to studying a problem in depth. The course consists of two three-hour laboratory periods each week. This course requires the student to complete several assignments which will demonstrate skills in technical writing. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisites: PHYS 3420 and PHYS 4600. PHYS 4600 may be taken concurrently.  3 hours

PHYS 4980 Special Problems  In this course a student works on a laboratory project or a reading project under the direction of a faculty member. Prerequisite: Consent of instructor.  1 to 3 hours

PHYS 5620 Atomic and Molecular Physics  This course continues the study of the applications of quantum mechanics. Topics covered include the helium atom, multielectron atoms, the Raman, Zeeman, and Stark effects, stimulated emission, transition rates, selection rules, the diatomic molecule, and molecular physics. Prerequisite: PHYS 4600. This course is offered only to advanced physics majors. Department policy requires that undergraduates enrolling in these courses have successfully completed all prerequisite studies prior to enrollment. The Department recommends that Physics majors who plan to enter a graduate college complete two of the following courses: PHYS 5620, PHYS 5630, or PHYS 5640.  3 hours

PHYS 5630 Solid State Physics  After an initial study of symmetry and crystal structure, quantum mechanics is used to describe the cohesion of solids, x-ray and neutron diffraction, the elasticity of solids, lattice vibrations, and the thermal and electrical properties of solids, with particular emphasis on metals. Prerequisite: PHYS 4600. This course is offered only to advanced physics majors. Department policy requires that undergraduates enrolling in these courses have successfully completed all prerequisite studies prior to enrollment. The Department recommends that Physics majors who plan to enter a graduate college complete two of the following courses: PHYS 5620, PHYS 5630, or PHYS 5640.  3 hours

PHYS 5640 Nuclear and Particle Physics  This course covers such topics as properties of nuclei, collision theory, nuclear reactions, nuclear models, fundamental interactions, and classification techniques used in particle physics. Discussions of experimental methods as well as theoretical treatments using quantum mechanics are included. Prerequisite: PHYS 4600. This course is offered only to advanced physics majors. Department policy requires that undergraduates enrolling in these courses have successfully completed all prerequisite studies prior to enrollment. The Department recommends that Physics majors who plan to enter a graduate college complete two of the following courses: PHYS 5620, PHYS 5630, or PHYS 5640.  3 hours

PHYS 5980 Selected Topics  This course affords an opportunity for advanced students with good scholastic records in physics to pursue independently the study of some subject of interest to them. Prerequisite: Consent of instructor. This course is offered only to advanced physics majors. Department policy requires that undergraduates enrolling in these courses have successfully completed all prerequisite studies prior to enrollment. The Department recommends that Physics majors who plan to enter a graduate college complete two of the following courses: PHYS 5620, PHYS 5630, or PHYS 5640.  1 to 6 hours

Political Science

PSCI 1000 Introduction to Political Science  An introduction to those concepts useful for an understanding of politics. These concepts and their interrelationships will be examined in the context of contemporary political systems.  3 hours
PSCI 1050 Critical Thinking About Politics  The application of critical thinking to the analysis of politics. The basic components of logical argumentation will be applied to the examination of a variety of political, social, economic and ideological issues. Major topics to be covered include power, authority, political ideology, and the structures and processes of political systems.  3 hours

PSCI 2000 National Government  An introductory survey of American national government. This course introduces the basic principles and theories of American government, explores the political process, describes the structure, and illustrates its functions. Consideration is given to the relationships of government to the ethnic, religious, and cultural diversity of the American society.  3 hours

PSCI 2020 State and Local Government  A study of the institutions, the problems and the politics of policy making at the state and local levels in the United States. Consideration is given to the changing relations of state and local government to the total framework of government in the United States.  4 hours

PSCI 2400 Comparative Politics  This course introduces students to the field of comparative politics, covering both its key substantive concepts and major theoretical and methodological approaches. The emphasis is on developing systematic comparisons of the political regimes, formal and informal institutions, political culture, and structure of power relations in different countries.  3 hours

PSCI 2500 International Relations  A study of the nature of the international community and the forces which produce cooperation and conflict. Particular attention is given to analyzing power in terms of its acquisition and uses.  4 hours

PSCI 2700 Political Topics  A specifically focused course dealing with a political topic of general student interest. The course will be primarily substantive rather than theoretical to accommodate students with no previous training in political science. The topic will be announced in advance, and the course may be repeated for credit with a different topic. 1 to 3 hours

PSCI 3000 Urban Politics in the United States  A study of those factors having an impact on the governing of American cities, including social and economic conditions in the cities, the organization of local political systems, and the actions of the state and federal governments. The principal focus will be on the city as a center of economic problems and social tensions that are largely the product of ethnic and cultural diversity.  3 hours

PSCI 3040 Introduction to Public Policy  An introduction to the U.S. public policy process through the use of general models and case studies. Various inputs of power and influence are analyzed as proposals are considered in policy-making institutions. The roles of public officials, interest groups, lobbyists, opinion leaders, experts and others are analyzed. Evaluations of policies are made with respect to their perceived need, appropriateness and effectiveness. Prerequisite: PSCI 2000.  3 hours

PSCI 3060 Environmental Politics  An examination of the major legal, political, and bureaucratic forces influencing the development and implementation of environmental policy. Interactions between levels and units of government are analyzed. Effective modes of citizen participation and action, especially at the local level, are discussed throughout.  3 hours

PSCI 3100 Political Parties and Elections  A study of the nature of politics, the organization and function of political parties and elections, and the elective process in the U.S.  3 hours

PSCI 3110 American Politics and the Media  An examination and analysis of the basic features of the mass media and their relationship to American politics from both a political and historical perspective. Specific topics include the mass media as institutions in the American political system, media influence on politics, regulation of the media, private and concentrated ownership, and the growth of new media technologies such as cable, satellite and Internet.  3 hours

PSCI 3120 Interest Groups and Citizen Politics  An examination of interest group politics and citizen participation. Topics include interest group roles, formation and growth, resources, techniques of lobbying, and a critical examination of the influence of interest groups on the American political process. The citizen politics portion of the course focuses largely on the non-electoral forms of political participation including participation through interest group association, activities that use various institutional channels, and those forms of participation which occur outside such channels.  3 hours
PSCI 3140 The Presidency A study of the presidency, including the White House staff and cabinet, the institutional and policy leadership of the president, and the politics of presidential selection. 3 hours

PSCI 3150 The Politics of Congress Examines the internal arrangements and the outside forces that impact upon the operations of the U.S. Congress. Emphasis is placed on explaining why Congress behaves as it does. 3 hours

PSCI 3200 The American Judicial Process An introduction to the politics of the American judicial process. The course will examine the judicial function generally with particular attention on the decisional processes, process participants, state and federal court structures, recruitment and selection of judges, bases of judicial behavior, policy making, and impact of judicial decisions. 4 hours

PSCI 3250 Criminal Justice Policy An examination of various judicial, legislative and executive policy decisions which govern the criminal justice processes. The course will include extensive discussion of the political dynamics of the policy making processes. 3 hours

PSCI 3300 Introduction to Public Administration An introductory course in the administrative process in the public service. Special attention given to the environment and politics of administration, the role of the chief executive and the legislature. Detailed consideration of personnel and financial problems of administration. 3 hours

PSCI 3400 European Politics This course provides a general survey of the political systems of the major European democracies. After a brief introduction to the history of modern Europe, the course examines the political development, institutions, and policies of the European Union and its member nations. 4 hours

PSCI 3410 The Politics of Sub-Saharan Africa A systematic survey of the social, economic and political characteristics of the area. Political culture, institutions and processes, including both traditional and modern forms, are examined in detail. Major political problems dealing with political development are analyzed. 4 hours

PSCI 3440 Russian and Central Asian Politics Russia, a country encompassing eleven time zones, emerged from seven decades of Soviet Communism to pursue market economics and democratic transition. Central Asia, a sizable land mass in the heart of the Asian continent, has grown increasingly visible because of both its resources and its geo-strategic importance. This course will examine the emergence of these countries from communist authoritarianism and the institution, policies, and goals they have charted. 4 hours

PSCI 3450 Latin American Politics An introduction to the development and current context of politics in Latin America. Focuses on the effects of historical, cultural, economic, and political-institutional forces on present-day Latin American politics. Issues examined include patterns of economic and political development, revolution, dictatorship, and democracy, the politics of race and religion, women's movements, and globalization. 4 hours

PSCI 3460 Women in Developing Countries Women's socioeconomic and political role and status will be examined in relation to the impact of colonialism, forces of modernity, and developmental issues. 4 hours

PSCI 3500 American Foreign Policy An analysis of the institutions and processes by which the American people and their government determine and seek to achieve the national interest of the United States in the international community. 4 hours

PSCI 3600 Introduction to the History of Political Theory I: Political Theory to Thomas Hobbes A survey of political philosophy as it developed in Classical Greece, Rome, Medieval Europe, the Reformation and the Renaissance. Emphasis placed on comparative analysis of political philosophies as they reflect the richly diverse sociocultural conditions of these periods. 3 hours

PSCI 3610 Introduction to the History of Political Theory II: Political Theory from Thomas Hobbes to Karl Marx A survey of political philosophy from the seventeenth century to the middle of the nineteenth. Emphasis upon the great individual philosophers of this period and the early development of the major ideological systems of the modern period: conservatism, liberalism and socialism. 3 hours
PSCI 3620  Theoretical and Ideological Bases of Contemporary Politics A survey of the more significant developments beginning with the confrontation between socialism and liberalism and concluding with an analysis of those theories and ideologies that have emerged in our own times. 3 hours

PSCI 3630  American Political Theory An exposition and critical analysis of American political thought from the Puritans to the contemporary period, with primary emphasis on concepts of democracy, liberty, and property, and on varieties of liberalism and conservatism. 3 hours

PSCI 3660  Scope and Methods of Political Science An introduction to the discipline of political science, including an examination of the development of political science and the methods and approaches used by contemporary political scientists to describe, explain, predict and evaluate political phenomena. Prerequisite: Nine hours of Political Science courses. 3 hours

PSCI 3700  Issues in Contemporary Politics This course is designed for the study of contemporary political problems. It is intended to provide opportunity for the study of political phenomena normally beyond the scope of regular departmental offerings. Essentially the course relates the theory and principles of political science to practical politics. The course may be applied to the appropriate field distribution requirement. Topics will vary from semester to semester. Students may repeat the course for credit. 3 to 4 hours

PSCI 3900  Field Work in Political Science An opportunity for students of Political Science or Public Administration to test theoretical and practical knowledge in an internship situation under the supervision of a faculty sponsor and a public or public-related official. Students wishing to apply must have a minimum of fifteen hours in Political Science and department approval before registering. Approved application required. Graded on a Credit/No Credit basis. 1 to 12 hours

PSCI 3910  Internship Seminar An undergraduate seminar taken in conjunction with Field Work in Political Science (PSCI 390). An emphasis will be placed on readings that analyze the administrative realm and also focus on recent political, economic, and social developments. Interns also will discuss their field experiences. Department approval must be obtained to enroll for this seminar. 3 hours

PSCI 3950  Quantitative Methods for Political Scientists This course provides an introduction to the basic computer skills and statistical methods employed by political scientists involved in empirical research; it provides students with the working ability to read, understand and correctly interpret empirical analyses which employ these methods; and it provides a better appreciation for political science as a science, i.e., the limitations and achievements inherent in the attempt to study political phenomenon through the process of quantification. Basic univariate and bivariate analyses with computer applications will be covered. Prerequisite: General Education math proficiency. 3 hours

PSCI 4040  Making of Public Policy in the U.S. A study of the formation of public policy at the local, state, and national levels with emphasis on the impact of decision processes upon policy outcomes. 3 hours

PSCI 4050  National Public Policy This seminar places primary attention on emerging trends and issues that will affect the political, economic, and social character of American public life a decade or more ahead, and analyzes potential changes in existing public policies. Significant analysis and writing are required. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisite: PSCI 3040 or consent of instructor. 3 hours

PSCI 4100  American Public Opinion A study of public opinion in the American context and its potential influence on the governmental process. Topics include measurement of public opinion, the psychology of opinion holding, the role of political ideology and party identification, the formation of political attitudes, trends in public opinion, the group basis of public opinion, the influence of public opinion during elections, and the existence of political linkages between public opinion, elected officials and policy decisions. Prerequisite: PSCI 3950. 3 hours

PSCI 4200  Constitutional Law Study of leading American constitutional principles as they have evolved through major decisions of the U.S. Supreme Court. Emphasis on judicial review, federalism, separation of powers, commerce and taxation. Prerequisite: Junior status. 3 hours

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PSCI 4210 Gender and Law  An analysis and description of the law and women (as well as other groups). Specific topics include coverture, the Equal Protection clause, the Civil Rights Act, affirmative action, sexual harassment and discrimination, Title IX and abortion. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum.  Prerequisites: Twelve hours in Political Science courses.  3 hours

PSCI 4220 Civil Liberties and Civil Rights  Course will use selected Supreme Court rulings to examine how individual rights are protected under terms of the U.S. Constitution. The course will feature those tensions prompted by cultural diversity in the United States.  Prerequisite: Junior status.  3 hours

PSCI 4400 The European Union  This course introduces students to the history, institutions, and policies of the European Union (EU). It surveys European integration since 1945 and examines the structure and functioning of the major institutions of the EU. Selected EU policies, such as economic, monetary, and foreign policy, will be analyzed in case studies. The class concludes with a discussion of possible futures of the European Union and the importance of European political integration for global politics.  3 hours

PSCI 4410 Issues in International Politics  The variable topics course will treat an issue or theme central to the study of international and/or comparative politics. The actual topic of the course will be announced in the Schedule of Course Offerings. The issue will be cross-cultural and be examined on a global scale. May be repeated for credit as long as the topic differs.  3 hours

PSCI 4420 Studies in International Politics  This variable topics course will be a case study of a single country or region that illustrates broader themes in the study of international and comparative politics. The actual case study (or studies) will be announced in the Schedule of Course Offerings. May be repeated for credit as long as the topic differs.  3 hours

PSCI 4490 Field Work in Foreign Political Systems  Experience and field research in a particular foreign nation or region. Emphasis will be placed on the observation of political, economic, and social manifestations of the international political economy; local, regional, and national policies and governments in the area visited; and issues of political importance in the area visited. An overview of both general themes of political economy and the political history of the region visited will be included in the course. Prerequisite: Twelve hours of social science or permission of the instructor.  3 to 4 hours

PSCI 4500 Seminar in International and Comparative Politics  Designed to be a capstone to the concentration in International and Comparative Politics, this seminar will examine in detail a theme in cross-national or international politics. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum.  Prerequisites: PSCI 2400, PSCI 2500, and at least one course in the 3400, 3500, 4400, or 4500 series.  3 hours

PSCI 4900 Political Science Honors Seminar  An undergraduate seminar for honor students and others admitted by consent of the Department Honors Committee. The content of the seminar varies and will be announced in advance. May be repeated. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum.  Prerequisites: Twelve hours in Political Science courses.  3 hours

PSCI 4920 Political Science Honors Research  Honor students, with the guidance of a faculty advisor, conduct research and write the Honors Paper on a topic of individual interest.  Prerequisite: Membership in the Political Science Department Honors Program and approved application required.  2 to 3 hours

PSCI 4940 Seminar in Political Science  An undergraduate seminar for Political Science and Public Administration majors seeking to fulfill the baccalaureate-level writing requirement. The topic of the seminar varies and will be announced in advance. At least one-third of the final grade will be determined on the basis of writing performance. Restricted to students majoring in Political Science or Public Administration. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum.  Prerequisite: Twelve hours in Political Science courses.  3 hours

PSCI 5060 Topics in American Politics  A critical examination of selected issues facing national, state, or local government with emphasis upon contemporary theoretical and applied perspectives on the question. May be repeated for
credit when topics vary. Prerequisites: Junior status and taking PSCI 2000, PSCI 2400 or PSCI 2500, and two additional courses in Political Science. Undergraduates may enroll in 5000-level courses only after attaining junior status and taking PSCI 2000, PSCI 2400 or PSCI 2500, and two additional courses in Political Science. 3 to 4 hours

PSCI 5260 Administrative Law and Public Regulation A study of the requirements for, and the limits on, the exercise of administrative powers by public officials charged with regulating significant aspects of the social and economic life of the nation. Special attention is paid to the extent of governmental regulations and the means of safeguarding individual rights through fair administrative procedures and judicial control over administrative determination. Prerequisites: Junior status and taking PSCI 2000, PSCI 2400 or PSCI 2500, and two additional courses in Political Science. Undergraduates may enroll in 5000-level courses only after attaining junior status and taking PSCI 2000, PSCI 2400 or PSCI 2500, and two additional courses in Political Science. 3 hours

PSCI 5320 Administration in Developing Countries This course compares public administration systems in a development context. It analyzes the role of the administrator in developing countries, notably the administrator's varied responsibilities as a career public official, and as an agent of change. The character of the development administrator as both a generalist and specialist is explored. Prerequisites: Junior status and taking PSCI 2000, PSCI 2400 or PSCI 2500, and two additional courses in Political Science. Undergraduates may enroll in 5000-level courses only after attaining junior status and taking PSCI 2000, PSCI 2400 or PSCI 2500, and two additional courses in Political Science. 3 hours

PSCI 5530 United Nations A study of the United Nations in action. Attention is focused on significant political problems confronting world organization, i.e. functional and dysfunctional aspects of the UN Charter; nationalism vs. internationalism within the UN; conflict resolution and UN peace-keeping efforts; specific UN accomplishments in maintaining a dynamic international equilibrium; UN weakness and the future of world organization. Prerequisites: Junior status and taking PSCI 2000, PSCI 2400 or PSCI 2500, and two additional courses in Political Science. Undergraduates may enroll in 5000-level courses only after attaining junior status and taking PSCI 2000, PSCI 2400 or PSCI 2500, and two additional courses in Political Science. 3 hours

PSCI 5550 International Law The theory, sources, development, and general principles of international law, and the relationship of law to the dynamics of international politics. Decisions of international and municipal tribunals and the practices of states will be used to demonstrate the basic rights and obligations of states in time of peace and war. Such topics as recognition of states, diplomatic practice, treaties and neutrality will also be discussed. Prerequisites: Junior status and taking PSCI 2000, PSCI 2400 or PSCI 2500, and two additional courses in Political Science. Undergraduates may enroll in 5000-level courses only after attaining junior status and taking PSCI 2000, PSCI 2400 or PSCI 2500, and two additional courses in Political Science. 3 hours

