REQUEST TO COLLEGE CURRICULUM COMMITTEE FOR CURRICULAR IMPROVEMENTS

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

PROPOSED IMPROVEMENTS

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** Other:

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

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."

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

Chair, College Curriculum Committee Date

Dean Date Graduate Dean Date

Curriculum Manager: Return to dean □ Date Forward to: Date

Chair, COGE/PEB/FS President Date

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
1. Explain briefly and clearly the proposed improvement.

The department wishes to replace the current Master of Arts in Earth Science program with a Master of Science in Earth Science (Non-thesis) program. The program would be very similar to the current program and would consist of 36 credits of graduate coursework. Eighteen of the credits would be at the 6000 level and twenty-four credits would need to be from the Geosciences. The program would be a non-thesis program. Replacing the MA in Earth Sciences with a MS in Earth Sciences (Non-thesis) 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. These students find it difficult for to find employment post-graduation. This was particularly the case for international students. International students also had difficulty justifying a MA program to sponsorship/scholarship programs from their home countries. Since the students are primarily taking science courses in these programs (Geosciences and related departments – Chemistry, Geography, Biological Sciences, Engineering etc.), we believe that it is more appropriate to have a MS in Earth Science (Non-thesis) track rather than a MA in Earth Science track.

One new modification in the MS Earth Science (Non-thesis) program is an increase in the number of Geosciences credits required for the program. We have increased these credits from 18 credits to 24 credits. This will increase enrollment of students in department course offerings, ensuring that their course of study is dominantly science classes. These students to tailor their program to their interests, allowing them to take up to 11 credits outside of the geosciences.

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 will not impact any other college or department. The students currently in the MA in Earth Science program will be transferred into the MS in Earth Science (Non-thesis) program once it is approved.

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

This new program should increase enrollment of both non-traditional students and international students in the department. It will likely cause an increase in enrollment in Geoscience courses – which can be accommodated in existing coursework. This new program also provides an exit ramp for students in our MS in Geosciences program who find that they cannot successfully complete a thesis - as they can transfer into this new program and still graduate with a MS (Non-thesis) degree.

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 program would be transferred into the MS in Earth Science (Non-thesis) program once it is approved. As the students in the MA Earth Science program are a mix that includes non-traditional students, the time to graduation varies from student to student. Most students should finish this program in 2 to 2.5 years. The department’s course offerings include four to five 5000-level courses and two to three 6000 level classes in the fall and spring semesters. These include a mix of face-to-face and online classes. The number and diversity of courses offered provide sufficient options for a traditional student to enroll in the 2-3 courses a semester required to fulfill the Master of Science in Earth Science (Non-thesis) program 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 has between 20 and 25 students enrolled per year. Deleting this program and putting the MS in Earth Science (Non-thesis) program in place should maintain or increase our enrollment. From exit interviews, recent feedback and discussions with current students, we feel that making this change will 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 in companies in their home countries and several current students have had difficulty justifying their program with their sponsors/scholarship programs.

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) program only requires coursework for completion of the degree. In terms of resources, the department would be able to accommodate these students in existing course offerings.

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 are 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. Replacing the Master of Arts in Earth Sciences and with a Master of Science in Earth Science (Non-thesis) 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
The Master of Arts in Earth Science is a non-thesis program that permits students to design programs of study, in consultation with the program advisor, that are compatible with the individual's goals. The program is intentionally flexible; course work may be drawn from geosciences, biological sciences, chemistry, anthropology, economics, political science, communication, and physics, among others.

Admission Requirements
1. Grade-point average of at least 3.0 (of 4.0) for previous two years of undergraduate work is strongly recommended and is required for full consideration for financial support via teaching assistantships. However, teaching assistantships will be awarded preferentially to students enrolled in the M.S. and Ph.D. Geosciences programs.
2. Students must have successfully completed GEOS 1300, 1310, 3010 or 3350, and a field experience such as 4380 or 5390, or equivalent, or must complete these courses prior to finishing the degree.

Program Requirements
1. Complete a minimum of thirty-five hours of graduate course work, with at least eighteen hours at the 6000-level or above.
2. A core of eighteen semester hours in Geosciences is required.
3. Hours may include satisfactory completion of
GEOS 7100 - Independent Research Credits: 2 to 6 hours
(may include up to four hours of GEOS 7100)
OR
GEOS 7120 - Professional Field Experience Credits: 2 to 12 hours
(may include up to three hours of GEOS 7120)
4. Students are strongly encouraged to attend weekly departmental seminars.

Proposed Catalog Language:

Master of Sciences in Earth Science (Non-thesis)
The Master of Sciences in Earth Science (Non-thesis) is a non-thesis program that permits students to design programs of study, in consultation with the program advisor, that are compatible with the individual's goals. The program is intentionally flexible; course work may be drawn from geosciences, biological sciences, chemistry, anthropology, economics, political science, communication, and physics, among others.

Admission Requirements
1. Grade-point average of at least 3.0 (of 4.0) for previous two years of undergraduate work is strongly recommended and is required for full consideration for financial support via teaching assistantships. However, teaching assistantships will be awarded preferentially to students enrolled in the M.S. and Ph.D. Geosciences programs.

2. Students must have successfully completed GEOS 1300, 1310, 3010 or 3350, and a field experience such as 4380 or 5390, or equivalent, or must complete these courses prior to finishing the degree.

Program Requirements
1. Complete a minimum of thirty-five hours of graduate course work, with at least eighteen hours at the 6000-level or above.

2. A core of twenty-four semester hours in Geosciences is required.

3. Hours may include satisfactory completion of
   GEOS 7100 - Independent Research Credits: 2 to 6 hours
   (may include up to four hours of GEOS 7100)
   OR
   GEOS 7120 - Professional Field Experience Credits: 2 to 12 hours
   (may include up to three hours of GEOS 7120)

4. Students are strongly encouraged to attend weekly departmental seminars.