REQUEST TO COLLEGE CURRICULUM COMMITTEE FOR CURRICULAR IMPROVEMENTS

DEPARTMENT: Geological and Environmental Sciences  PROPOSED EFFECTIVE SEMESTER: Fall 2019 RCD 4/27/18 @8
COLLEGE: College of Arts and Sciences

PROPOSED IMPROVEMENTS

Academic Program
X☐ New degree*  ☐ New major*  ☐ New curriculum*
☐ New concentration*  ☐ New certificate
☐ New minor  ☐ Revised major  ☐ Revised minor
☐ Admission requirements  ☐ Graduation requirements
☐ Deletion ☐ Transfer
☐ Other (explain**)

Substantive Course Changes
☐ New course  ☐ Pre or Co-requisites
☐ Deletion (required by others)  ☐ Course #, different level
☐ Credit hours  ☐ Enrollment restriction
☐ Course-level restriction  ☐ Prefix ☐ Title and description
(attach current & proposed)
☐ General education (select one)
☐ Other (explain**)

Misc. Course Changes
☐ Title  ☐ Description (attach current & proposed)
☐ Deletion (not required by others)  ☐ Course #, same level
☐ Variable credit  ☐ Credit/no credit
☐ Cross-listing  ☐ COGE reapproval
☐ Other (explain**)

** Other:

Title of degree, curriculum, major, minor, concentration, or certificate: Master of Science in Earth Science (Non-Thesis, Accelerated)

Existing course prefix and #:  Proposed course prefix and #:  Credit hours:

Existing course title:

Proposed course title:

Existing course prerequisite & co-requisite(s):

Proposed course prerequisite(s):
If there are multiple prerequisites, connect with "and" or "or". To remove prerequisites, enter "none."

Proposed course co-requisite(s):
If there are multiple corequisites, they are always joined by "and or"

Proposed course prerequisite(s) that can also be taken concurrently:

Is there a minimum grade for the prerequisites or corequisites?
The default grades are D for undergraduates and C for graduates.

Major/minor or classification restrictions:
List the Banner 4 character codes and whether they should be included or excluded.

For 5000 level prerequisites & corequisites: Do these apply to: (circle one) undergraduates graduates both

Specifications for University Schedule of Classes:

a. Course title (maximum of 30 spaces):
b. Multi-topic course: ☐ No ☐ Yes
c. Repeatable for credit: ☐ No ☐ Yes
d. Mandatory credit/no credit: ☐ No ☐ Yes
e. Type of class and contact hours per week (check type and indicate hours as appropriate)
   1. ☐ Lecture
   2. ☐ Lab or discussion

   3. ☐ Lecture/lab/discussion
   4. ☐ Seminar or ☐ studio

   5. ☐ Independent study
   6. ☐ Supervision or practicum

CIP Code (Registrar’s use only):

Chair/Director

Date: 4/27/18

Chair, College Curriculum Committee

Dean

Date: Graduate Dean:

Date:

Curriculum Manager: Return to dean ☐ Date

Forward to:  Date

Date:

Chair, COGE/ PEB / FS President

FOR PROPOSALS REQUIRING GSC/USC REVIEW:

☐ Approve ☐ Disapprove  Chair, GSC/USC

Date

Revised May 2007. All previous forms are obsolete and should not be used.

CAS17-299GEOS REVISED
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*Addendum:*
1. Explain briefly and clearly the proposed improvement.

The department wishes to replace the current Master of Arts in Earth Science AGDP with a Master of Science in Earth Science (Non-thesis, AGDP) program. The program would be very similar to the current program and would consist of 35 credits of graduate coursework. Eighteen of the credits would be at the 6000 level and twenty-four credits would need to be from Geosciences. The program would be a non-thesis program. Replacing the MA in Earth Sciences (AGDP) with a MS in Earth Sciences (Non-thesis, AGDP) program is a popular idea with our current population of MA students and we feel that will increase enrollment in our department from both international students and domestic non-traditional students.

2. Rationale. Give your reason(s) for the proposed improvement. (If your proposal includes prerequisites, justify those, too.)

We have feedback from students who have graduated with our MA in Earth Sciences degree – especially with the international students it was difficult for them to find jobs post-graduation. International students also had difficulty justifying a MA program with the sponsorship/scholarship programs from their home countries. Since the students are primarily taking science coursework in these programs (Geosciences and related departments – Chemistry, Geography, Biological Sciences, Engineering etc.), then it would be more appropriate to have a MS in Earth Science (Non-thesis, AGDP) track instead of a MA in Earth Science (AGDP).