PSCI 5980 Studies in Political Science An opportunity for advanced students with good scholastic records to pursue independently the study of some subject of interest to them. Subjects are chosen and arrangements made to suit the needs of individual students. Approved application required. Undergraduates may enroll in 5000-level courses only after attaining junior status and taking PSCI 2000, PSCI 2400 or PSCI 2500, and two additional courses in Political Science. 1 to 4 hours

Psychology

PSY 1000 General Psychology An eclectic approach to a social and behavioral survey of major topics in psychology, including learning, motivation, intelligence, personality, mental illness, and social relations. Approved for General Education. 3 hours

PSY 1600 Child Psychology An introduction to behavior principles in the analysis of complex behavior with an emphasis upon early childhood learning and the techniques for enhancing children's development. Topics include mental retardation, behavioral problems in childhood, emotional development and language learning. Prerequisite: PSY 1000 with a grade of "C" or better. 3 hours

PSY 1970 Special Programs in Psychology The department of psychology offers special programs of study for students at academic risk in the University. The program follows a Learning to Learn curriculum which is supervised by advanced students enrolled in a practicum course. 1 to 3 hours

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PSY 2500 Abnormal Psychology An introduction to the description, classification and interpretation of human behavior labeled by society as "abnormal" with an emphasis on the social variables and environmental conditions related to the acquisition and persistence of such behavior. Prerequisite: PSY 1000 with a grade of "C" or better. 3 hours

PSY 3000 Statistics for the Behavioral Sciences Interpretation and application of descriptive and inferential statistical techniques necessary in the understanding of data presentations in behavioral research. Major topics include: Measures of central tendency and variability, frequency distributions and graphic presentations, the normal curve, probability theory and the binomial, hypothesis testing, the t-test, chi square and correlation. Prerequisites: PSY 1000, 1600, 2500 and MATH 1090 (or equivalent) with a grade of "C" or better; declare PSY major before or during this course. 3 hours

PSY 3240 Abnormal Child Psychology This is a course for psychology majors and minors. The course provides a topical survey of the area of abnormal child psychology. The lectures introduce description, classification, and treatment of behaviors considered "abnormal" or atypical for children and adolescents. Topics include common childhood problems like ADHD, oppositional behavior, eating disorders, and depression. Prerequisites: PSY 1000, 1600 with a grade of "C" or better. 3 hours

PSY 3300 Behavioral Research Methods An examination of the quantitative methods utilized in behavioral research. Topics include behavioral observation, interobserver agreement, single-case and between-subject designs, and data analysis. Corequisite: PSY 3600. Prerequisite: PSY majors. 3 hours

PSY 3440 Organizational Psychology This course focuses on performance management and improvement techniques that are based on the principles of behavioral psychology. Environmental change strategies are emphasized. While the course focuses on behavioral applications in the work environment, other theoretical orientations are surveyed. Topics covered include personnel management, employee motivation, job satisfaction, the effects of compensation practices on employee behavior, and leadership. Course is for non-majors only. Prerequisite: PSY 1000 with a grade of "C" or better. 3 hours

PSY 3450 Employee Assistance Program Organization and Change This course reviews strategies for organization management and change as relates to Employee Assistance Programs (EAPs). Emphasis is placed on methods of creating organization support for EAPs and ways of integrating EAPs into existing organization structures. Topics include leadership, communication, decision making, organization structure and design, and employee motivation and stress. Prerequisites: Open only to Employee Assistance Academic Program majors; PSY 1000. 3 hours

PSY 3470 Practicum: Learning and Self-Management Supervised experience in the application of principles of behavior analysis to college learning and academic self-management. The site of this practicum is The Center for Research in Learning and Self-Management (Psychology Department). Prerequisites: PSY 1000, PSY 1600, PSY 2500. 3 hours

PSY 3550 Teaching Apprenticeship in Psychology A laboratory course in the instructional methods of teaching psychology. May be repeated for credit, but does not fulfill major/minor requirements. Prerequisite: Consent of instructor. 2 to 4 hours

PSY 3570 Practicum with Special Populations Supervised experience in the application of principles of behavior analysis to special populations. The Croyden Avenue School, which is the site of this practicum, provides an educational program for the developmentally-disabled and the multiply-handicapped. Students serve as tutors in behavior change and training programs. May be repeated. Prerequisite: PSY majors or permission of instructor. 3 hours

PSY 3600 Concepts and Principles of Behavior Analysis Concepts and principles of behavior analysis are derived from basic human and non-human research. Empirical and theoretical issues related to habituation, respondent conditioning, operant conditioning, and the control of operant behavior by motivational and emotional variables. An introductory laboratory accompanies the lecture portion of the course. Prerequisite: PSY majors. 4 hours

PSY 3720 Physiological Psychology An introduction to physiology and its relationship to behavior, including brain behavior interactions, behaviorally induced chemical changes and behavioral changes induced by chemical alterations. Lecture only. May be taken concurrently with PSY 378. A previous course in biology or chemistry is helpful but not required. Prerequisites: PSY 3300, PSY majors or permission of instructor. 3 hours

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PSY 3780 Laboratory in Physiological Psychology  An intermediate laboratory and companion to PSY 372 emphasizing the acquisition of laboratory techniques, surgical skills and research methodology in physiological psychology and brain behavior interactions. Laboratory procedures, research methodology, data analysis and professional writing are stressed. Prerequisite: PSY 3720 can be taken concurrently.  3 hours

PSY 3870 Practicum in Behavior Analysis in Education  Supervised experience in the application of the principles of behavior analysis to remedial education. Project HELP, which is the site of this practicum, is designed to provide remedial education to school-age children in math and reading using the techniques of direct instruction. This course teaches the techniques of direct instruction and provides tutorial experience. Prerequisites: PSY 1000, PSY 1600, PSY 2500.  3 hours

PSY 3960 Topical Studies in Psychology  A course on selected topics in psychology. Topics may include basic science and applied aspects of the discipline. Course may be repeated for credit. Prerequisite: Permission of the instructor.  1 to 3 hours

PSY 3960 Sports Psychology  Prerequisite: PSY 1000.  2 hours

PSY 3970 Practicum in Psychology  Supervised experience at a community based mental health site as announced in the Schedule of Course Offerings or as approved by the undergraduate advisor. Corresponding seminar sessions provide structure and integration of the experience with other practicum experience. This course may be repeated for credit with different experiences. Prerequisites: PSY 1000, PSY 1600, PSY 2500. Approved application required; see undergraduate advisor.  1 to 5 hours

PSY 3980 Independent Study  This course provides the undergraduate student with the opportunity for independent reading and/or research under the direction of a Department staff member. Written permission must be obtained on forms available in the department office. May be repeated for credit up to 12 hours. Prerequisites: PSY 1000, PSY 1600, PSY 2500. Approved application required; see UG advisor.  1 to 5 hours

PSY 4240 The Psychology of Human Sexuality  This is a course for non-majors and for minors in Psychology only. It cannot be applied towards the requirements for the Psychology major. The course provides a topical survey of the area of human sexual functioning. Lectures are supplemented by directed discussions, invited guest presenters, and exercises designed to prompt students to explore their own assumptions and experiences with this aspect of human behavior. Topics include sex, sexuality, and reproduction. Prerequisites: PSY 1000; non-majors only.  3 hours

PSY 4260 Introduction to Human Drug Use and Abuse  This is a course for non-majors and for minors in Psychology only. It cannot be applied towards the requirements for the Psychology major. This course introduces the student to the action of several classes of recreational and medical drugs and provides an overview of the factors that influence drug use. Human drug use and abuse will be the primary focus, although non-human research findings will be discussed as well. Prerequisites: PSY 1000; non-majors only.  3 hours

PSY 4280 Psychology of Aging  This is a course for psychology majors and minors. The course provides a topical survey of the area of human aging. Lectures are supplemented by course projects, invited speakers, and homework exercises that are designed to increase student familiarity with social, physical, and psychological issues associated with human aging. Topics include physical health, mental health, and dementia. Prerequisites: PSY 1000, 1600, 2500, and declared PSY major or minor.  3 hours

PSY 4440 Industrial/Organizational Behavior Analysis  This course focuses on conducting effective performance improvement projects in organizations. Topics include identifying performance targets worthy of change, developing measurement systems and tracking performance, behavior and performance analyses, behavior change strategies, and evaluation of organizational impact. Prerequisites: Psychology major; PSY 3600.  3 hours

PSY 4600 Survey of Behavior Analysis Research  An overview of diverse topics of behavior analysis research and applications. Topics include; clinical psychology, child psychology, behavioral medicine, environmental quality, developmental disability, education and geriatrics. Prerequisites: PSY 3300 and 3600.  3 hours
PSY 4620 Individual, Group, and Family Treatment  This course provides an overview of individual, group and family treatment modalities. Concepts, intervention strategies, and specific methods of current treatment models are presented through lecture, assigned reading, hand-outs, and film. Included also are three sessions on demonstration and practice of micro-counseling skills. Treatment focus is the employed adult whose job performance is adversely affected by mental health and/or substance abuse problems. Open only to Employee Assistance Academic Program majors. Prerequisite: PSY 2500.  3 hours

PSY 4630 Health Psychology  A behavior analysis approach to the management of behaviors directly and indirectly affecting health. Emphasis will be placed on out-patient, public health applications and preventive approaches in health maintenance.  Prerequisites: PSY 1000, PSY majors or minors or permission of instructor.  3 hours

PSY 4700 Applied Behavior Analysis in Developmental Disabilities  A survey of the behavioral approach to mental retardation and autism. Topics will include historical background, diagnosis, assessment, and treatment. Prerequisites: PSY 3300 and 3600.  3 hours

PSY 4990 Honors Projects in Psychology  Independent study and research projects completed under the supervision of a faculty member and coordinated with the Department Honors Program.  Prerequisite: Approved application required; see undergraduate advisor.  1 to 5 hours

PSY 5100 Advanced General Psychology  Readings, lecture and discussion designed to introduce non-majors in psychology to modern behavior theory. Emphasis will be upon human behavior, both normal and abnormal, with a significant portion of the course devoted to the higher cognitive processes. Prerequisite: Permission of instructor. All 5000-level courses in the Department of Psychology have a prerequisite of junior level status and of PSY 3600 (Concepts and Principles of Behavior Analysis) and PSY 3300 (Behavioral Research Methods). Exceptions to this requirement must be approved by the course instructor on a case-by-case basis.  3 hours

PSY 5170 Psychology in the Schools  Provides an overview of psychology in the schools, with an emphasis on interventions for children or adolescents presenting difficulties with learning or behavior. This course will provide an overview of how to design, implement, and evaluate interventions in schools for individual and groups of children. An overview of the role of the school psychologist will be provided. Prerequisite: Psychology majors or permission of instructor. All 5000-level courses in the Department of Psychology have a prerequisite of junior level status and of PSY 3600 (Concepts and Principles of Behavior Analysis) and PSY 3300 (Behavioral Research Methods). Exceptions to this requirement must be approved by the course instructor on a case-by-case basis.  3 hours

PSY 5240 Human Sexuality  In this course students will learn about the range of human sexual behaviors. Topics covered will include anatomical and physiological functioning as well as psychological aspects of sexual behavior. Class time will involve lectures, discussions, in-class activities, videos, and guest speakers. The course is not intended to provide therapy training. Prerequisite: Psychology majors only. All 5000-level courses in the Department of Psychology have a prerequisite of junior level status and of PSY 3600 (Concepts and Principles of Behavior Analysis) and PSY 3300 (Behavioral Research Methods). Exceptions to this requirement must be approved by the course instructor on a case-by-case basis.  3 hours

PSY 5260 Human Drug Use and Abuse  This course provides a general overview of basic pharmacological principles, discusses the behavioral and physiological mechanisms of action of several classes of medicinal and recreational drugs, and surveys the factors thought to contribute to responsible and irresponsible drug intake. Although human drug use and abuse will be the primary focus of the course, non-human research findings will be emphasized where appropriate. Prerequisite: Psychology majors only. All 5000-level courses in the Department of Psychology have a prerequisite of junior level status and of PSY 3600 (Concepts and Principles of Behavior Analysis) and PSY 3300 (Behavioral Research Methods). Exceptions to this requirement must be approved by the course instructor on a case-by-case basis.  3 hours

PSY 5400 Psychology of Safety  The purpose of this course is to teach students about current research and trends in the psychology of safety. Students review, critically analyze and discuss current trends in safety research, including behavior-based safety, injury/illness prevention and other relevant topics. Students receive training in the application of behavioral principles to solve specific safety problems in organizations through changing behavior and improving performance. Students gain valuable, practical experience by completing behavior-based safety assessments in business settings under the supervision of the course instructor. The assessment site is obtained by the student, with the assistance of
the instructor. Prerequisite: Psychology majors only. All 5000-level courses in the Department of Psychology have a prerequisite of junior level status and of PSY 3600 (Concepts and Principles of Behavior Analysis) and PSY 3300 (Behavioral Research Methods). Exceptions to this requirement must be approved by the course instructor on a case-by-case basis. 3 hours

PSY 5470 Practicum: Organizational Performance Improvement Training in the application of principles of behavior to solve specific organizational problems through changing behavior and improving performance. Students conduct a performance improvement project in a local organization and empirically evaluate the results. The practicum site is obtained by the student, and with the assistance of the instructor. Practicum students meet as a group frequently with the instructor to discuss and troubleshoot the projects. Prerequisite: Permission of the instructor. All 5000-level courses in the Department of Psychology have a prerequisite of junior level status and of PSY 3600 (Concepts and Principles of Behavior Analysis) and PSY 3300 (Behavioral Research Methods). Exceptions to this requirement must be approved by the course instructor on a case-by-case basis. 3 hours

PSY 5610 Introduction to Clinical Psychology This course addresses the subdiscipline of clinical psychology in a manner that provides the psychology major with useful information regarding it as a potential specialty. In addition to coverage of contemporary professional activity engaged in by specialists in this field, like practice and research, it addresses career development issues such as selecting graduate schools, training models used by universities and private schools, internship training, licensure and the types of degrees granted. It is a course appropriate for mid to upper level undergraduates and graduate students who are returning to study after having been away from the field for some time. Prerequisites: Psychology major for undergraduates; instructor's permission for graduate students. All 5000-level courses in the Department of Psychology have a prerequisite of junior level status and of PSY 3600 (Concepts and Principles of Behavior Analysis) and PSY 3300 (Behavioral Research Methods). Exceptions to this requirement must be approved by the course instructor on a case-by-case basis. 3 hours

PSY 5740 Cross Cultural Psychology This course is designed to introduce the psychology major to the general area and basic concepts of Cross Cultural Psychology. Through readings and lectures, the students will become familiar with the role culture plays in various indigenous psychologies including those commonly found in Western, Japanese, Chinese, Arabic, and African cultures. This course is specifically not a course in American ethnicity. It will instead explore a variety of world cultures in search of an understanding of how human behavior is interpreted according to cultural tenets that are unique to a region's history and evolution. The course will also examine the importance, especially in contemporary Western society, of professional psychologists developing more than casual familiarity with predominant indigenous psychologies. The plight of persons undergoing increasingly forced and voluntary migration in today's world provides one foundation for exploring the need for such understanding. The course will prepare the student to read and interpret the psychological literature from several cultures, to conduct library research addressing the influence of culture on the interpretation of human behavior, and to appreciate the importance of cultural considerations in the wide variety of psychological specialties. Prerequisites: Psychology majors only. All 5000-level courses in the Department of Psychology have a prerequisite of junior level status and of PSY 3600 (Concepts and Principles of Behavior Analysis) and PSY 3300 (Behavioral Research Methods). Exceptions to this requirement must be approved by the course instructor on a case-by-case basis. 3 hours

PSY 5950 History of Psychology The historical and philosophical foundations of contemporary American psychology. Prerequisites: Psychology majors only. All 5000-level courses in the Department of Psychology have a prerequisite of junior level status and of PSY 3600 (Concepts and Principles of Behavior Analysis) and PSY 3300 (Behavioral Research Methods). Exceptions to this requirement must be approved by the course instructor on a case-by-case basis. 3 hours

PSY 5970 Topical Studies in Psychology "A survey and discussion of selected research topics of current interest. Topics may include both basic science and applied aspects of the discipline. Course may be repeated for credit although the total number of credits may be limited by the degree program. Students should consult the program advisor."

PSY 5970a Instructional Design; Prerequisite: PSY majors. PSY 5970b Advanced Applications of Behavior Analysis; Prerequisite: PSY 3600. "Prerequisite: Permission of instructor. All 5000-level courses in the Department of Psychology have a prerequisite of junior level status and of PSY 3600 (Concepts and Principles of Behavior Analysis) and PSY 3300 (Behavioral Research Methods). Exceptions to this requirement must be approved by the course instructor on a case-by-case basis. 2 to 4 hours
PSY 5980 Special Projects in Psychology
This course provides the graduate student with the opportunity for independent reading and/or research under the direction of a faculty member. Graduate standing and permission of instructor. May be repeated for credit, although the total number of hours in a degree program may not exceed 5 hours. Prerequisite: Approved application required. All 5000-level courses in the Department of Psychology have a prerequisite of junior level status and of PSY 3600 (Concepts and Principles of Behavior Analysis) and PSY 3300 (Behavioral Research Methods). Exceptions to this requirement must be approved by the course instructor on a case-by-case basis. 1 to 5 hours

PSY 5990 Practicum in Psychology
In-depth training in the application of the principles of behavior to a specific and restricted problem area in the discipline. The practicum application is often identified by the location of the research site or professional service agency published in the Schedule of Course Offerings. Each hour of credit requires 100 clock hours. May be repeated for credit, although number of credits may be limited by program requirements. Prerequisite: Approved application required. All 5000-level courses in the Department of Psychology have a prerequisite of junior level status and of PSY 3600 (Concepts and Principles of Behavior Analysis) and PSY 3300 (Behavioral Research Methods). Exceptions to this requirement must be approved by the course instructor on a case-by-case basis. 2 to 4 hours

Comparative Religion
REL 1000 Religions of the World
An approach to the religions of the world which surveys themes in various religious traditions (such as Judaism, Christianity, Islam, Hinduism, Buddhism and primitive religions). The course studies how these religious traditions conceive of gods and world order, founders and saviors, religious experience and practice, and religious communities. The course will pay attention to the contemporary status and significance of these themes. 4 hours

REL 2000 Introduction to Religion
An introduction to the study of religion intended to be universal in scope, theoretical and scientific in intent, and humanistic in orientation, of the nature and history of religion wherever it may be found, whatever its context, no matter what its forms, and attempting to raise whatever questions are necessary to illuminate its character. This will involve attention to more than one religious tradition, a discussion of the problems of definition, theory and method, an acknowledgement of the interdisciplinary aspects of much of the inquiry, and an examination of the consequences of this inquiry for problems of self-understanding in the context of western culture in general, and American society in particular. 4 hours

REL 3000 Writing About Religion
This course enhances writing skills in the context of reading and discussing selected materials on religion. Emphasis is upon the process of writing, with writing assignments in class and outside class. Reading selections focus upon issues of contemporary interest. Required of all religion majors. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. 3 hours

REL 3010 Buddhist Traditions
This course is an introduction to the panorama of Buddhist traditions in South, Southeast, Central and East Asia. We will study the history of Buddhism, its characteristic doctrines and teachings, and try to assess the impact it has had on Asian civilizations. Special attention will be devoted to the problem of the religious ideals and how that is to be pursued. We will read scholarly studies on the traditions as well as original Buddhist texts in translations. 4 hours

REL 3020 Religion in the Indian Tradition
This course draws its materials primarily from the great religious traditions native to India - i.e. Brahmanism, Buddhism, Jainism, Sikhism, and Hinduism. It is concerned primarily with definitions of the human in these traditions: the problems that are perceived to be central to human life and the resources assumed to be available for such problems' solution. To clarify problems, it examines social and political contexts in which various traditions have arisen. To exemplify solutions, it offers samples from religious literature, art, architecture, music, ritual, and spiritual discipline. 4 hours

REL 3030 Chinese Religion
Religious life in China is characterized by an impressive variety of religions combined with a striking commonality of outlook. The centrality of religion and thought to all of Chinese life means that even contemporary China can be well understood only with reference to the persistent themes and practices of the past. The course will consider religious and philosophical Confucianism and Taoism, Buddhism, and how these different strands are woven into traditional and popular religion in China and even amalgamated into Chinese communism. The overall aim of the course will be to examine what Chinese culture means to an individual growing up Chinese so that students taking the course may develop a grasp of the expectations of life, society, government, and behavior that are handed down from generation to generation in China. 4 hours

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REL 3040 African Religions This course is designed to introduce the student to the complexity and varieties of the religions of Africa. This is done by focusing on the myriad religious ideas (of the gods, of ancestors, of persons, of origins, of death, of authority and status), practices (initiation, divination, sorcery), institutions which have emerged in the long history of Africa. The course pays particular attention to the results of colonialism on indigenous religions as well as to the emergence of new religious movements. 4 hours

REL 3050 The Christian Tradition This course draws its materials primarily from the great religious traditions within Christianity - i.e., Catholicism, Protestantism, and the Orthodox tradition. It offers a careful look at the early Christian myths which give rise to these traditions. It is concerned primarily with definitions of the human in these traditions: the problems that are perceived to be central to human life and the resources assumed to be available for such problems' solution. To clarify problems, it examines social and political contexts in which various traditions have arisen. To exemplify solutions, it offers samples from religious literature, art, architecture, music, ritual and spiritual discipline. 4 hours

REL 3060 The Jewish Tradition This course traces the history and development of Judaism from its roots in the Ancient Near East to the present, and its role in the shaping of Western consciousness. Particular attention is given to the periods of radical social, political and cultural change in Jewish history and hence to the critical problem of Jewish identity. An analysis of Jewish writings, customs, and institutions taken from different periods of Jewish history reveals that Jewish people have discovered and expressed their identity within a religious framework that includes myths and rituals, festivals, and holy days, celebration of the past and anticipation of the future, as well as social movements and political revolutions. 4 hours

REL 3070 The Islamic Tradition A study of the most important factors involved in the development of both the Islamic religious tradition and Islamic civilization. The Pre-Islamic background, the life of Mohammed, the Qur'an, geographical expansion of the Muslim Community, Islamic law, mysticism, politics, philosophy, science, and contemporary Islamic movements are the major topics for examination. 4 hours

REL 3080 Japanese Religion A study of the historical continuity and overall unity in the Japanese religious tradition. The major organized religions of Shinto and Japanese Buddhism, and also the influence of Taoism, Confucianism, and Christianity are discussed. Also taken up are the informal religious movements of "ancestor worship," family religion, and state religion. An attempt is made to assess the meaning of religion in Japanese culture. 4 hours

REL 3110 Myth and Ritual Eric Dardel, an anthropologist, has written: "Myth says with utmost seriousness something that is of essential importance." In this course an attempt will be made to discover just what this important something is and how it is actualized in certain rituals. Myths and rituals will be taken from a variety of historical traditions in order to reflect the cultural milieu of the communities whose lives are governed by them. Special problems to be considered will be the relationship between myth and cult, the problem of time and myth, the logic of mythic forms, etc. 4 hours

REL 3130 Religion in America This course is designed to introduce students to the full range of religious expression in the United States from the colonial period to the present. As such, it will focus not only on the history of specific groups, institutions, and denominations (e.g. Congregationalism, the Catholic Church, Reform Judaism, the nation of Islam, etc.), but also on those non-traditional and frequently non-institutional forms of religion which have had an impact on the development of American culture and society (e.g. utopian communalism, occult and metaphysical movements, the "New Age," etc.). In addition, this course will also address such religious themes as individualism, millennial dominance, and civil religion which, while once prominent features of American culture at large, are now increasingly brought into question as the United States enters a period of unprecedented cultural diversity and cultural change. 4 hours

REL 3140 African-American Religion to 1865 This course is designed to introduce students to key issues, themes, and sacred texts and writings within African-American religion and culture during the antebellum period. It emphasizes the role of the African slave in the emergence of African-American thought and addresses the evolution of that consciousness in the rise of the Black Church. Issues of faith, identity, race, gender, violence and fear are addressed in light of the African slave's understanding of biblical motifs and traditional African worldviews. The course addresses these issues in light of the African Diaspora by looking at the transmigration of culture from such places as West Africa and the Caribbean. 4 hours

REL 3150 African-American Religion in the 20th Century This course is designed to introduce students to the evolution of black religious thought and culture in America during the 20th century. It emphasizes the rise of the Black
Church and its expanding role within black urban communities in America. Another component of the course addresses the emergence of other religious belief systems in contemporary Black culture such as Voodoo, Santeria, Spiritist churches, the Nation of Islam and even Black Judaism. Issues of race, class, gender, identity, and violence will be points of discussion in light of black religious life.

REL 3200 The Philosophy of Religion  An examination of the place of religion in human experience with special attention to the nature of religious language, the role and structure of religious concepts, the relation between religion and theology, and the logic of religious symbols.  4 hours

REL 3230 Religion and Revolution  This course will explore, investigate and compare different religions in different cultures as driving forces of social and cultural change. The course will examine the conservative and progressive roles the religions of the world play in familial, social, economic, and political stability and change. Different approaches to analyzing these forces and roles will be examined, but particular emphasis will be placed upon the contribution of critical theory and its dialectical method of thinking. The course will stress communicative ethics and discourse theory of rights and of the democratic constitutional state.  4 hours

REL 3240 Psychological Elements in Religion  This course offers students a survey of theories and approaches to the study of religion from the perspective of psychology, with an emphasis on psychoanalytical, analytical, humanistic, behavioral, and cognitive psychology as well as on other theorists and trends emerging out of or relating to these traditions in psychology. The seminal texts of such classical theorists as Freud, Jung, James, Otto, Fromm, Skinner, and Erickson will be considered, as well as more contemporary psychological approaches to religion.  4 hours

REL 3320 Religion and Social Ethics  This course will compare different forms of religious and secular ethics from ancient moral codes to contemporary ethical systems. It will deal with the creative ideas, problems and attitudes toward the social world intrinsic to these different ethical norms. While the course will emphasize the variety of ethical responses to social problems provided by the religions of the world as well as to secular approaches it will pay particular attention to problems raised and solutions proposed by critical theorists about issues such as abortion, euthanasia, artificial insemination, race, gender, class, war and peace, poverty and ecological catastrophes. The course will stress communicative ethics, the discourse theory of rights, and of the democratic constitutional state.  4 hours

REL 3340 Religion in Modern Society  Whereas a major focus of the systematic study of religion is upon religious traditions, or aspects of them, it is important that attention also be paid to the questions raised by the various contexts in which religion occurs as well as to questions raised by the methods developed in studying religion in such contexts. The specific context of religion to be studied in this course is that of industrial society. For religion to be understood in more than historical terms it is important that attention be paid to this kind of context. As a consequence of such a focus questions also are raised about the methods developed to specify and delineate such contexts and the role that religion plays in them. This provides an occasion for raising questions about the assumptions underlying such methods and about their relationship to the systematic study of religion.  4 hours

REL 4000 Topics in Religion  The topic to be announced in the Schedule of Course Offerings. The content of the course will vary from semester to semester. Students may repeat the course for credit as long as the subject matter is different. Topics will include religious traditions, forms of religion and current issues in method and theory.  4 hours

REL 4980 Independent Study  Research on some selected problem under supervision of a member of the Religion faculty. Approval of the instructor involved and Chairperson of the Department must be secured in advance of registration.  1 to 6 hours

REL 5000 Historical Studies in Religion  The topic to be announced in the Schedule of Classes. The content of the course will vary from semester to semester. Students may repeat the course for credit as long as the subject matter is different. Topics such as the following will be studied: Zen Buddhism; Buddhism; Taoism; Shinto; New Religions of Japan; Religion in Japanese Literature; Islam in the Modern World; Christian Theology to 1500; Renaissance and Reformation Theology; Mystical Dimensions of Islam. Undergraduates with junior status and two previous courses in Religion may enroll in 5000-level courses.  2 to 4 hours

REL 5100 Morphological and Phenomenological Studies in Religion  The topic to be announced in the Schedule of Classes. The content of the course will vary from semester to semester. Students may repeat course for credit as long as the
subject matter is different. Topics such as the following will be studied: Millenium, Utopia, and Revolution; Femininity as a Religious Form; Great Islamic Thinkers; the Hindu Yogas; the Occult Tradition. Undergraduates with junior status and two previous courses in Religion may enroll in 5000-level courses. 2 to 4 hours

REL 5110 Women in Religion Drawing together materials from many religious traditions, this course explores religion's effect on women and women's effect on religion. It attends especially to women's roles in traditions studied - both roles allotted to women and roles women shape for themselves. It also traces repeating patterns in women's religious experience and evaluates common explanations for such patterns. Prerequisites: Junior or senior level and two courses (6 hours) in either Religion or Women's Studies. Undergraduates with junior status and two previous courses in Religion may enroll in 5000-level courses. 3 hours

REL 5200 Methodological Studies in Religion The topic to be announced in the Schedule of Classes. The content of the course will vary from semester to semester. Students may repeat the course for credit as long as the subject matter is different. Topics such as the following will be studied: Scientific Issues in the Study of Religion; the Critical Theory; Myth and Symbol in Religion and Literature. Undergraduates with junior status and two previous courses in Religion may enroll in 5000-level courses. 2 to 4 hours

REL 5210 The Teaching of Religion in the Public School This course focuses on methods and issues involved in the teaching of religion in the public school. Particular attention is given to the problems of its constitutionality, the distinction between the academic study of religion and religious instruction, and the question of meaning. Various approaches to the teaching of religion are critically evaluated. Teaching methods appropriate to the level of instruction, availability, organization, selection and use of materials are discussed. Required of all students following a Secondary Education Curriculum which includes the Academic Study of Religions as a minor. (This course is not applicable to the regular religion major/minor program.) Undergraduates with junior status and two previous courses in Religion may enroll in 5000-level courses. 2 hours

REL 5980 Readings in Religion Research on some selected period or topic under supervision of a member of the Religion faculty. Prerequisite: Approval of the instructor involved and Chairperson of the Department must be secured in advance of registration. Undergraduates with junior status and two previous courses in Religion may enroll in 5000-level courses. Variable

Russian

RUSS 1000 Basic Russian I Fundamentals of Russian with emphasis on oral proficiency. 4 hours

RUSS 1010 Basic Russian II Continuation of RUSS 1000. Prerequisite: RUSS 1000 or equivalent. 4 hours

RUSS 2000 Intermediate Russian I Level two Russian. Review and furthering of oral and reading skills based upon increasingly advanced oral and written exercises. Prerequisite: RUSS 1010 or equivalent. 4 hours

RUSS 2010 Intermediate Russian II Continuation of RUSS 2000 with a focus on development of spoken and written expression in the Russian language through readings and discussion of civilization and cultural materials. Prerequisite: RUSS 2000 or equivalent. 4 hours

RUSS 3100 Russian Civilization A study of selected aspects of Russian life and culture and their historical settings. Course taught in English and open to all students. 3 hours

RUSS 3160 Russian Composition Emphasis on increasing the student's command of written Russian. Prerequisite: RUSS 2010 or equivalent. 4 hours

RUSS 3170 Russian Conversation The course includes exercises to develop ease and accuracy in the use of everyday Russian. Emphasis on oral aspects of the language. Prerequisite: RUSS 2010 or equivalent. 4 hours

RUSS 3250 Introduction to the Study of Russian Literature Study of selected topics in Russian literature. Topics vary according to genre, author, or period and will be announced. May be repeated for credit. Prerequisite: RUSS 2010 or equivalent, or permission of instructor. 4 hours
RUSS 3440  Summer Study in Russia  A summer study-abroad program of Russian language, literature, and culture. The course includes a series of lectures and discussions prior to departure. The tour will be accompanied by full explanations of all areas visited. Students plan and outline a project which they complete and submit after their return. Specific language tasks are assigned during the program. In addition, each student submits a term paper and takes an examination at the end of the study program. May be repeated for credit. Prerequisite: Instructor's permission.  4 hours

RUSS 4770  Foreign Study  Student participation in departmentally approved program of study abroad. Repeatable for credit up to 32 credit hours. Prerequisite: Prior permission of departmental advisor and chairperson. Variable

RUSS 5020  Russian for Graduate Study  Russian instruction for graduate students enrolled in a degree program who need knowledge of Russian for their field of study. Students will sit in appropriate level course for their learning. May be repeated for credit. May not be taken by undergraduate students in any field. Prerequisites: Approval of department of student's graduate program and approval of Department of Foreign Languages.  5000-level courses may be taken only by advanced undergraduate students. Advanced undergraduate students are defined as those who have satisfactorily completed a minimum of four courses, or equivalent, applicable toward a major or minor in any one language. Each course, however, may have more specific and/or additional prerequisites.  3 to 4 hours

RUSS 5200  Topics in Russian Linguistics and Language Science  The advanced study of a language or a group of languages from a scientific point of view, such as the function and status of languages in society, the comparative history of different language families or the manipulation of language for pragmatic needs across cultures. May be offered as ARAB/CHIN/FREN/GER/GREK/ITAL/JPN/JPN/LAT/RUSS 5200. Prerequisites: Completion of 4 courses in area of specialization.  5000-level courses may be taken only by advanced undergraduate students. Advanced undergraduate students are defined as those who have satisfactorily completed a minimum of four courses, or equivalent, applicable toward a major or minor in any one language. Each course, however, may have more specific and/or additional prerequisites.  3 hours

RUSS 5500  Independent Study in Russian  Directed individual study of a specific topic in Russian language, literature, or culture. May be repeated for credit. Prerequisites: Completion of four courses in Russian, or equivalent; minimum grade point average of 3.0 in Russian; department and instructor approval required.  5000-level courses may be taken only by advanced undergraduate students. Advanced undergraduate students are defined as those who have satisfactorily completed a minimum of four courses, or equivalent, applicable toward a major or minor in any one language. Each course, however, may have more specific and/or additional prerequisites.  1 to 3 hours

Science Education

SCI 2800  Physical Science for Elementary Educators II  This laboratory-based course is a continuation of PHYS 1800 and is specifically designed for prospective elementary teachers. The objectives of the course are to aid students in developing meaningful and functional understanding of key physics concepts and their interrelations; to provide students with open-ended problem solving environments that facilitate insight in the nature of science as an intellectual activity; to explore alternate conceptions of scientific phenomena; to help students develop more positive attitudes about science and increase their confidence in their ability to do science.  3 hours

SCI 4040  Teaching of Secondary Science  This course addresses the topics of teaching and learning of science at the secondary level. It is designed for those in secondary education who intend to be certified to teach the earth, life, or physical sciences (physics and chemistry) and focuses on the issue of how students learn science concepts and problem-solving skills in meaningful ways. The course develops models of effective instructional strategies designed to promote student learning and understanding of science concepts and processes. Practical methods for demonstrating, using models, planning laboratory experiences, managing science equipment, and safety concerns are developed and discussed. Students also work in discipline-specific groups to address issues unique to that area of science and the science classroom. Prerequisites: 15 hours of science in a certifiable science discipline and ED 3020 which may be taken concurrently with this course. Cross-listed with CHEM 4040 and PHYS 4040.  3 hours

SCI 5600  Science Workshop for Teachers  This course will involve participants in several activities especially designed to help them achieve an understanding of some of the important concepts of science. The course is designed and taught to address the needs of K-12 teachers. It is a variable topics course and may be repeated for credit if different topics
SCI 5700 Life Science Workshop for Teachers This course will involve participants in several activities especially designed to help them achieve an understanding of some of the important concepts of biology. The course is designed and taught to address the needs of K-12 teachers. It is a variable topics course and may be repeated for credit if different topics are involved. Intended for delivery in one-to-two-week workshop format. Prerequisite: Teacher certification or baccalaureate plus work toward certification. 1 to 3 hours

SCI 5800 Chemistry Workshop for Teachers This course will involve participants in several activities especially designed to help them achieve an understanding of some of the important concepts of chemistry. The course is designed and taught to address the needs of K-12 teachers. It is a variable topics course and may be repeated for credit if different topics are involved. Intended for delivery in one-to-two-week workshop format. Prerequisite: Teacher certification or baccalaureate plus work toward certification. 1 to 3 hours