One new modification in the MS Earth Science (Non-thesis, Accelerated) program is the increase in the number of Geosciences credits required for the program – a change from 18 credits to 24 credits. This will increase enrollment of students in department course offerings, while still providing some flexibility for the MS Earth Science (Non-thesis, AGDP) students to tailor their program to their interests, allowing them to take up to 11 credits from non-geoscience coursework.

3. Effect on other colleges, departments or programs. If consultation with others is required, attach evidence of consultation and support. If objections have been raised, document the resolution. Demonstrate that the program you propose is not a duplication of an existing one.

This new program should not impact any other college or department. The students currently in the MA in Earth Science (AGDP) program would be transferred into the MS in Earth Science (Non-thesis, AGDP) program once it is approved. As the Earth Science MA AGDP is a fairly new program, this deletion and substitution would impact 1-2 students currently enrolled.

4. Effect on your department's programs. Show how the proposed change fits with other departmental offerings.

This new program should increase enrollment from both non-traditional students and international students in the department. It will likely cause an increase in enrollment in Geoscience coursework – which can be accommodated in existing coursework.

5. Effects on enrolled students: Are program conflicts avoided? Will your proposal make it easier or harder for students to meet graduation requirements? Can students complete the program in a reasonable time? Show that you have considered scheduling needs and demands on students' time. If a required course will be offered during summer only, provide a rationale.

The students currently in the MA in Earth Science (AGDP) program would be transferred into the MS in Earth Science (Non-thesis, AGDP) program once it is approved. The undergraduate student would take the majority of their 5000 level credits during their senior year. Coursework at the 6000 level would take approximately 1-1.5 years after finishing their BS in Geosciences. The department's coursework includes 4-5 5000 level courses and 2-3 6000 level classes fall and spring semesters – with a mix of face-to-face and online classes. The number and diversity of courses offered should provide sufficient options for a traditional student to enroll in the 2-3 courses a semester required to fulfill the coursework in a timely manner.

6. Student or external market demand. What is your anticipated student audience? What evidence of student or market demand or need exists? What is the estimated enrollment? What other factors make your proposal beneficial to students?

Currently, the MA in Earth Science (AGDP) has 1 student enrolled, so it would not be difficult to switch existing enrollment into the new MS in Earth Science (Non-thesis, AGDP) program. From exit interviews, feedback and discussions with current students, we feel that putting a MS Earth Science (non-thesis, AGDP) program in place
would be beneficial for the long-term career prospects of our students. We have had feedback from international students that a MA is looked down upon by companies in their home countries and several current students had difficulty justifying their program with their sponsors/scholarship programs. The accelerated track would be beneficial to our current population of undergraduate students and may increase enrollment – as one student could earn both a BS and a MS (Non-thesis, AGDP) degree in approximately 5 to 5.5 years – more traditional students require 6 to 6.5 years to complete the B.S.-M.S. (thesis) track.

7. Effects on resources. Explain how your proposal would affect department and University resources, including faculty, equipment, space, technology, and library holdings. If proposing a new program, include a letter and/or email of support from the university library affirming that the library resource issues have been reviewed. Tell how you will staff additions to the program. If more advising will be needed, how will you provide for it? How often will course(s) be offered? What will be the initial one-time costs and the ongoing base-funding costs for the proposed program? (Attach additional pages, as necessary.)

The MS Earth Science (Non-thesis, Accelerated) program requires just coursework for completion of the degree. In terms of resources, the department would be able to accommodate these students in existing course offerings. No changes to library or university resources are expected.

8. General education criteria. For a general education course, indicate how this course will meet the criteria for the area or proficiency. (See the General Education Policy for descriptions of each area and proficiency and the criteria. Attach additional pages as necessary. Attach a syllabus if (a) proposing a new course, (b) requesting certification for baccalaureate-level writing, or (c) requesting reapproval of an existing course.)

NA

9. List the learning outcomes for the proposed course or the revised or proposed major, minor, or concentration. These are the outcomes that the department will use for future assessments of the course or program.

The student will design a program of study in consultation with the graduate advisor that meets the individual's goals. The program is intentionally flexible, so that the student will be able to develop an interdisciplinary degree if desired with coursework in relevant other departments (Biology, Chemistry, Geography, Economics, Political Science, etc.). The student will be assessed through meeting the requirements of the program to earn the degree – namely, completion of 35 credits (18 at the 6000 level, 24 in GEOS) with a B average.

Objective 1: Students will have a basic working understanding of the nature and philosophy of science, scientific reasoning, and the role of science in developing an empirical understanding of the Earth.