SCI 5850 Physics Workshop for Teachers This course will involve participants in several activities especially designed to help them achieve an understanding of some of the important concepts of physics. The course is designed and taught to address the needs of K-12 teachers. It is a variable topics course and may be repeated for credit if different topics are involved. Intended for delivery in one-to-two-week workshop format. Prerequisite: Teacher certification or baccalaureate plus work toward certification. 1 to 3 hours

SCI 5900 Earth Science Workshop for Teachers This course will involve participants in several activities especially designed to help them achieve an understanding of some of the important concepts of earth science. The course is designed and taught to address the needs of K-12 teachers. It is a variable topics course and may be repeated for credit if different topics are involved. Intended for delivery in one-to-two-week workshop format. Prerequisite: Teacher certification or baccalaureate plus work toward certification. 1 to 3 hours

SCI 5980 Readings in Science To be used by students seeking work in topics not otherwise available. The student is limited to not more than four hours in all reading courses and work must be completed under a member of the graduate faculty. Prerequisites: 12 hours of a science and 12 hours of professional education courses. 1 to 4 hours

SOC 1220 Death, Dying, and Bereavement Social structures, attitudes, beliefs and values about death, dying and bereavement in contemporary American society as well as in other societies and other time periods will be considered. Medical, legal, religious, and psychological issues in relation to death, dying, and bereavement will be discussed. (Not recommended for persons recently bereaved.) 3 hours

SOC 1900 Men and Women in Contemporary Society A systematic analysis of roles of men and women, with particular emphasis upon problems of adjustment and conflict in contemporary society. 3 hours

SOC 2000 Principles of Sociology An introduction to, and survey of, the discipline of Sociology and its major fields of study. A scientific study and analysis of human behavior and interaction, our social nature and the social world (groups, cultures, religions, institutions, communities and societies) in which we live. Selected concepts, theories and research findings pertaining to social life at both the national and international level are presented and explored. 3 hours

SOC 2100 Modern Social Problems The course aims to develop a theoretical framework for understanding selected social problems in American society in such areas as: intergroup conflict, race, poverty, juvenile delinquency and crime, population changes, and mass communication. Problems selected for emphasis may vary with the instructor. 3 hours

SOC 2600 Introduction to Criminal Justice An overview of the criminal justice system as it currently operates in its three major components: police, courts, corrections. A broad-based interdisciplinary perspective is employed to introduce the beginning student to the process of criminal justice in modern America. Particular attention is placed in the discretionary authority of officials who are engaged in the decision making roles required to process suspects from arrest to release. 3 hours

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SOC 2610  Law Enforcement Certification - Variable Topics  The following topics allow Criminal Justice majors to become certifiable as police officers: safety and first aid; police physical skills; criminal investigation; firearms; traffic; patrol procedures; precision driving; and police practical problems.  Prerequisite: Permission of Criminal Justice Program advisor.  Variable hours

SOC 2820  Methods of Data Collection  This course is an introduction to the quantitative and qualitative methods of data collection in the social sciences. Major topics include ethical issues in social research, library usage and report style, problem formulation, measurement, causation, sampling, survey research, and field research and other observational techniques.  3 hours

SOC 2830  Methods of Data Analysis  This course is an examination of data analytic methods in the social sciences. Major topics include frequency distributions, graphic presentation of data, measures of central tendency, measures of variability, cross-tabulation, statistical inference (significance tests), and bivariate regression and correlation.  3 hours

SOC 3000  Sociological Theory  A study of major theoretical viewpoints in contemporary sociology. The course is oriented toward the understanding, application, and extension of these major perspectives.  Prerequisite: SOC 2000.  3 hours

SOC 3040  Nonwestern World  This course uses the evolution of modes of production as a key to gaining a meaningful understanding of the cultures of Africa and Asia. Its conceptual framework is the ageless struggle of humankind to (1) come to terms with nature (cultural evolution), (2) come to terms with one another (social evolution), and (3) raise consciousness (the evolution of "universalizing" values). This enables the student to compare and contrast African, Asian, and "Western" cultures; to analyze the impact of these cultures on one another; and to understand the "indivisible nature of the human condition." This course is cross-listed with A-S 3040.  4 hours

SOC 3140  Ethnic Relations  A study of race and ethnic relations, stressing a global perspective on social relations among varied peoples at different levels of development, and in different parts of the world.  3 hours

SOC 3200  Introduction to Social Psychology  An introduction to social psychological theory and research, covering the interaction of individuals and the relationships of individuals to groups. Includes such topics as social influence, attitudes, socialization, and personality.  3 hours

SOC 3340  Pacific Rim - Asian Societies  A sociological analysis of Asian Pacific Rim societies (such as China, Japan, Taiwan, South Korea, and Singapore) in various stages of industrialization and modernization, with consideration of their influence on American society.  3 hours

SOC 3350  Modern Latin American Societies  An introduction to contemporary Latin American societies focusing on their developmental problems and processes. Topics may include rural-urban migration, land reform, and governmental development policies in the urban industrial sector.  3 hours

SOC 3360  Modern Japanese Society  An introduction to Japanese society, focusing upon current developments in the process of industrialization and urbanization. Examines the impact of these processes on Japanese population, family life, village organization, urban community, class structure, and personality.  3 hours

SOC 3520  Introduction to Social Gerontology  An exploration of the social, psychological, economic, and physical aspects of aging. Consideration will be given to institutional programming for older people in the United States and other societies.  3 hours

SOC 3530  The City and Society  An examination of the city and the process of urbanization from earliest times to the present. Focusing upon the United States, emphasis will be placed on the characteristics, problems, and consequences of urban growth and development.  3 hours

SOC 3620  Criminology  An overview of the field of criminology. The areas considered range from the definitions, origins, and extent of crime and law, to causal theories of criminal behavior, to types of crimes and victims. Particularly stressed is an analysis of the relationship between law and society and social structure to crime.  3 hours
SOC 3630 Criminal Justice Process  This course describes and explains the criminal justice process from a sociological perspective. An analysis of the substantive and procedural criminal law as it relates to criminal justice is presented. The major focus is on the explanation of discretionary criminal justice decision making from arrest to sentencing. Prerequisite: SOC 3620. 3 hours

SOC 3640 Sociology of Law Enforcement  A sociological analysis of the process of law enforcement as it involves municipal, state, and federal agencies. Includes analysis of the police "working personality," social role, isolation from other social groups, vulnerability to corruption through politics and/or organized crime, and abuses of authority. The development and comparison of the police role will be traced from its roots in England to the present American position. Prerequisite: SOC 3620. 3 hours

SOC 3650 Correctional Process  An overview of the correctional process as a function of the criminal justice system in contemporary society. A broad perspective is employed based on existing criminological theory and accumulated knowledge of the social, political, and economic influences on the phenomenon of crime and delinquency. The uses of institutional placements, intermediate sanctions, and community-based programming to fulfill the formal and informal goals of corrections are critically assessed. Prerequisite: SOC 3620. 3 hours

SOC 3730 Sociology of Health and Illness  Introduction to the concepts of health and illness in our society; ways of measuring disease; the impact of social class, race, religion, and ethnicity on the perception and distribution of disease. Attention will also be paid to the social structure of the health care delivery system and of alternative systems of medical care. Prerequisite: SOC 2000. 3 hours

SOC 3900 Marriage and Family Relations  A sociological analysis of the structural and interactional aspects of marriage and family patterns in contemporary society, with emphasis on the American middle class. Consideration is given to change and diversity in family patterns, norms, and values, and to factors contributing to family unity or disorganization. Prerequisite: SOC 2000. 3 hours

SOC 4120 Child Abuse  This course is an examination of child abuse in American society. Medical, psychological, educational, psychiatric, legal, and treatment perspectives are combined in a social analysis. The origins, family context, nature, extent, and social consequences of child abuse are discussed. Currently practiced social and legal solutions are presented, as well as possible social change required to respond to this phenomenon. 3 hours

SOC 4210 Childhood Socialization  An investigation of social development of the child from birth to adolescence. The course will focus on the child's interactions with parents and peers as these influence processes of learning, language acquisition, role playing, the organization of knowledge, and development of self. Prerequisite: SOC 3200. 3 hours

SOC 4220 Adolescent Socialization  An investigation of social learning and personality development in adolescence. The course examines the effects of interaction patterns and group allegiances, social class membership, biological maturation, sex roles and self-awareness on adolescent behavior, personality development, and orientation toward the adult world and adulthood. Prerequisite: SOC 3200. 3 hours

SOC 4540 Juvenile Delinquency  A study of juvenile delinquency as a social problem. Extent, causative factors, methods of treatment, and programs of prevention and control are covered. When feasible, students visit community programs. Prerequisite: SOC 3200. 3 hours

SOC 4560 Social Stratification  An analysis of the nature, causes and consequence of class and status differences within societies. Stress is placed upon such concepts as mobility, class, status and differential power. Conflict and functional theories of stratification are treated. Prerequisite: SOC 2000. 3 hours

SOC 4580 Juvenile Justice Casework  This course is a seminar/practicum in the area of non-formal treatment of juvenile offenders and their families. The course focuses on the holistic assessment, decision making and treatment of juveniles brought to the attention of the court for delinquent behavior. Each student is expected to provide a wide range of casework services for a minimum of one hour per week. These services include home visits, interaction with schools and numerous other community agencies. Prerequisite: SOC 4540. 3 hours

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Description</th>
<th>Prerequisites</th>
<th>Credits</th>
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<tr>
<td>SOC 4590</td>
<td>Juvenile Justice</td>
<td>This course deals with the processing of offenders through the juvenile justice system with concentration on the philosophy and functioning of juvenile courts. Personal and organizational factors that are associated with, or that determine offenders' passage through, the juvenile court are examined. Prerequisite: SOC 4540. 3 hours</td>
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<tr>
<td>SOC 4660</td>
<td>Advanced Criminology</td>
<td>This is the capstone course for the criminal justice major. The course examines the intersection of criminological theory, public policies on crime, and political ideology. A number of important crime control policies are analyzed. Students are asked to examine the political philosophy and theoretical ideas which underlie these policies, the research evidence on their effectiveness, and their political implications. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisites: SOC 2820, 2830, 3620, 3630, 3640, and SOC 3650. 3 hours</td>
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<tr>
<td>SOC 4670</td>
<td>The Police and Community Dynamics</td>
<td>Study of the role of the police in the community by looking at the public's perceptions, knowledge, and expectations, and the police's responsibilities in community relations. This course stresses the practical application of knowledge to contemporary issues facing police such as the use of deadly force, police performance, neighborhood patrols, politics of law enforcement, minority relations, victimless crime, and the resolution of police/community differences. Prerequisite: SOC 3640. 3 hours</td>
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<tr>
<td>SOC 4680</td>
<td>The Police and Crime Prevention</td>
<td>This course provides an intensive examination of the important issue of crime prevention. Crime prevention is viewed within the larger political process and is related to the etiology of criminal behavior. The utility of general and specific prevention is discussed, looking at techniques and programs of both the police and community including target hardening and methods of decreasing the opportunity for victimization. The security business and various security techniques will also be analyzed. Prerequisite: SOC 3640. 3 hours</td>
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<td>SOC 4790</td>
<td>Female/Male Interaction</td>
<td>Examines the variable of gender as it influences interaction between women and men. Topics include female/male stereotypes, differences in female/male verbal and non-verbal codes, and female/male interaction on the job. (Cross-listed with COM 4790.) 3 hours</td>
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<tr>
<td>SOC 4800</td>
<td>Advanced Sociology</td>
<td>This is the capstone course for Sociology majors. It locates the various theories and methods used in sociology to examine the social world in which we live. The students are expected to critically examine the social world in which we live, the theoretical underpinnings, and the relevant research evidence dealing with several illustrations of social institutions and social processes. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisites: SOC 2820, 2830, 3000, and 3200. 3 hours</td>
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<tr>
<td>SOC 4900</td>
<td>Social Context of Sexual Behavior</td>
<td>This course focuses on a systematic analysis of contemporary sexual codes and behavior in American society. Present-day beliefs and practices are viewed in historical context (especially from 1900 to the present) to gain insight into what is today, with the purpose of projecting what may be in the future. This sociological, historical, social psychological analysis examines current patterns of beliefs and behavior in terms of their immediate and potential effects and consequences both for individuals and couples, and also for society. Prerequisite: SOC 2000. 3 hours</td>
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<td>SOC 4920</td>
<td>The Family as a Social Institution</td>
<td>The family viewed in historical and cross-cultural perspectives. A structural-functional analysis of the family institution and the relationship between the social structure of society and the family system. Emphasis is placed on change and comparative analysis. Prerequisite: SOC 200 or equivalent. 3 hours</td>
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<td>SOC 4950</td>
<td>Special Topics in Sociology or Criminal Justice: Variable Topics</td>
<td>A specialized course dealing, each time it is scheduled, with some particular aspect of sociology or criminal justice not usually included in other course offerings. May be repeated for credit with a different topic. Prerequisite: SOC 2000. 1 to 3 hours</td>
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<td>SOC 4960</td>
<td>Criminal Justice Internship</td>
<td>Opportunity is provided through the Criminal Justice Program for supervised experiences in state and local criminal justice agencies. Approved application is required. 2 to 8 hours</td>
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<td>SOC 4980</td>
<td>Sociology Internship</td>
<td>Opportunity is provided for supervised experiences in local organizations or activities in such areas as criminal justice, gerontology, and urban studies. Approved application required. 2 to 8 hours</td>
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SOC 5150 Sociology of Mental Illness  This course will be concerned with examining the contemporary meaning of concepts of mental health and mental illness. The course will also consider the amount and kind of mental illnesses (especially the differences by social class, age, gender, race, marital status, urban versus rural living, and migration), the structure of the mental health care delivery system, the nature of help-seeking for mental illness, and community care and public policy for mental illness. Prerequisite: SOC 2000 or graduate standing. 5000-level courses in the Department of Sociology are designed for a graduate student audience. Advanced undergraduates with at least 12 hours of prerequisites and junior class status will be allowed to enroll. Prerequisites must include SOC 2000 or its equivalent in another related social science discipline; and two 3000- or 4000-level courses (i.e., one of each; or two of one). Exemptions for these may be granted on a case-by-case basis. 3 hours

SOC 5200 Studies in Social Psychology: Variable Topics  Further analysis of selected topics in social psychology not intensively covered in other courses. Specific topic will be designated in the course title when scheduled. May be repeated for credit with a different topic. Prerequisite: SOC 3200 or graduate standing. 5000-level courses in the Department of Sociology are designed for a graduate student audience. Advanced undergraduates with at least 12 hours of prerequisites and junior class status will be allowed to enroll. Prerequisites must include SOC 2000 or its equivalent in another related social science discipline; and two 3000- or 4000-level courses (i.e., one of each; or two of one). Exemptions for these may be granted on a case-by-case basis. 3 hours

SOC 5210 Social Psychology of Emotions  An examination of human emotions as they relate to thinking, motivation, and social action. Emphasis will be given to the ways in which emotions signal the importance of social events for the individual self, the role of group norms in defining situationally appropriate emotional feeling and expression, the management of emotions, and the ways that emotions function as both determinants and consequences of patterns of interpersonal activity. Prerequisite: SOC 3200 or graduate standing. 5000-level courses in the Department of Sociology are designed for a graduate student audience. Advanced undergraduates with at least 12 hours of prerequisites and junior class status will be allowed to enroll. Prerequisites must include SOC 2000 or its equivalent in another related social science discipline; and two 3000- or 4000-level courses (i.e., one of each; or two of one). Exemptions for these may be granted on a case-by-case basis. 3 hours

SOC 5220 Social Psychology of Prejudice  An analysis of the processes through which prejudice is learned and influences individual thought and social interaction. The nature of contemporary forms of prejudice will be analyzed, along with their cultural, cognitive, and motivational bases. Emphasis will be placed on how stereotypes are acquired and maintained, the consequences of prejudice for social interaction and intergroup conflict, and classic and contemporary strategies for the reduction of prejudice and discrimination. Students will be encouraged to conduct research projects involving topics of their choice. Prerequisite: SOC 3200 or graduate standing. 5000-level courses in the Department of Sociology are designed for a graduate student audience. Advanced undergraduates with at least 12 hours of prerequisites and junior class status will be allowed to enroll. Prerequisites must include SOC 2000 or its equivalent in another related social science discipline; and two 3000- or 4000-level courses (i.e., one of each; or two of one). Exemptions for these may be granted on a case-by-case basis. 3 hours

SOC 5250 Research Design and Analysis in Social Psychology  This course will provide students with the knowledge necessary to evaluate research, to understand the relationship between theory and the research operations that are used to test and generate theory, and to design and carry out original research on social psychological topics. Students will learn about the appropriate use of survey, observational, experimental and quasi-experimental methods as applied to both field and laboratory settings. Class projects will teach students to design and conduct original research in social psychology, and to analyze data using relevant statistical techniques. Prerequisites: SOC 2820 and 3200 or graduate standing. 5000-level courses in the Department of Sociology are designed for a graduate student audience. Advanced undergraduates with at least 12 hours of prerequisites and junior class status will be allowed to enroll. Prerequisites must include SOC 2000 or its equivalent in another related social science discipline; and two 3000- or 4000-level courses (i.e., one of each; or two of one). Exemptions for these may be granted on a case-by-case basis. 3 hours

SOC 5400 Sociology of Medicine  A comprehensive survey of concepts and research findings in the field of the sociology of medicine. Topics to be covered include: the distribution of illness in society, relationships between social stress and disease, illness as a social process, health care professionals, the sociology of health care delivery. Prerequisite: SOC 3730. 5000-level courses in the Department of Sociology are designed for a graduate student audience. Advanced undergraduates with at least 12 hours of prerequisites and junior class status will be allowed to enroll. Prerequisites must
include SOC 2000 or its equivalent in another related social science discipline; and two 3000- or 4000-level courses (i.e., one of each; or two of one). Exemptions for these may be granted on a case-by-case basis. 3 hours

SOC 5520 Sociology of Aging An examination of the process of aging in American society, with particular emphasis on the periods of late maturity and old age. Consideration will be given to theories of aging and the social implications of age grading, the meaning of work and retirement, and the status and roles of the aged. Prerequisites: 6 hours of sociology, including SOC 2000 or consent of instructor or graduate standing. 5000-level courses in the Department of Sociology are designed for a graduate student audience. Advanced undergraduates with at least 12 hours of prerequisites and junior class status will be allowed to enroll. Prerequisites must include SOC 2000 or its equivalent in another related social science discipline; and two 3000- or 4000-level courses (i.e., one of each; or two of one). Exemptions for these may be granted on a case-by-case basis. 3 hours

SOC 5600 Corporate and Governmental Crime An examination of the crimes committed by business corporations and government agencies. The course describes the nature, extent, and costs of these organizational crimes, explains the structural and organizational force which give rise to such crimes and analyzes the problem of controlling organizational offenders. The course also examines the political process whereby corporations and governments come to be defined as deviant or criminal. Prerequisites: SOC 2000 or 2100, SOC 2600, and SOC 3620, and one other upper-level (3000- or 4000-level) course or graduate standing. 5000-level courses in the Department of Sociology are designed for a graduate student audience. Advanced undergraduates with at least 12 hours of prerequisites and junior class status will be allowed to enroll. Prerequisites must include SOC 2000 or its equivalent in another related social science discipline; and two 3000- or 4000-level courses (i.e., one of each; or two of one). Exemptions for these may be granted on a case-by-case basis. 3 hours

SOC 5610 Violence and U.S. Society This course analyzes the nature, extent and causes of violence associated with the United States. The forms of violence to be analyzed include interpersonal, institutional, and structural violence; recent theory and research on violence will be reviewed and various prevention and control policies will be discussed. Prerequisites: SOC 2000 or 2100, SOC 2600, and SOC 3620, and one other upper-level (3000- or 4000-level) course. 5000-level courses in the Department of Sociology are designed for a graduate student audience. Advanced undergraduates with at least 12 hours of prerequisites and junior class status will be allowed to enroll. Prerequisites must include SOC 2000 or its equivalent in another related social science discipline; and two 3000- or 4000-level courses (i.e., one of each; or two of one). Exemptions for these may be granted on a case-by-case basis. 3 hours

SOC 5620 Victimology The study of crime victims, the probabilities of victimization, victim-offender relationships, the treatment of victims by the criminal justice system, and the economic, social, and psychological impact of victimization. An analysis of coping strategies is discussed and the role of the victim in the criminal justice system is analyzed. Prerequisite: SOC 2000 or 2100, SOC 2600, and SOC 3620, and one other upper-level (3000- or 4000-level) course or graduate standing. 5000-level courses in the Department of Sociology are designed for a graduate student audience. Advanced undergraduates with at least 12 hours of prerequisites and junior class status will be allowed to enroll. Prerequisites must include SOC 2000 or its equivalent in another related social science discipline; and two 3000- or 4000-level courses (i.e., one of each; or two of one). Exemptions for these may be granted on a case-by-case basis. 3 hours

SOC 5630 Gender and Justice This course provides an overview of the relatively recent field of women, crime and justice, with particular direction guided by an issues approach. A wide variety of current research and theory in this realm are critically examined. The specific subtopics covered in this course encompass gender and discrimination in society at large, within the sociological/criminological academy, and within the criminal justice system. Broad feminist theoretical and methodological perspectives are drawn upon to contour the examination of women as criminal offenders, as victims of crimes such as rape and intimate violence, and as professional workers within the criminal justice system. Prerequisites: SOC 2000 or 2100, SOC 2600, and SOC 3620, and one upper-level (3000 to 4000) course. 5000-level courses in the Department of Sociology are designed for a graduate student audience. Advanced undergraduates with at least 12 hours of prerequisites and junior class status will be allowed to enroll. Prerequisites must include SOC 2000 or its equivalent in another related social science discipline; and two 3000- or 4000-level courses (i.e., one of each; or two of one). Exemptions for these may be granted on a case-by-case basis. 3 hours

SOC 5680 Race, Ethnicity, and Justice This course addresses the multicultural dynamics that effect the definition(s) and distribution of justice in the United States. The primary focus is the differential treatment of African Americans, American Indians, Latinos, and Asian Americans throughout the major institutions of society, particularly the
legal institution. A critical analysis of the social, political, and economic forces that support the current social structure will
direct the inquiry. Prerequisites: SOC 2000 or 2100, SOC 2600, and SOC 3620, and one upper-level (3000 to 4000) course.
SOC 3140 is encouraged. 5000-level courses in the Department of Sociology are designed for a graduate student audience.
Advanced undergraduates with at least 12 hours of prerequisites and junior class status will be allowed to enroll.
Prerequisites must include SOC 2000 or its equivalent in another related social science discipline; and two 3000- or 4000-
level courses (i.e., one of each; or two of one). Exemptions for these may be granted on a case-by-case basis. 3 hours

SOC 5780 Sociology of Law An examination of legal organizations, the legal profession, and legal norms in the
United States and other western societies. Emphasis will be placed upon the relationship between the legal system and the
society in which it functions. Prerequisite: SOC 2000 or equivalent or graduate standing. 5000-level courses in the
Department of Sociology are designed for a graduate student audience. Advanced undergraduates with at least 12 hours of
prerequisites and junior class status will be allowed to enroll. Prerequisites must include SOC 2000 or its equivalent in
another related social science discipline; and two 3000- or 4000-level courses (i.e., one of each; or two of one). Exemptions
for these may be granted on a case-by-case basis. 3 hours

SOC 5900 Variable Topics in Sociology An examination of a selected topic in the field of sociology. The focus
of the course may be theoretical, methodological, or substantive. Possible topics could include feminist theory, sampling and
survey design, poverty, and cultural studies. May be repeated for credit with a different topic. 5000-level
courses in the Department of Sociology are designed for a graduate student audience. Advanced undergraduates with at least 12 hours of
prerequisites and junior class status will be allowed to enroll. Prerequisites must include SOC 2000 or its equivalent in
another related social science discipline; and two 3000- or 4000-level courses (i.e., one of each; or two of one). Exemptions
for these may be granted on a case-by-case basis. 3 hours

SOC 5980 Directed Individual Study A program of independent study (reading or research) to provide the unusually
qualified sociology student with the opportunity to explore a topic or problem of interest, under the guidance of one of the
faculty of the department. The initiative for planning the topic for investigation must come from the student. Approval is
contingent upon the merit of the proposal. Two or three hours credit per semester, cumulative to six hours. Enrollment
beyond the first semester may be either for the same topic or for a new topic. Prerequisite: Consent of instructor and the
department chairperson. 5000-level courses in the Department of Sociology are designed for a graduate student audience.
Advanced undergraduates with at least 12 hours of prerequisites and junior class status will be allowed to enroll.
Prerequisites must include SOC 2000 or its equivalent in another related social science discipline; and two 3000- or 4000-
level courses (i.e., one of each; or two of one). Exemptions for these may be granted on a case-by-case basis. 2 to 6 hours

Spanish
SPAN 1000 Basic Spanish I Fundamentals of Spanish. A four-skills approach (speaking, listening, reading, writing) with emphasis on communication. 4 hours
SPAN 1010 Basic Spanish II Continuation of 1000. Prerequisite: SPAN 1000 or equivalent. 4 hours
SPAN 2000 Intermediate Spanish I The development of spoken and written expression in the Spanish language with an emphasis on communication. Grammar review Prerequisite: SPAN 1010 or equivalent. 4 hours
SPAN 2010 Intermediate Spanish II The continued development of spoken and written expression in the Spanish language through readings and discussions of civilization and culture materials. Prerequisite: SPAN 2000 or equivalent. 4 hours
SPAN 2650 Hispanic Culture in the U.S. This course, taught in English, will study the establishment and development in the U.S. of the culture of large groups of Hispanics, such as those of Cuban, Mexican, and Puerto Rican origin, as well as numerous others. Attention will be given to current manifestations of Hispanic culture in the arts, the media, education, and public life. This course does not count toward the Spanish major or minor. 3 hours
SPAN 2750 Latino Writing/Latino Culture This course, taught in English, emphasizes the diverse nature of Latino writing and Latino culture by focusing on representative literary texts illustrative of the Hispanic role within contemporary United States society. It seeks to explain not only the relevance of this presence, but also the complexities inherent to
biculturalism and bilingualism as experienced by those communities depicted in the works of prominent authors. This course does not count toward a Spanish major or minor. 3 hours

SPAN 3080 Spanish for Heritage Speakers For students who have grown up in a Spanish-speaking environment and who understand and speak Spanish but have had limited or no formal study of the language. Development of all four languages skills (listening, speaking, reading, and writing), although major focus is on reading and writing. Prerequisite: Departmental placement or permission of instructor. 3 hours

SPAN 3160 Spanish Composition Emphasis upon increasing the student's command of written Spanish. Prerequisite: SPAN 2010 or equivalent. (SPAN 3160 may be taken concurrently with SPAN 2010.) 3 hours

SPAN 3170 Spanish Conversation Emphasis upon increasing the student's command of spoken Spanish. Prerequisite: SPAN 2010 or equivalent. (SPAN 3170 may be taken concurrently with SPAN 2010.) 3 hours

SPAN 3210 Life and Culture of Hispanics in U.S. A study of the life and culture of people of Hispanic origin who live in the United States. This course will examine the establishment and development in the U.S. of the culture of large groups of Hispanics, such as those of Cuban, Mexican, and Puerto Rican origin, as well as numerous others. Attention will be given to current manifestations of Hispanic culture in the arts, the media, education, and public life. Prerequisites: SPAN 3160 and 3170. 3 hours

SPAN 3220 Life and Culture of Spain A study of Spanish civilization in terms of its geography, history and art, and how these factors illuminate the character and tradition of the Spanish people. Prerequisites: SPAN 3160 and 3170. 3 hours

SPAN 3230 Life and Culture of Spanish America A study of Spanish-American life and culture based on ethnic, historical, social, religious and literary considerations. Prerequisites: SPAN 3160 and 3170. 3 hours

SPAN 3240 Introduction to the Study of Spanish Linguistics A general survey of the different fields of Spanish linguistics, both theoretical (e.g., phonetics/phonology, syntax, and semantics) and applied (e.g., pragmatics, discourse analysis, sociolinguistics, and bilingualism). Prepares students for more specialized studies. Prerequisites: SPAN 3160 and 3170. 3 hours

SPAN 3250 Introduction to the Study of Spanish Literature An appreciation of Spanish literature through reading and critical interpretation of selected works of various literary types. Prerequisites: SPAN 3160 and 3170 or equivalent. 3 hours

SPAN 4100 Studies in Hispanic Culture An intensive study of various aspects of Spanish and Spanish American culture. Emphasis is on cultural understanding as an avenue to increased proficiency in the Spanish language. Since specific topics will vary each semester, this course may be repeated for credit. Prerequisites: SPAN 3160, 3170, and two of the following: SPAN 3210,3220, 3230, 3240, 3250. 3 hours

SPAN 4400 Internship or Service with Spanish An opportunity for students to utilize and improve their Spanish language skills in an internship or volunteer work in business, schools, government, hospitals, churches, and various types of service organizations. Prerequisites: Student must have completed a minimum of 15 hrs of Spanish in courses at the 3000-level or above; students also must have approval of instructor before registering. 2 to 3 hours

SPAN 4520 Advanced Spanish Grammar and Composition An advanced study of the intricacies and problems of Spanish grammar, syntax, and style with attention to improving written expression in Spanish at an advanced level. Prerequisites: SPAN 3160, 3170, and one of the following: SPAN 3210, 3220, 3230, 3240, 3250. 3 hours

SPAN 4530 Advanced Spanish Conversation Intensive practice to reinforce and expand the basic oral communication skills and to develop flexible and idiomatic oral expression. Prerequisites: SPAN 3160, 3170, and one of the following: SPAN 3210, 3220, 3230, 3240, 3250. 3 hours

SPAN 4540 Spanish Phonetics An alternative or complement to SPAN 4530, Advanced Spanish Conversation. Particularly recommended for future teachers of Spanish. Provides a practical approach to the improvement of non-native
pronunciation and "accent". Emphasizes the sound system of Spanish through aural/oral practice, written transcription, and contrastive analysis with English. Prerequisites: SPAN 3160, 3170, and one of the following: SPAN 3210, 3220, 3230, 3240, 3250. SPAN 3240 is recommended. 3 hours

SPAN 4770 Foreign Study
Student participation in departmentally approved program of study abroad. Repeatable for credit up to 32 credit hours. Prerequisite: Prior permission of departmental advisor and chairperson. Variable

SPAN 4900 Studies in Spanish Linguistics
Topics vary according to area and will be announced. Each of these courses carries separate credit, although all are listed under 4900. Thus, a student may take any or all of the offerings at various times. Prerequisites: SPAN 3160, 3170, and 3240. Old Spanish - Evolution of the Spanish language from Latin. Spanish Language and Contemporary Society to -The relationship between the Spanish language and modern Spanish culture. Spanish Word Formation - The creation of nouns, verbs, and adjectives in Spanish. Spanish Sound Systems - The organization of sound patterns and stress in Spanish. Spanish Dialectology - Differences in Spanish pronunciation, vocabulary, and grammar in different regions of the Spanish-speaking world. Spanish in Contact - How exposure to other languages affects the Spanish spoken by bilinguals. Structure of Spanish Language - Word order and principles of grammatical organization in Spanish. 3 hours

SPAN 5020 Spanish for Graduate Study
Spanish instruction for graduate students enrolled in a degree program who need knowledge of Spanish for their field of study. Students will sit in appropriate level course for learning. May be repeated for credit. May not be taken by undergraduate students in any field nor by graduate students of Spanish. Prerequisite(s): Approval of department of student's graduate program and approval of Department of Spanish. 5000-level courses may be taken only by advanced undergraduate students. Advanced undergraduate students are defined as those who have satisfactorily completed a minimum of four courses, or equivalent, applicable toward a major or minor in any one language. Each course, however, may have more specific and/or additional prerequisites. 3 to 4 hours

SPAN 5260 Survey of Spanish Literature to the 18th Century
A survey of Spanish literature from its origin to, and including, the seventeenth century. Prerequisites: SPAN 3160, 3170, and 3250. 5000-level courses may be taken only by advanced undergraduate students. Advanced undergraduate students are defined as those who have satisfactorily completed a minimum of four courses, or equivalent, applicable toward a major or minor in any one language. Each course, however, may have more specific and/or additional prerequisites. 3 hours

SPAN 5270 Survey of Spanish Literature from the 18th Century to the Present
A survey of Spanish literature from the eighteenth century to the present. Prerequisites: SPAN 3160, 3170, and 3250. 5000-level courses may be taken only by advanced undergraduate students. Advanced undergraduate students are defined as those who have satisfactorily completed a minimum of four courses, or equivalent, applicable toward a major or minor in any one language. Each course, however, may have more specific and/or additional prerequisites. 3 hours

SPAN 5280 Survey of Spanish American Literature to Modernismo
A survey of Spanish American literature from its origin to the era of Modernismo (late 19th century). Prerequisites: SPAN 3160, 3170, and 3250. 5000-level courses may be taken only by advanced undergraduate students. Advanced undergraduate students are defined as those who have satisfactorily completed a minimum of four courses, or equivalent, applicable toward a major or minor in any one language. Each course, however, may have more specific and/or additional prerequisites. 3 hours

SPAN 5290 Survey of Spanish American Literature from Modernismo to the Present
A survey of Spanish American literature from late 19th century to the present. Prerequisites: SPAN 3160, 3170, and 3250. 5000-level courses may be taken only by advanced undergraduate students. Advanced undergraduate students are defined as those who have satisfactorily completed a minimum of four courses, or equivalent, applicable toward a major or minor in any one language. Each course, however, may have more specific and/or additional prerequisites. 3 hours

SPAN 5500 Independent Study in Spanish
Directed, individual study of a specific topic in a Spanish literary or linguistic area. Departmental approval required for admission. Repeatable for credit. Prerequisite: One of the following: SPAN 5260, 5270, 5280, 5290, 5600, and permission of department. Not open to minors. 5000-level courses may be taken only by advanced undergraduate students. Advanced undergraduate students are defined as those who have satisfactorily completed a minimum of four courses, or equivalent, applicable toward a major or minor in any one language. Each course, however, may have more specific and/or additional prerequisites. 1 to 3 hours
SPAN 5600  Studies in Spanish Literatures  Topic varies according to genre, author, or period and will be announced. Each of these courses carries separate credit, although all are listed under 560. Thus, a student may take any or all of the offerings at various times. Representative topics which may be treated in this area include: Modern Spanish Women Writers, Modern Spanish Theater, Modern Spanish-American Theater, Fable and Fantasy in Early Spain, Spanish-American Literature and Film, Humor in Spanish Theater, Sex, Lies, and Manuscripts in the Spanish Middle Ages, The Spanish-American Short Story, Spanish Short Story and Poetry, Literature of the Spanish Civil War. Prerequisite: SPAN 3160, 3170, and 3250. 5000-level courses may be taken only by advanced undergraduate students. Advanced undergraduate students are defined as those who have satisfactorily completed a minimum of four courses, or equivalent, applicable toward a major or minor in any one language. Each course, however, may have more specific and/or additional prerequisites. 3 hours

Special Education

SPED 3150  Introduction to Early Childhood Special Education  This course will introduce information about children with special needs from ages birth through eight. Content will include laws specific to the education of young children with disabilities, discussion of early developmental milestones, the impact of early development on later functioning, the role of the family in early intervention, and recommended practices for assessment of and intervention with young children with disabilities. Prerequisite: Consent of department. 1 hour

SPED 3250  Introduction to Transition Issues for Learners with Disabilities  This course provides an introduction to transition issues for learners with disabilities. The purpose of the course is to increase the student's awareness of effective transition practices in grades K-12 and to help the student identify strategies for implementing such. Course topics include transition-related assessment, self-determination, curriculum for transition, and support services. Prerequisite: Consent of department. 2 hours

SPED 3300  Introduction to Special Education  This course introduces students to the characteristics and needs of learners with sensory, physical, mental, emotional, and learning disabilities. Students develop an understanding of the psychological, sociological, philosophical, legal, and educational aspects of each type of disability. Prerequisite: Consent of department. 3 hours

SPED 3310  Classroom Practicum in Special Education  This course provides students with an opportunity to work in an elementary, or secondary classroom with learners who have disabilities. It is intended to provide students with an awareness of the nature and needs of the pupils and the role of the teacher in working with such learners. Graded on a credit/no credit basis. Prerequisites: Consent of department and concurrent enrollment in SPED 3300. 1 hour