Objective 2: Students will be able to effectively communicate through written reports and/or oral presentations

Objective 3: Students will have an understanding of the nature and origin of the various types of geological materials, and how geologists use these materials as sources of data

Objective 4: Students will have an understanding of the importance of geosciences in society, and appreciate the interrelatedness of humans and the various Earth systems (i.e. geosphere, hydrosphere, atmosphere, biosphere)

Objective 5: Program graduates will have an understanding of Earth's internal structure, the dynamic processes that operate within the Earth, and the data that support our understanding

Objective 6: Program graduates will understand the theory of plate tectonics, the data that support the theory, and the associated geologic/geophysical processes and outcomes

Objective 7: Program graduates will understand the concept of geologic time, how it is measured, and how the Earth has changed throughout its long history.

Objective 8: Program graduates will understand how to collect and analyze program-specific data and how to develop scientifically sound interpretations of that data.

Objective 9: Program graduates will attain program-specific content knowledge: Programs are extremely broad, with each student designing the program which best meets their needs. Course-embedded assessment of program specific knowledge will be assessed.
10. Describe how this curriculum change is a response to assessment outcomes that are part of a departmental or college assessment plan or informal assessment activities.

The department instituted a mandatory graduate student meeting in each fall and spring semester starting in Fall, 2017. These meetings were designed to gather data on student perceptions, requests, and feedback for the department faculty. Notes were kept by the Graduate Advisor and then discussed in subsequent faculty meetings. Deleting the Master of Arts in Earth Sciences (AGDP) and replacing it with a Master of Science in Earth Science (Non-thesis, AGDP) was one of the proposed requests at this meeting and was met with favor by the faculty.

11. (Undergraduate proposals only) Describe, in detail, how this curriculum change affects transfer articulation for Michigan community colleges. For course changes, include detail on necessary changes to transfer articulation from Michigan community college courses. For new majors or minors, describe transfer guidelines to be developed with Michigan community colleges. For revisions to majors or minors, describe necessary revisions to Michigan community college guidelines. Department chairs should seek assistance from college advising directors or from the admissions office in completing this section.

NA

12. Please offer both “Current Catalog Language” and “Proposed Catalog Language” if there is to be a change in the catalog description for a given course and/or program. For the “current” language, please copy and paste relevant language from the most current catalog and for the “proposed” language, please share the exact proposed new catalog language. As possible, bold or otherwise note the key changes in the new proposed catalog language.

Current Catalog Language:

Master of Arts in Earth Science (Accelerated)

The accelerated graduate degree program in Earth Science allows undergraduate students in the Geological and Environmental Sciences Department at Western Michigan University to begin accumulating credits toward the completion of a Master of Arts in Earth Science degree while completing a bachelor's degree.

When admitted to the accelerated program with senior standing, a student may take up to 12 credit hours of designated coursework that is applied toward both the bachelor's degree and the master's degree. Coursework must be counted from designated classes taken at the 5000-level. Students must earn a grade of “B” or better in order to receive graduate credit for these classes.

An undergraduate degree in geosciences requires a total of 122 credit hours. The Master of Arts in Earth Science requires a total of 35 credit hours. When enrolling in the accelerated program for the maximum 12 graduate credits, a student will earn 145 total undergraduate and graduate credits in contrast to the typical combined 157 undergraduate and graduate credit hours under the usual progression to degree(s). A M.A. in Earth Sciences generally requires 2 to 2.5 years to complete, after earning a Geosciences B.S. degree. The accelerated program can be completed in 12 months after the B.S., if the student takes eligible summer classes, or 1.5 years after completion of the B.S. in Geosciences.

A student will pay undergraduate tuition for courses taken as an undergraduate and these courses will be included in the flat tuition rate. On completion of the undergraduate degree, the student will be reclassified as a graduate student and then will pay graduate tuition rates.

Eligibility
This program is open to undergraduate students who:

- Are enrolled as B.S. students in the Geology, Geochemistry, Geophysics or Hydrology majors.
- Have senior status (minimum 88 credit hours) and have earned a minimum of 30 credit hours at WMU and at least 20 credit hours as a declared major in the Geological and Environmental Sciences Department.
- Have and maintain a cumulative overall GPA of at least 3.0 based on at least 88 earned hours, at least 30 of which shall be earned at Western Michigan University.
- Have a cumulative GPA of 3.0 or above in their major classes and a cumulative GPA of 2.5 or above in their cognate classes.