SPED 3380  Introduction to Classroom Management  This course deals with methods of managing classroom behavior and dealing with specific behavior problems. Classroom management strategies will be discussed and related to the establishment of a positive classroom climate. Diagnostic and prescriptive techniques will be applied to problems of aggression, conduct, withdrawal, hyperactivity, distractibility, and impulsivity. Prerequisite: Consent of department. 3 hours

SPED 3390  Consultation and Communication in Special Education  This course will provide an introduction to consultation and communication skills needed by special educators as they work with other professionals and parents. Prerequisite: Consent of department. 3 hours

SPED 3400  Introduction to Cognitive Impairments  This course provides an introduction to the field of cognitive impairments. Historical perspectives, definitions, service delivery systems, evaluation procedures, and major issues are examined. Prerequisites: Consent of department and concurrent enrollment in SPED 3410 and SPED 3450. 3 hours

SPED 3410  Classroom Practicum with Learners with Cognitive Impairments  This course provides students with an opportunity to work 6 hours per week (in two, three-hour blocks) in an elementary, middle school, or secondary classroom with learners with cognitive impairments. It is intended to build upon experiences from SPED 3310 and allow students to more fully participate in classroom teaching activities. Prerequisites: Consent of department and concurrent enrollment in SPED 3400 and 3450. Graded on a credit/no credit basis. 1 hour
SPED 3450 Education of Learners with Cognitive Impairments This course focuses on understanding the ways in which teachers organize curriculum and implement assessment and instruction to ensure maximum learning for students with cognitive impairments. Prerequisites: Consent of department and concurrent enrollment in SPED 3400 and SPED 3410. 3 hours

SPED 3700 Introduction to Emotional Impairments This course provides an introduction to the field of emotional impairments. Historical perspectives, definitions, service delivery systems, evaluation procedures, and major issues are examined. Prerequisites: Consent of department and concurrent enrollment in SPED 3710 and SPED 3750. 3 hours

SPED 3710 Classroom Practicum with Learners with Emotional Impairments This course provides students with an opportunity to work 6 hours per week (in two, three-hour blocks) in an elementary, middle school, or secondary classroom with learners with emotional impairments. It is intended to build upon experiences from SPED 3310 and allow students to more fully participate in classroom teaching activities. Prerequisites: Consent of department and concurrent enrollment in SPED 3700 and SPED 3750. Graded on a credit/no credit basis. 1 hour

SPED 3750 Education Of Learners with Emotional Impairments This course focuses on understanding the ways in which teachers organize curriculum and implement assessment and instruction to ensure maximum learning for students with emotional impairments. Prerequisites: Consent of department and concurrent enrollment in SPED 3700 and SPED 3710. 3 hours

SPED 4040 Classroom Practicum: Assessment for Intervention This course provides the student with a structured assignment working with a learner who is at-risk or who has a disability. In this field experience, the student must demonstrate skills in assessment for intervention, and in the implementation and evaluation of an intervention plan for a specific learner in an inclusive or self-contained placement. Prerequisites: Consent of department and concurrent enrollment in SPED 4330 and SPED 4340. Graded on a credit/no credit basis. 1 hour

SPED 4100 Seminar in Special Education This seminar is taken concurrently with SPED 4740 and SPED 4750 and is open for only special education undergraduate students who have completed all of their special education professional sequence requirements. It will consist of weekly meetings to discuss issues related to their full-time intern teaching (SPED 4740 and 4750). Prerequisites: Completion of all professional education requirements. Consent of department and concurrent enrollment in SPED 4740. 2 hours

SPED 4270 Learners with Disabilities in Elementary and Middle School Programs This course is designed for prospective and practicing elementary and middle school teachers. Emphasis is placed on meeting the needs of learners with disabilities in elementary and middle school programs. Required curriculum adaptation and modification as well as identification and development of resources and services for these learners are stressed. Not acceptable for Special Education majors. 3 hours

SPED 4290 Learners with Disabilities in Secondary Education Programs This course is designed for prospective and practicing secondary education teachers. Emphasis is placed on meeting the needs of learners with disabilities in general education secondary programs. Required curriculum adaptation and modification as well as identification and development of resources and services for these learners are stressed. Not acceptable for Special Education majors. 3 hours

SPED 4330 Assessment for Intervention in Special Education The purpose of this course is to introduce students to assessment for intervention in special education. Curriculum-based and criterion-referenced strategies, for use in survey-level assessment and formative evaluation, are emphasized. Topics relating to norm-referenced assessment are introduced. Prerequisites: Consent of Department and concurrent enrollment in SPED 4040 and SPED 4340. 3 hours

SPED 4340 Curriculum and Intervention in Special Education This course focuses on application of the Clinical Teaching Model to the education of learners with mild and moderate disabilities. Emphasis is placed on instruction and intervention activities for learners with special needs and children at risk for disabilities. Additional topics include: service delivery systems, roles of teachers and ancillary personnel, legal and ethical requirements, and major issues confronting the field of special education. Prerequisites: Consent of department and concurrent enrollment in SPED 4040 and SPED 4330. 3 hours

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SPED 4740 Intern Teaching in Special Education: Cognitive Impairments This intern teaching experience is open only to special education undergraduate students who have completed all of their Special Education-Cognitive Impairments professional sequence requirements. It will consist of full-time intern teaching in an appropriate educational setting serving students with disabilities. Students will participate in all phases of the school program to which they are assigned.
Prerequisites: Completion of all professional education requirements. Consent of department. Taken concurrently with SPED 4100. 8 hours

SPED 4750 Intern Teaching in Special Education: Emotional Impairments This intern teaching experience is open only to special education undergraduate students who have completed all of their Special Education-Emotional Impairments professional sequence requirements. It will consist of full-time intern teaching in an appropriate educational setting serving students with disabilities. Students will participate in all phases of the school program to which they are assigned.
Prerequisites: Completion of all professional education requirements. Consent of department. Taken concurrently with SPED 4100. 8 hours

SPED 4760 Intern Teaching in Special Education: Learning Disabilities This intern teaching experience is open only to special education undergraduate students who have completed all of their Special Education-Learning Disabilities professional sequence requirements. It will consist of full-time intern teaching in an appropriate educational setting serving students with disabilities. Students will participate in all phases of the school program to which they are assigned.
Prerequisites: Completion of all professional education requirements. Consent of department. Taken concurrently with SPED 4100. 4 to 8 hours

SPED 4800 Introduction to Learning Disabilities This course provides an introduction to the field of learning disabilities. Historical perspectives, definitions, service delivery systems, evaluation procedures, and major issues are examined. Prerequisites: Consent of department and concurrent enrollment in SPED 4810 and SPED 4850. 3 hours

SPED 4810 Classroom Practicum with Learners with Learning Disabilities This course provides students with an opportunity to work 6 hours per week (in two, three-hour blocks) in an elementary, middle school, or secondary classroom with learners with learning disabilities. It is intended to build upon experiences from SPED 3310 and allow students to more fully participate in classroom teaching activities. Prerequisites: Consent of department and concurrent enrollment in SPED 4800 and SPED 4850. Graded on a credit/non-credit basis. 1 hour

SPED 4850 Education of Learners with Learning Disabilities This course examines several theoretical perspectives which attempt to explain why students with learning disabilities fail to learn. Within each perspective, the application of selected theories to the Clinical Teaching Model is addressed. Emphasis is placed on the validity of interventions derived from each theory. Prerequisites: Consent of department and concurrent enrollment in SPED 4800 and SPED 4810. 3 hours

SPED 5000 Topical Issues in Educating Learners with Disabilities This course provides a survey or in-depth coverage of current issues directly related to the education of learners with disabilities. Prerequisite: Consent of department. The course may be repeated for credit. 1 to 4 hours

SPED 5040 Teaching Practicum in Special Education This course provides the student with a structured assignment working with a learner who is at-risk or has a disability. It is intended to enable the students to demonstrate skills in assessment and prescription and in the implementation and evaluation of a tutorial plan of instruction for a specific learner in a mainstreamed or self-contained setting. Prerequisites: Consent of department and concurrent enrollment in SPED 5330 and 5340. Graded on a Credit/No Credit basis. 1 hour

SPED 5120 In-Service Professional Development This course is designed for teachers, counselors, psychologists, social workers and others interested in studying selected aspects of special education at appropriate locations, such as state hospitals or schools. A variety of instructional experiences are provided, including conferences. Credit not applicable toward a graduate degree in Special Education. 1 to 4 hours

SPED 5300 Introduction to Special Education This course introduces students to the characteristics and needs of learners with sensory, physical, cognitive, emotional, and learning disabilities. Students develop an understanding of the psychological, sociological, philosophical, legal, and educational aspects of each type of disability. Prerequisite: Consent of department. 3 hours
SPED 5320 Assessment, Teaching, and Curriculum Adaptations for Infants, Preschoolers, and Children Who Are Visually Impaired
This course is designed to examine how to assess, teach, and modify existing curriculum for infants, preschoolers, and young school-aged children who are blind. This course combines these three elements and prepares teachers for the role of itinerant or classroom teacher as well as for the role of consultant for parents and other teachers. 3 hours

SPED 5330 Assessment and Prescription in Special Education
The major focus of this course is understanding the Clinical Teaching Model. Emphasis is placed on the relevance of assessment and prescription to the teaching of learners with disabilities. Prerequisites: Consent of department and concurrent enrollment in SPED 5040 and 5340. 3 hours

SPED 5340 Curriculum and Instruction in Special Education
This course focuses on application of the Clinical Teaching Model to the education of learners with mild and moderate disabilities. Emphasis is placed on implementation and evaluation activities. Additional topics include: service delivery systems, roles of teachers and ancillary personnel, legal requirements, and major issues confronting the field of special education. Prerequisites: Consent of department and concurrent enrollment in SPED 5040 and 5330. 3 hours

SPED 5370 Technology in Special Education
This course is designed to provide specific information, exposure, and experience related to a variety of ways that current and emerging technologies may be used to improve the education and lives of learners with disabilities. Prerequisite: Consent of department. This course is not open to undergraduate majors in special education. 3 hours

SPED 5400 Introduction to Cognitive Impairments
This course provides an introduction to the field of cognitive impairments. Historical perspectives, definitions, service delivery systems, evaluation procedures, and major issues are examined. Prerequisites: Consent of department and concurrent enrollment in SPED 5450. 3 hours

SPED 5440 Educating Individuals with Severe Impairments
This course develops specific skills in the assessment, prescription, implementation, and evaluation of educational programs for persons with severe impairments. Course content focuses on the areas of mobility, communication, sensorimotor development, self-help skills, cognition, and adaptive behavior. 3 hours

SPED 5450 Education of Learners with Moderate and Severe Cognitive Impairments
This course focuses on understanding the ways in which teachers organize curriculum and implement assessment and instruction to ensure maximum learning for students with moderate and severe cognitive impairments. Prerequisites: Consent of department and concurrent enrollment in SPED 5400. 3 hours

SPED 5700 Introduction to Emotional Impairments
This course provides an introduction to the field of emotional impairments. Historical perspectives, definitions, service delivery systems, evaluation procedures, and major issues are examined. Prerequisites: Consent of department and concurrent enrollment in SPED 5750. 3 hours

SPED 5750 Education of Learners with Emotional Impairments
This course focuses on understanding the ways in which teachers organize curriculum and implement assessment and instruction to ensure maximum learning for students with emotional impairments. Prerequisites: Consent of department and concurrent enrollment in SPED 5700. 3 hours

SPED 5800 Introduction to Learning Disabilities
This course provides an introduction to the field of learning disabilities. Historical perspectives, definitions, service delivery systems, evaluation procedures, and major issues are examined. Prerequisite: Consent of department. 3 hours

SPED 5850 Advanced Theory and Practice with Learning Disabilities
This course examines several theoretical perspectives which attempt to explain why students with learning disabilities fail to learn. Within each perspective, the application of selected theories to the Clinical Teaching Model is addressed. Emphasis is placed on the validity of interventions derived from each theory. Prerequisite: Consent of department and SPED 5800. 3 hours

SPED 5980 Readings in Special Education
This course is designed for advanced students interested in independent study. Topics chosen must be approved by the instructor and the department chairperson. Prerequisite: Consent of department. May be repeated for credit. 1 to 4 hours
Speech Pathology and Audiology

SPPA 2000 Communication Disorders and Sciences  This introductory course provides a broad overview of the acoustical, anatomical, biological, emotional, linguistic, physiological, and psychosocial bases of human communication and the ways in which it may be disordered. The impact of scientific investigation, technology, education, economics, health and rehabilitation on communication disorders will be addressed. Individual and societal variables related to communication and its disorders, the challenges of medical and technological advancements, and the quantitative tools used in assessment and rehabilitation will be stressed.  3 hours

SPPA 2030 Normal Language Acquisition  A study of normal language acquisition as a basis for investigating disordered language. The course involves a survey of the stages of language acquisition and a consideration of mechanisms of language acquisition. Prerequisites: Consent of instructor or LANG 2050 and PSY 1000. Majors must take concurrently with SPPA 2040 and SPPA 2070.  3 hours

SPPA 2040 Phonetics  A study of human speech sounds as a basis for understanding speech production and speech perception. Means of symbolizing speech sounds are provided to prepare the student for accurate transcription of speech behavior. Prerequisites: Consent of instructor or LANG 2050 and BIOS 1120. Majors must take concurrently with SPPA 2030 and SPPA 2070.  3 hours

SPPA 2050 Speech Anatomy and Physiology  A study of respiration and phonation, with emphasis on their function in speech production and speech perception. The course includes a detailed study of the structures involved, including neurology. Corequisite: SPPA 2060.  3 hours

SPPA 2060 Hearing Science  A study of the structure and function of the hearing system, as related to communicative processes. The course includes a consideration of theories of speech perception. Corequisite: SPPA 2050.  3 hours

SPPA 2070 Clinical Laboratory  This course introduces the student to various academic, clinical, and personal aspects of the professions of speech and language pathology and audiology, and it requires participation in structured observation of clinical activities. Corequisite: SPPA 2030.  2 hours

SPPA 2600 Linguistic Development of the Child  This course focuses on the communication development of the child, birth through 12 years. The acquisition of language and other communication modes are viewed from a psycholinguistic orientation. Application to the teaching of the language arts is emphasized.  2 hours

SPPA 3510 Phonemic Disorders  A detailed study of the nature of phonemic disorders; orientation to clinical management. Prerequisite: SPPA 2040.  2 hours

SPPA 3530 Fluency Disorders  A detailed study of the nature of fluency disorders; orientation to clinical management. Prerequisites: SPPA 2040 and SPPA 4030.  2 hours

SPPA 3540 Language Disorders in Children  A detailed study of the nature of communication problems associated with congenital or acquired impairment of language function in children; orientation to clinical management. Prerequisite: SPPA 2030.  3 hours

SPPA 3580 Disorders of Hearing: Identification and Measurement  An introduction to the measurement of hearing and the field of audiology. The course includes an introduction to aural pathologies. Prerequisite: SPPA 2050.  3 hours

SPPA 4000 Practicum in Speech Pathology and Audiology I  Clinical experience in the management of speech, language, and/or hearing disorders. Prior departmental approval required.  2 hours

SPPA 4010 Practicum in Speech Pathology and Audiology II  Clinical experience in the management of speech, language, and/or hearing disorders. Prerequisite: SPPA 4000.  2 hours

SPPA 4030 Speech Science  Building on the student's prior understanding of anatomic, physiologic, and neurologic bases of speech, this course examines normal speech production with reference to the acoustic and perceptual products of interacting respiratory, phonatory, articulatory, and resonance systems. Prerequisites: SPPA 2050 and SPPA 2060.  3 hours
SPPA 4560 Rehabilitative Audiology Principles and clinical management of communication problems associated with auditory impairment. Prerequisite: SPPA 3580. 3 hours

SPPA 4590 Special Studies in Communication Disorders A survey of neuropathologies and structural deviations which result in communication disorders, including infantile cerebral palsy and cleft palate. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. 3 hours

SPPA 5520 Communication Problems of the Aged This course is designed to acquaint the student with receptive and expressive communication problems common to older adults. Emphasis is on the clinical management of characteristic organic speech disorders and impaired auditory functions associated with aging. 3 hours

SPPA 5950 Oral Language Development and Dysfunction This course is designed to provide the student preparing to be a classroom or special teacher with information about the nature of oral language, its development, and conditions associated with dysfunction. Does not apply toward a major in speech pathology and audiology. 2 hours

SPPA 5970 Topics in Speech Pathology and Audiology Selected topics in speech pathology and audiology are systematically explored through lectures, laboratory experiences, and student projects. Possible areas of study are: instrumentation in audiology, manual communication, electrophysiologic audiometry, computer applications to speech pathology and audiology, augmentative communication, and contemporary professional issues. 1 to 4 hours

SPPA 5980 Readings in Speech Pathology and Audiology Arranged on an individual basis to provide students the opportunity to pursue independently the study of special areas of interest in depth. 1 to 4 hours

Statistics

STAT 1600 Statistics and Data Analysis A general introduction to statistics with an emphasis on data analysis and graphical presentation. Extensive use will be made of the computer to prepare results. Topics may include: data collection, sampling and experimentation, measurement issues, descriptive statistics, statistical graphics, normal distribution, cross-classified data, correlation and association, formal statistical inferences, and resampling methods. Prerequisite: MATH 1100 or satisfactory score on Mathematics Department Placement Examination. 3 hours

STAT 2160 Business Statistics An applications-oriented study of statistical concepts and techniques. The course focuses on the student as a user of statistics who needs a minimal understanding of mathematical theory and formula derivation. Major topics of study are statistical description, central tendency, dispersion, distributional shapes, sampling, confidence levels, probability, comparison tests, association tests, regression and time series. The objectives of the course are to develop the skill to apply these concepts in conjunction with computer usage and make appropriate decisions regarding actual business problems. Students can receive credit for only one of STAT 2160, 2600, 3640, or 3660. Prerequisite: MATH 1160. 3 hours

STAT 2600 Elementary Statistics The purpose of this course is to introduce students to the rudiments of statistics. Basic concepts, rather than detailed derivation, are stressed. Topics include probability; discrete random variables; means and variances; binomial, hypergeometric, normal, chi-square, F distributions; interval estimates; and tests of hypotheses. Prerequisites: MATH 2000 or 1220. 4 hours

STAT 2610 Engineering Statistics Introduction to statistical methodology, emphasizing applications in engineering. Topics include descriptive and inferential statistics, least squares curve fitting, correlation, and analysis of variance. Prerequisites: MATH 1220 and a course in the use of computers. Cross-listed with IME 2610. 3 hours

STAT 2620 Probability for Engineers Introduction to probability emphasizing applications in engineering. Use of discrete and continuous random variables common to engineering problems. Random processes used in engineering models. Corequisite: MATH 2610. Cross-listed with IME 2620. 3 hours

STAT 3030 Data Analysis with Excel A course in statistical computation using the Excel software. Topics will include data management and manipulation, numerous types of graphical presentation, descriptive statistics for one and several variables, categorical variables and tables, multiple analyses, macro programming, and simulations. Excel results to be
organized in high quality reports and presented on the web. Prerequisite: MATH 110 or satisfactory score on the mathematics department placement exam. Students cannot receive credit for both STAT 3030 and STAT 5030. 3 hours

STAT 3620 Probability Discrete probability spaces, conditional probability, discrete and continuous random variables, expectations, joint distributions, special distributions. Prerequisite: MATH 1230. 4 hours

STAT 3640 Statistical Methods This course treats both the theory and applications of statistics. Topics include: empirical distributions, discrete probability, random variables and probability distributions, special distributions, the central limit theorem, sampling distributions, point and interval estimation, hypothesis testing, analysis of variance, correlation and regression, the design of experiments. Students can receive credit for only one of STAT 2160, 2600, 3640, or 3660. Prerequisite: MATH 1230. 4 hours

STAT 3660 Introduction to Statistics An introduction to statistics for students in the biological and related sciences with an emphasis on the basic concepts and explanations of why things work. The focus is on quantitative reasoning and statistical thinking for making decisions and conjectures. This numerical art will be illustrated with a wide range of interesting problems. Topics include descriptive statistics like means, medians, standard deviation, percentiles; correlation and regression - interpretation and prediction problems; the normal and binomial distributions; law of averages; sampling variability and standard errors; inferential statistics to -confidence intervals and tests of hypotheses for one- and two-sample problems. Students can receive credit for only one of STAT 2160, 2600, 3640, or 3660. Prerequisite: MATH 1100 or the equivalent or satisfactory score on the departmental placement exam. 4 hours

STAT 3910 Statistical Consulting An undergraduate course on the practice of statistical consulting in industry. This course will consider both the statistical and the nonstatistical aspects of consulting: statistical modeling, statistical judgment, quality improvement technology, the psychology of consulting, the importance of communication and the entrepreneurial role. Students will work in groups to solve problems arising with real data or with class experiments. Prerequisite: At least one of STAT 5630, 5660, 5670, or 5680. 1 hour

STAT 4620 Introduction to Mathematical Statistics Topics to be included are multivariate probability distributions, sampling distributions, asymptotic theory, theory of estimation, and likelihood ratio tests. Prerequisites: MATH 2300 and 2720; STAT 3620 and 3640. 3 hours

STAT 4640 Introduction to Statistical Computing This course provides an introduction to the use of statistical computer software in the MINITAB, SAS, SPSSX, and BMDP packages with particular emphasis on SAS and MINITAB. The statistical graphics capabilities of SASGRAPH and MINITAB will also be included. The following topics may be emphasized: data entry; editing; production of statistical summaries in the form of tables, graphs, charts, and plots for report writing purposes; data management methods for large survey-type data sets. The latter topic may include: subset analysis, updating, and missing data methods. Attention may also be given to the statistical topics of: correlation and regression analysis; one and two sample problems; and analysis of variance. Prerequisite: An introductory statistics course. 3 hours

STAT 4810 Communicating Statistical Results The emphasis of the class will be the reporting of statistical analysis so that all relevant information is conveyed, avoiding the use of jargon and enhancing the text with the use of informative tables or graphics. Examples of statistical reports will be examined and discussed. Students will be assigned projects involving data gathering and analysis. Written and oral reports on the methodology used and the results of the analysis will be required of each student. Student reports will then be discussed and critiqued by the class for content and clarity of writing as well as appropriateness of the methodology used. This course is approved as a writing intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisites: STAT 3620, 3640, 4640, and approval of instructor. 3 hours

STAT 5020 Statistics for Graduate Study Statistics instruction in existing courses at appropriate level for graduate students enrolled in a degree program who need knowledge of Statistics for their field of study. May be repeated for credit. May not be taken by undergraduate students in any field nor by graduate students in Statistics. Prerequisites: Approval of department of student’s graduate program and approval of Department of Statistics. 3 to 4 hours

STAT 5030 Statistical Data Analysis with ExcelA course in statistical computation using Excel software. Topics will include: data management and manipulation, numerous types of graphical presentations, descriptive statistics for one and
several variables, categorical variables and tables, multiple analyses, macro programming, and simulations. Excel results to be organized in high quality reports and presented on the web. Prerequisite: MATH 1100 or satisfactory score on the Mathematics Department placement exam. Students cannot receive credit for both STAT 3030 and STAT 5030. 3 hours

STAT 5600 Applied Probability A first course in probability for upper division and graduate students interested in applications. Topics will include: probability spaces, expectation, moment generating functions, central limit theorem, special discrete and continuous distributions. Applications will include reliability and production problems, and Markov chain methods. Prerequisite: MATH 2720. 3 hours

STAT 5610 Applied Multivariate Statistical Methods An applied treatment of multivariate procedures is presented. Classical procedures such as Hotelling's T-squared methods are discussed for the one and two sample problems and MANOVA for standard designs. Topics that will be accentuated are principal components, discriminant analysis, cluster analysis, and factor analysis. Emphasis will be on graphical methods and applications. Prerequisites: an introductory course in statistics and a course in linear algebra. 3 hours

STAT 5620 Statistical Theory A first course in statistical theory. Topics include: random variables, distributions of statistics, limiting distributions, elementary theory of estimation, and hypothesis testing. Prerequisites: MATH 2300; STAT 3640 and (5600 or 4600). 4 hours

STAT 5630 Sample Survey Methods This course consists of a broad overview of the techniques of survey data collection and analysis and contains a minimum of theory. Topics may include: simple random, stratified, systematic, single-stage cluster, and two-stage cluster sampling; ratio and regression estimation; subpopulation analyses; problems of nonresponse; surveys of sensitive issues; minimization of survey costs; sample size determination. Real surveys are discussed and actual survey data are analyzed. Prerequisite: An introductory statistics course and consent of instructor. 3 hours

STAT 5650 Design of Experiments of Quality Improvement This course covers statistical methods useful for improving the quality of products and systems in an industrial setting. It provides a comprehensive set of tools to use in building better products and in reducing manufacturing and other costs. The focus will be on solving real engineering problems through case studies. Taguchi methods will be discussed along with modifications from standard statistical practice. Topics will include planning and experiment, experimental strategy, Analysis of Variance concepts, factorial designs, orthogonal arrays, loss functions, signal-to-noise ratios, identifying significant factor effects, graphical methods, parameter design and tolerance design. Prerequisite: An introductory course in statistics. 3 hours

STAT 5660 Nonparametric Statistical Methods This course presents a broad overview of statistical methods commonly referred to as nonparametric or distribution-free methods. Topics include: inferences for proportions, contingency tables, goodness of fit problems, estimation and hypothesis testing based on ranking methods, measures of rank correlation, efficiency. Emphasis will be on the application of nonparametric statistical methods to data from many different applied fields. Prerequisite: An introductory statistics course. 3 hours

STAT 5670 Statistical Design and Analysis of Experiments A course in experimental design and the analysis of variance with particular emphasis on industrial experiments. Topics include: complete randomized, randomized complete block; Latin square, and split-plot designs; orthogonal contrasts and polynomials; multiple comparisons; factorial arrangement of treatments; confounding; fractional replication. The course is molded around the complete analysis of good applied problems. Prerequisite: An introductory statistics course. 4 hours

STAT 5680 Regression Analysis An applied course in regression analysis; simple and multiple linear regression; resolution of fit of a model, including residual analysis, precision of estimation, and tests of general hypotheses; model building; step-wise regression; use of indicator variables; non-linear regression. Prerequisite: An introductory statistics course. 3 hours

STAT 5690 Quality Improvement Concepts and Methods This is a course on quality technology for application in business and industry involving concepts and methods from Statistics, Management and Psychology and how they must blend together to obtain results. Topics may include: quality concepts for products and services, Deming philosophy of quality improvement, leadership and management concepts, analytic vs enumerative studies, theory of variability, the seven tools, exploratory data analysis, statistical graphics, Shewhart control charts, cusum charts, process capability, principles of
experimental design, robust product and process design. Prerequisite: An introductory statistics course such as STAT 2600 or 3640. 4 hours

STAT 5990 Independent Study in Statistics Advanced students with good scholastic records may elect to pursue independently the study of some topic having special interest for them. Topics are chosen and arrangements are made to suit the needs of each particular student. May be repeated for credit. Prerequisite: Approval of chairperson of department. 1 to 6 hours

Social Work

SWRK 2100 Social Work Services and Professional Roles This course introduces students to the social work profession: its code of ethics, value base, and commitment to social justice. The course examines the evolution of social work as a profession, acquaints students with contemporary social work roles and fields of practice, and examines the profession's responsibilities in the delivery of social work services to minority and majority groups in the public and private sectors. Prerequisites: Completion of a minimum of 25 credit hours. Corequisite: SWRK 3000. 3 hours

SWRK 3000 Social Welfare as a Social Institution This course analyzes social welfare as a response to social problems and human needs. It examines the social, economic, political, and philosophical forces that have led to the historic development and institutionalization of social welfare. It encourages students to develop a critical perspective on social welfare policies and programs and stresses an understanding of the impact of age, race, gender, sexual orientation, and social class upon social policy and service delivery. Corequisite: SWRK 2100. 3 hours

SWRK 3200 Social Work Practice: Interviewing and Documentation This course seeks to provide students with professional interviewing skills, and enhanced understanding of verbal and non-verbal communication, listening skills, and an awareness and understanding of diverse issues related to the interviewing process. Students will develop beginning proficiency as generalist social work practitioners when interviewing clients and other professionals who may work in an interdisciplinary setting. Various approaches to practice will be introduced including observation and rapport development within the context of strengths-based social work practice. Students will begin to develop knowledge and proficiency in how to translate interview information into a written format. Professional documentation and recording skills will also be developed. Students are expected to demonstrate increased insight into their own behaviors, values, beliefs, and attitudes as they relate to professional social work practice. Prerequisites: SWRK 2100 and COM 1040. Corequisite: SWRK 3330. 3 hours

SWRK 3330 Introduction to Culture, Ethnicity, and Institutionalized Inequality in Social Work Practice This course focuses upon ethnic/racial groups who are among social welfare consumers and social work clientele. Individual and institutional racism are examined. Racial/cultural characteristics and group strengths, needs, priorities, and experiences in the context of social welfare and social work are also explored. The course reviews implications of ethnic factors for social work practice, social policy, and social work education. Prerequisite: SOC 2000. Corequisite: SWRK 3200. 3 hours

SWRK 3500 Human Behavior and the Social Environment Human growth and behavior are studied across the life span and as social/cultural phenomena that are conditioned by economic, historical, political, geographic, and racial/ethnic diversity. Thus, human development and behavior are inseparable from the social context which affect and are affected by them and which condition their meanings. This course also examines the complex interplay between social, cultural, biological, and psychological systems and pays close attention to diversity in the human experience and to the factors and settings that create diversity. Prerequisites: SWRK 2100, OT 2000, PSY 1000, SOC 2000, and completion of 55 credit hours. Corequisite: SOC 2830. 3 hours

SWRK 3510 Social Work Concepts in Group, Community and Organizational Behavior This course provides the student with an understanding of human behavior related to small group process, formal organizations, and community dynamics. Students are introduced to selected systems concepts. The interplay of various forces which affect the development of social groups, communities, and organizations, and the effects of these interdependent systems on the client system are examined. The impact of race, sex, and age is considered in relation to groups, organizations, and communities. Prerequisites: SWRK 3500 and department admission to the Social Work undergraduate program. Corequisite: SWRK 3650. 3 hours

SWRK 3650 Social Work Research Methods This course is designed to increase students' knowledge of research as a tool for social work practice. Students will acquire the basic skill and knowledge to utilize existing social research for
practice-related decision-making as well as the capacity to carry out systematic methods of inquiry in their practice setting. The implementation of these research skills will enhance service delivery and contribute to the knowledge base of the profession. The course also emphasizes program evaluation in human service organizations and offers the opportunity to integrate the content learned through experiential practice examples and applications in social work. Prerequisites: Admission to the Social Work undergraduate program and ENGL 1050. Corequisites: SWRK 3510 and 4000. 3 hours

SWRK 4000 Social Work Practice: Engagement, Assessment, and Planning This is the first of three practice courses. Students are prepared for the beginning phase of the helping process and develop interviewing, listening, relationship building, and assessment skills. The problem solving model is presented with an emphasis on systems theory and the ecological perspective. Students learn about generalist social work practice and problems in working with individuals, families, and groups, including how to obtain, organize, and assess information. Students proceed to determine priorities for contracting and goal setting in preparation for the intervention phase. Students study the practice implications of gender, race, and other aspects of diversity. Prerequisites: ENGL 1050, SWRK 3500. Corequisites: SWRK 3510 and 3650. 3 hours

SWRK 4010 Social Work Practice: Intervention and Evaluation This is the second of three practice courses. Students learn practice theories and intervention strategies for use with individuals, families, and groups, and focus on problems related to violence, substance abuse, and crisis. Emphasizing the generalist intervention model, students learn social work roles, including advocate, facilitator, case manager, and broker. Methods of practice evaluation are presented, including single-subject design. Students study the practice implications of gender, race, and other aspects of diversity. Prerequisites: SWRK 4000 and completion of a minimum of 87 credit hours. Corequisite: SWRK 4100. 3 hours

SWRK 4020 Social Work Practice: Policy Analysis and Organizational Context This course combines conceptual analysis and training in practice skills. It focuses on the effects of social policy and organizational context on social work practice. It examines the basic process of policy development and the relationship between policy, ideology, and values. It pays particular attention to the impact of social policy on human service organizations, analyzing the effects of specific policies on workers, clients, and organizational structure and goals. It helps students develop skills for effective functioning in the organizational environment including organizational change and utilization of organizational resources for effective service delivery. Prerequisites: SWRK 4010, ECON 2010, and PSCI 2000. Corequisite: SWRK 4110. 3 hours

SWRK 4100 Field Experience and Seminar I This is the first of two field practice courses that entails two hundred (200) hours in a human service agency, a three-day communication lab, and 12 hours in an on-campus seminar. Students apply knowledge and develop skills in conducting interviews, problem identification, data collection, problem assessment, and goal formulation with client systems in the context of social work values. Students integrate self-awareness and appreciation of diversity into professional practice. Students develop a working knowledge of the agency's functions, structure, processes, and its service provider role within the community. Prerequisite: Completion of a minimum of 87 credit hours. Corequisite: SWRK 4010. Graded on a Credit/No Credit basis. 4 hours

SWRK 4110 Field Experience and Seminar II This is the second of two practicum courses that entails two hundred (200) hours in a human service agency and 14 hours in an on-campus seminar. Students further integrate and apply social work knowledge, skills, and values in their field practicums, including the problem-solving process, interviewing, use of self, and understanding of diversity. Prerequisites: SWRK 4010 and 4100. Corequisite: SWRK 4020. Graded on a Credit/No Credit basis. 4 hours

SWRK 4130 Social Policy and Service Delivery in Selected Problem Areas Intensive study in selected field of service specialization and social problem areas. Attention is focused on learning about the major social policy issues associated with the service or problem area. Specific topics will be announced each semester. 3 hours

SWRK 4200 Ethical Issues in Substance Abuse Services Human service professionals have a responsibility to engage in ethical behavior. They are involved in situations which are increasingly more complex with fluctuating and competing values. The purpose of this course is to help students become more effective in dealing as professional persons with ethical questions in social policy and practice situations. The course focuses on ethical issues and laws impacting employee assistance programs. It is structured to facilitate development of a greater awareness of one's personal values and the values and ethics of the profession. It is presented from a social work perspective. Ethical dilemmas are presented at different levels–client, colleague agency, community, and society. Students are introduced to moral and philosophical analysis of ethical problems and a model for ethical decision-making. 3 hours
SWRK 4500 Individual Studies in Social Work  This course will be arranged on an individual basis to provide students the opportunity to pursue independently the study of special areas of interest. May be repeated for credit. 1 to 4 hours

SWRK 4600 Social Work with Communities  This course involves an examination of major theoretical and conceptual tenets of community practice from a social work perspective. It also involves a practical integration of theoretical and conceptual knowledge of community practice through assignments which will focus on communities that are available through field placements or other arrangements. Students will examine the contributions communities make to the functioning of individuals, families, groups, and organizations, as well as how individuals, families, groups, and organizations contribute to the functioning of communities. Students will integrate into an understanding of community practice social work's historical and contemporary emphasis on “empowerment” and the person-environment interface (i.e., interaction among biological, cultural, social, psychological, political, and economic aspects of human development and functioning). 3 hours

SWRK 4610 Social Workers and Social Movements  This course aims at helping social workers understand how social movements operate and how they can effectively and uniquely contribute to the just goals of social movements. The course addresses the rich heritage of social movements' accomplishments in American history; the theories exploring how social movements begin, endure, and effectively influence society; and how social movements have impacted critical issues in our nation's history. Students will learn elements of strategy to mobilize successful nonviolent social movements. The unique and specific contributions social workers make to social movements are explored. 3 hours

SWRK 4620 Community Organization in Urban Areas  Social welfare planning and social action methods are studied as approaches for preventing and resolving aspects of social problems. Emphasis is placed on the organizing of neighborhood and consumer groups in order to increase social interaction and improve social conditions. 3 hours

SWRK 4640 Problem Solving in Gerontology  This course provides the student with information about social welfare programs, both institutional and non-institutional, which are available to our aged population. The student is introduced to different approaches to service delivery and interventive problem solving techniques utilized by professional social workers in working with minority and majority aged population. Open to social work students and students from related professional disciplines with consent of instructor. 3 hours