Undergraduate students enrolled in the accelerated program are expected to meet graduate expectations in their designated graduate courses. That is, only courses for which the student receives a grade of 3.0 or better will be transferred into the graduate program.

If a student has received a bachelor's degree, he or she will be ineligible to apply for this program and retroactively claim credits to apply toward the master's degree.
Enrollment
1. As early as possible in the academic junior year, contact the Geological and Environmental Sciences graduate advisor to discuss this option and review requirements, timelines and application procedures.
2. Apply for admission to the Master of Arts in Earth Sciences program in the Geological and Environmental Sciences Department.
3. Upon acceptance, meet with the graduate advisor and the undergraduate advisor to prepare an appropriate program of study that meets the requirements for both the undergraduate and graduate degrees.
4. A letter advising which courses will be counted in both degrees will be sent to the student and to the Registrar. A copy of this letter also will be included in the student's graduate file.

Admission
WMU has an online graduate application system that allows all students (domestic and international) to submit required information into one system. General application information for the University, as well as specific requirements for individual programs, are captured into this system.

To view the admission requirements for the M.A. in Earth Science program, please visit www.wmich.edu/grad/admissions/single.php?id=110.

Requirements for continuing eligibility and graduation
- Completing the undergraduate degree with a GPA within the major of less than 3.0 or a GPA in cognate classes of less than 2.5 will automatically declare a student ineligible for the program.
- If a student in admitted to the accelerated program, he or she must follow the program of study developed with the graduate and undergraduate advisors. Failure to follow this program of study may result in ineligibility for the program.
- If a student becomes ineligible to continue participation in the program, he or she will be notified in writing by the graduate advisor.
- In order to progress automatically into the graduate program, a student must achieve a grade of "B" or better in each of the courses being counted for both the undergraduate and graduate degrees. If the student does not meet this requirement, he or she will have the earned grade applied only to the undergraduate degree. If a student completes the undergraduate degree including a "B" or above in a minimum of 6 credits of the specified courses, he or she will be admitted as a graduate student (with the relevant graduate credit) in the next semester or session after receiving the bachelor's degree.
- It is expected that the baccalaureate degree will be awarded within one calendar year after initial accelerated program enrollment. If a student does not meet this time constraint, he or she must reapply to be admitted to the graduate program.
- When a student completes the accelerated degree program, it will be noted on his or her undergraduate and graduate transcripts.
- A student may withdraw at any time from the program by informing the Geological and Environmental Sciences graduate advisor in writing. A copy of the request to withdraw must be sent to the Registrar.
- A student must complete the requirements for the M.A. degree within 24 months (2 years) from the completion of the bachelor's degree. If the student is unable to meet this requirements, he or she must apply for an extension with the Geological and Environmental Sciences Department graduate advisor.

Geoscience courses eligible for the program
GEOS 5010 - Geologic Communications and Presentations Credits: 1 hour
GEOS 5060 - Introduction to Soils Credits: 3 hours
GEOS 5090 - Surface Water Hydrology Credits: 3 hours
GEOS 5120 - Hydrogeology Credits: 3 hours
GEOS 5200 - Economic Geology Credits: 3 hours
GEOS 5210 - Geological and Environmental Remote Sensing Credits: 4 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/Practices of Groundwater Sampling/Monitoring Credits: 1 hour
GEOS 5300 - Plate Tectonics and Earth Structure Credits: 3 hours
GEOS 5350 - GIS Applications in Geological and Environmental Sciences Credits: 3 hours
GEOS 5360 - Glacial Geology Credits: 3 hours
GEOS 5390 - Geologic Mapping Credits: 3 hours
GEOS 5400 - Igneous and Metamorphic Petrology Credits: 4 hours
GEOS 5430 - Petrology and Petrography Credits: 3 hours
GEOS 5450 - Hazardous Waste Remediation Credits: 3 hours
GEOS 5500 - Environmental Field Geochemistry Credits: 3 hours
GEOS 5550 - Introduction to Geochemistry Credits: 3 hours
GEOS 5600 - Introduction to Geophysics  Credits: 3 hours
GEOS 5610 - Reflection Seismology  Credits: 3 hours
GEOS 5620 - Gravity and Magnetic Exploration  Credits: 3 hours
GEOS 5630 - Electrical Methods  Credits: 3 hours

Proposed Catalog Language:


The accelerated graduate degree program in Earth Science allows undergraduate students in the Geological and Environmental Sciences Department at Western Michigan University to begin accumulating credits toward the completion of a Master of Sciences (non-thesis, Accelerated) in Earth Science degree while completing a bachelor's degree.

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