SWRK 4650 Special Studies in Social Welfare Practice  Study of selected topics related to the theory and practice of social welfare activities and endeavors. Focus will be on roles of human service workers and methodologies utilized in these roles in a range of social welfare areas. Specific topics will be announced. Prerequisite: Consent of instructor. 3 hours

SWRK 5970 Teaching Apprenticeship in Selected Social Work Curriculum Areas  The course focuses on the development of educational skills for social workers through faculty-directed participation in teaching activities in a selected social work course. Specific learning objectives and expectations for apprentices are arranged with participating faculty. This course may be taken a second time (1-4 credits, or a maximum of 8 total toward degree) by a student who wishes to increase teaching skills through applied practice in another social work area. 1 to 4 hours

SWRK 5980 Readings in Social Work  Offers advanced students with good scholastic records an independent program of study, arranged in consultation with the instructor. One to four hours credit per semester. 1 to 4 hours

Theatre

THEA 1000 Introduction to Theatre  Considers theatre as a part of the individual's cultural heritage and liberal arts background. Students attend theatre performances and have opportunities to participate in University Theatre. (Lab fee required for play attendance.) 3 hours

THEA 1050 Introduction to African-American Theatre  A survey/lecture course from a African-American perspective examining the activities and developments of African-American life as evidenced through its theatre, with emphasis on history, philosophy, dramatic creations, criticism, and concerns. Includes lectures on traditional theatre of Western Civilization and African contributions. 3 hours

THEA 1140 Digital Media in the Arts  This course will introduce students in Theatre to the audio, graphics, video, and other digital tools used by professionals in the arts. All instruction will be delivered on-line, and students must have a WMU
email account before the first class of the semester. Course assignments will be comprised primarily of projects created in the various open computer labs within the College of Fine Arts. The course will be graded on a Credit/No Credit basis. This course will fulfill the College of Fine Arts' computer literacy graduation requirement. Prerequisite: Open only to majors within the Department of Theatre. 3 hours

THEA 1200 Stagecraft I A beginning course in technical production including familiarization with theatrical equipment and materials; the planning and construction of basic stage scenery, costumes, and properties; the fundamentals of stage lighting; and laboratory work on University Theatre Productions. (Lab fee required for materials.) 3 hours

THEA 1310 Drafting and Color Media A methods course for beginning students in lighting, costume, scenic design, and technical production providing instruction and practice in the special techniques of drafting for the theatre and in the use of various color media for design renderings and scale models. 3 hours

THEA 1320 Period Styles of Design A survey of historical periods and design styles as they are applied to the theatre. The study will include an examination of architecture, costumes, furniture, interiors, lighting, ornament and stage scenery. 3 hours

THEA 1410 Introduction to Acting An initial approach to the study of dramatic action using scripted and unscripted material, basic acting exercises and improvisational techniques. Emphasis is placed upon use of the imagination, creating ensemble and creative risk-taking while cultivating self-awareness and the ability to critique objectively and nonjudgmentally. 3 hours

THEA 1420 Acting I: Action and Personalization Study and practice of scene-work from a basic Stanislavski point of view. Prerequisite: THEA 1410. 3 hours

THEA 1480 Direct Encounter with the Arts A course that uses a direct approach to introduce students to their cultural world by guiding them through first-hand experiences in a number of areas: cinema, photography, theatre, sculpture, music, poetry, dance and architecture. Classroom discussions are held following the student's participation in the various art events scheduled each semester, with students expected to write journals and response papers about the major events of the course. There will be a course charge in lieu of textbooks. Cross-listed with DANC 1480, MUS 1480, ART 1480. May be taken only once from College of Fine Arts Departments. (Lab fee required) 4 hours

THEA 1700 Script Analysis The study of selected plays from the standpoint of the theatre artist. Emphasis on thorough examination of the play script preparatory to production. 3 hours

THEA 1900 Summer Theatre Theatre majors may receive credit for participating in a full season of summer theatre in the performance or production areas. Students must submit a summer theatre application to the Department Chair. Repeatable for credit up to six hours. Prerequisite: Application approved by Department Chair. 3 hours

THEA 2200 Stagecraft II A course in technical production including the planning and construction of complex stage scenery, costumes and properties; scenery painting; lighting technology; and laboratory work on University Theatre productions. Lab fee required. Prerequisites: THEA 1200 and permission of instructor. 3 hours

THEA 2300 Stage Makeup Study and practice of the basic principles and techniques of stage makeup. 3 hours

THEA 2320 Scenic Design A course in scenography covering the design of stage settings and properties expressed through color renderings and/or the scenic models, and including further development of skills in drafting for the theatre. Prerequisites: THEA 1200 and 1700. 3 hours

THEA 2410 Voice and Movement I Development and training of the actor's vocal and physical instrument for theatrical performance. Prerequisites: THEA 1410, THEA 1420. Corequisite: THEA 2450. 3 hours

THEA 2420 Voice and Movement II Continued development of the actor's vocal and physical instrument for theatrical performance. Prerequisites: THEA 2410, THEA 2450. Corequisite: THEA 2460. 3 hours
THEA 2450 Acting II: Character and Action Integration of theories and practices of Introduction to Acting and Acting I with an emphasis upon character development in the process of scene study. Prerequisites: THEA 1410, THEA 1420, and concurrent enrollment in THEA 2410. 3 hours

THEA 2460 Acting III: Character, Action, Language Integration of character development and scene study with an emphasis upon classical texts or other intensive language-oriented texts. Prerequisites: THEA 2410, THEA 2450, and concurrent enrollment in THEA 2420. 3 hours

THEA 2600 Arts Management A survey of procedures for Arts Management, including ticket office accounting, promotion, marketing, funding and audience development. Prerequisite: Consent of instructor. 3 hours

THEA 2720 Musical Theatre History and Script Analysis I An historical overview of the development of musical theatre from its earliest beginnings to 1943. Respective scripts will be analyzed within their historical context. 3 hours

THEA 2900 Theatre Practicum Supervised experience in various areas of theatre in the University Theatre program. May be repeated for credit up to a maximum of eight semester hours (only six of which can apply toward major and three toward minor). (Lab fee required.) 1 to 8 hours

THEA 3310 Costume Design A course in the design of theatrical costumes and accessories expressed through color rendering and including an overview of the history of the costume. Prerequisites: THEA 1200 and 1700. 3 hours

THEA 3320 Lighting and Sound Design A course in the design of theatrical lighting and sound and in the practical application of those designs to the stage, including laboratory work on University Theatre productions. Prerequisites: THEA 1200 and 1700. 3 hours

THEA 3440 Acting IV: Period Styles of Acting Study and practice of acting in plays from selected major periods of theatre activity prior to the twentieth century. Topics may include Greek, commedia dell' arte, Shakespeare, Moliere, Restoration, and examples from eighteenth and nineteenth century drama. Repeatable. Prerequisites: THEA 2420 and THEA 2460. 3 hours

THEA 3450 Acting V: Contemporary Drama Study and practice of acting in plays from current and twentieth century drama. Prerequisites: THEA 2420 and THEA 2460. 3 hours

THEA 3470 Voice and Movement Lab An advanced course in voice and movement with an emphasis on the individual needs of the student actor. This course provides the students with an opportunity to investigate special topics in voice and movement training and to receive individual and small group tutorials. Prerequisites: THEA 2410 and THEA 2420. 3 hours

THEA 3510 Directing I Functions of the play director as teacher, interpreter, coordinator, and collaborator. Focus is upon principles and problems of directing on the prosenium stage. Prerequisites: THEA 1410, THEA 1420, THEA 1700, and junior standing. 3 hours

THEA 3520 Directing II A continuation of THEA 3510. Focus is upon the principles and problems of directing for the non-proscenium stage and expansion of directorial approaches to production. Students prepare and direct scenes and one short play using non-proscenium staging. Prerequisite: THEA 3510. 3 hours

THEA 3700 Theatre History I Survey of theatre history from the beginnings to 1642. Playwrights, acting styles, theatre production, theatre architecture, and audience taste are studied. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. 3 hours

THEA 3710 Theatre History II Survey of theatre history from 1642 to the twentieth century. Playwrights, acting styles, theatre production, theatre architecture and audience taste are studied. Prerequisite: THEA 3700. 3 hours

THEA 3720 Musical Theatre History and Script Analysis II A historical overview of the development of musical theatre from 1943 to the present. Representative scripts will be analyzed within their historical context. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisite: THEA 2702. 3 hours

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THEA 3900 Professional Theatre Internship Advanced theatre majors may receive credit for participating in the Professional Theatre Internship Program with professional theatres. Students must submit an internship application to the department's Internship Coordinator. The Internship Coordinator will determine the number of credit hours to be awarded. This course may be repeated for a maximum of six credit hours. Prerequisite: Consent of the Internship Coordinator. 2 to 6 hours

THEA 4000 Special Topics in Theatre An investigation of topics of special interest related to theatre. Repeatable for credit under a different title. Examples of topics for study may include: dialects, mime, puppetry, script writing, advanced directing, theatre administration, touring theatre, advanced improvisation, stage management, and technical direction. 1 to 3 hours

THEA 4310 Advanced Design A course for advanced students in the design of scenery, costumes, properties, and/or lighting; the professional drafting of those designs for technical production; and the preparation of the designer's resume and portfolio. Prerequisites: THEA 1310, 1320, and one of the following: THEA 2320 or 3310 or 3320. 3 hours

THEA 4320 Computer-Aided Theatre Design An introduction to the application of computer hardware and software to design for the theatre, including instruction and practice in CAD, color imaging, and 3-D modeling. Lab fee required for printing materials. Prerequisites: THEA 1310, 1320, and one of the following: THEA 2320 or 3310 or 3320. 3 hours

THEA 4410 Acting Studio Study and practice of auditioning and cold readings with an emphasis upon preparation for graduate schools, internships, and the professional world of the actor. Prerequisites: Either THEA 2420 and 2460. 3 hours

THEA 4430 Acting for the Camera The study and practice of principles of acting as applied to film and television. Prerequisite: Either THEA 2420 or THEA 2460. 3 hours

THEA 4700 Development of Theater Art A survey of the development of twentieth century theatre art and its relationship to concurrent developments in other arts and world politics. Prerequisite: THEA 3710. 3 hours

THEA 4900 Individualized Study in Theatre Designed to enable upper division theatre majors, or students in special programs, to initiate, plan and execute projects in particular aspects of theatre. Must be planned in collaboration with a member of the theatre faculty who will act as supervising teacher. Not designed to replace other theatre courses. A maximum of six semester hours may be accumulated, though the student may register for a maximum of three credits each time. Projects may involve study and research in an area of special interest, special performances or other creative activities. Prerequisite: Consent of performance or tech/design area, departmental advisor, and departmental chair. Variable

THEA 5600 Audience Development This course will focus on the goals, functions, and means of audience development, with special attention to audience education in the arts. Topics will include the use of quantitative and qualitative analytical techniques to determine bases for creating programs to reach targeted, potential audiences based on demographics; developing master classes, residencies, special presentation, instructional material and post-performance experiences for targeted groups; and methods of evaluating the results of specific programs developed for a specific purpose. Prerequisite: Admission to the M.F.A. in Performing Arts Administration program or permission of program director. 2 hours

THEA 5610 Facility and Ticket Office Operations This course will address issues in facility management for presenting and producing performances and special events (e.g., handling food service for premiers and openings of shows, fundraisers, rentals, etc.) with consideration for the size of the performance space including an overview of the physical operations of such a facility, and the use of auxiliary spaces (e.g., Miller Auditorium, Gilmore Theatre Complex, Dalton Center Recital Hall, Multi-Media Room, Dance Studio B, etc.). The course will also include basics of setting up and running a ticket office for both manual and computerized systems, as well as special sales, audit requirements and artist payments based on percentages. Personnel requirements will be included in relation to the variable above. Prerequisite: Admission to the M.F.A. in Performing Arts Administration program or permission of program director. 2 hours

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## University Curriculum

UNIV 1010  Freshman Seminar  This course is designed to assist students to encounter experientially, intellectually, and emotionally the various avenues of learning, and to foster the academic, personal, social, and career development of each student. The activities and assignments of the course aid students in the development of an intellectual awareness and provide the skills and self-management required for a successful transition from high school to the University. The course is intended to excite students about learning and living in the new and challenging world of Western Michigan University. For freshmen only.  1 to 3 hours

UNIV 1020  Career Exploration and Development  This course is designed to help the undecided student assess and develop skills in self-awareness, career awareness, decision-making, and planning. It will include activities to identify and explore the following areas: values, interests, career information, decision-making, and University resources. Assignments will involve written exercises and research in the Career Media Center.  1 hour

## Women's Studies

WMS 1000  Media and the Sexes  The course investigates how films, television, music videos and advertising present images of women and men to different audiences.  3 hours

WMS 2000  Introduction to Women's Studies  This interdisciplinary core course in Women's Studies provides analytical frameworks for the study of gender and gender-defining institutions, focusing on women in American society. Course emphasizes approaches that study the diversity and similarity of women's experience across class, racial and ethnic groups.  4 hours

WMS 3000  Working Women, Past and Present  Analysis of the social significance of women's work in the United States. Emphasis is on the history of women's participation in the paid labor force, with consideration of women's changing role in the family and society.  3 hours

WMS 3200  Women, Multiculturalism, and Social Change  This course focuses on the interrelationship of women, multiculturalism, and social change. The course pursues an interdisciplinary analysis of multicultural gender roles and change in social institutions, such as law, medicine, education, media, business, and politics. Study will consider gender, ethnicity, class, and cultural experience in the context of national and global forces. Prerequisite: WMS 2000.  3 hours

WMS 3300  Gender Issues in Education  Various gender issues in education are studied from both an historical and a contemporary perspective. The course will analyze current research on self-esteem and gender inequities in education and seek solutions. Attention will be given to theoretical and pedagogical concerns and to development issues affecting students.  3 hours

WMS 3500  Male/Female Psychological Perspectives  The course investigates the similarities and differences in male and female psychological perspectives in diverse segments of American society. The course provides a theoretical and practical analysis of the psychological behavior of individuals and social groups, and works toward descriptions adequate to the complexity of human beings and their institutions. Prerequisite: Junior or senior status.  3 hours

WMS 4010  Foundations of Feminist Theory  An investigation of various texts historically significant in the development of feminist concepts and theories. Includes texts from the past as well as the present. Fulfills baccalaureate-level writing requirement. Prerequisite: WMS 2000.  3 hours

WMS 4100  Special Topics in Women's Studies  Variable topics in Women's Studies. May be repeated for credit when topic varies.  3 hours

WMS 4400  Internship Seminar  Course offers an opportunity for the advanced student to apply theory and knowledge in Women's Studies to a professional or community project. Student will work under the supervision of a faculty advisor or a community sponsor. Opportunities available in areas such as television production, K-12 classroom presentations, and a variety of community organizations and agencies serving women and children. Prerequisites: 12 hours of course work from the WMS approved list (including WMS 2000) and at least junior status, or departmental approval.  3 hours

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WMS 4980 Independent Study  Individual study available to the advanced student by permission of faculty advisor with department approval of project application.  Prerequisites:  12 hours of course work from the WMS approved list (including WMS 200) and at least junior status, or departmental approval.  1 to 4 hours

WMS 5000 Seminar in Women's Studies  A seminar offering variable topics that focus on special problems or issues in Women's Studies.  Emphasis will be placed on developing skills in research approaches and on writing a research paper integrating the student's disciplinary training with investigation of an interdisciplinary problem in Women's Studies.  May be repeated for credit when topics vary.  The prerequisites for admission of undergraduates to 5000-level Women's Studies classes are twelve hours of course work from the Women's Studies approved list (including WMS 2000) and at least junior level status, or departmental approval.  3 hours

WMS 5500 Contemporary Feminist Theory  An advanced course focusing on the analysis of American and European texts in feminist theory.  The course will also consider the relation of these texts to other contemporary theoretical approaches.  Prerequisite:  WMS 4010.  The prerequisites for admission of undergraduates to 5000-level Women's Studies classes are twelve hours of course work from the Women's Studies approved list (including WMS 2000) and at least junior level status, or departmental approval.  3 hours

WMS 5970 Issues in Women's Studies: Variable Topics  Group study of special issues in Women's Studies.  Variable topics may address theoretical, critical, or practical issues in the historical or contemporary context.  The courses will be offered in response to the special needs and interests of students and may be organized around special events or available guest speakers.  May be repeated for credit when topics vary.  Course open to graduate students.  The prerequisites for admission of undergraduates to 5000-level Women's Studies classes are twelve hours of course work from the Women's Studies approved list (including WMS 2000) and at least junior level status, or departmental approval.  1 to 3 hours

WMS 5980 Readings in Women's Studies  Individual study project available to the advanced student by permission of faculty advisor with departmental approval of project application.  The prerequisites for admission of undergraduates to 5000-level Women's Studies classes are twelve hours of course work from the Women's Studies approved list (including WMS 2000) and at least junior level status, or departmental approval.  1 to 4 hours
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Dr. Larry tenHarmsel, Lee Honors College

Dr. Joseph Reish, University Libraries

Dr. Darrell Johnson, Extended University Programs
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Aardema, Robert, 1984, Associate Professor of Aviation Sciences  
B.A., Hope; M.S., Western Michigan

Abdel-Qader, Ikhlas, 1996, Associate Professor of Electrical and Computer Engineering 
B.S., Kuwait; M.S., San Jose State; Ph.D., North Carolina State

AbuBakr, Said, 2001, Professor and Chair, Department of Paper Engineering, Chemical Engineering, and Imaging  
B.S., Petroleum and Petrochemical Institute of Moscow; M.S., Ph.D., Michigan State

Abudayyeh, Osama, 1996, Associate Dean, College of Engineering and Applied Sciences, and Professor and Interim Chair, Civil and Construction Engineering  
B.Sc., Kuwait; M.Sc., M.Eng., California (Berkeley); Ph.D., North Carolina State

Adams, Jon, 2003, Assistant Professor of English  
M.A., Montana; Ph.D., California (Riverside)

Adams, Richard, 1997, Associate Professor of Music  
B.M., Louisiana State; M.M., Yale; D.M.A., Michigan

Addison, Heather, 2002, Assistant Professor of

Bougnol-Potter, Marie-Laure, 2003, Assistant Professor of Management  
B.B.A., M.B.A., Ph.D., Mississippi

Bradburn, Beth, 2004, Assistant Professor of English  
M.A., Ph.D., Boston College

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