

GRADUATE DEGREES & DEGREE REQUIREMENTS

Master of Science in Environmental Geosciences (3928)

The Master of Science degree program in environmental geosciences is available under either Plan A (with thesis) or Plan B (without thesis).

In addition to meeting the requirements of the University and of the College of Natural Science, students must meet the requirements specified below.

Admission

When applying for admission to the program, an applicant must specify either Plan A or Plan B.

Academic record, letters of recommendation, and Graduate Record Examination (GRE) General Test scores are considered in admission decisions.

For regular admission under Plan A, the student must have:

1. A bachelor's degree in a physical or biological science or in engineering from a recognized educational institution.
2. Completed the courses in physics, chemistry, and mathematics that are required for the Bachelor of Science degree with a major in geological sciences at MSU, or equivalent courses.
3. At least 12 credits in geological sciences courses.
4. A grade-point average of at least 3.0.
5. Satisfactory scores on the GRE General Test.

Provisional admission may be granted to an applicant who has not completed the course work referenced in items 2. and 3. above. Deficiencies must be removed by completing collateral courses.

For regular admission under Plan B, the student must have:

1. Completed a Master of Science degree in the geosciences for which a thesis was required.
2. A grade-point average of at least 3.0.
3. Satisfactory scores on the GRE General Test.

Requirements for Both Plan A and Plan B (under minor revision)

The student's program of study must be approved by the student's guidance committee. The student must meet the requirements specified below:

Total credits (minimum of 16 credits, including GLG 899, at 800 level)..... 30

1. Tier I Requirement^{1,2} 10-12
 - a. General Component:
 - GLG 423 Environmental Geosciences (*course no longer offered*) 1
 - b. Soil Component (One of the following):
 - CSS 455 Pollutants in the Soil Environment 3
 - CSS 825 Clay Mineralogy and Soils Genesis 4
 - CSS 855 Surface Chemistry of Soils and Colloidal Systems 4
 - c. Chemical Component (One of the following):
 - GLG 421 Environmental Geochemistry 3
 - GLG 821 Aqueous Geochemistry 3
 - GLG 823 Isotope Geochemistry 3

d. Hydrogeology Component (One of the following):

CE 421	Engineering Hydrology	3
CE 821	Groundwater Hydraulics.....	3
GLG 411	Hydrogeology	4

2. Tier II Requirement (One of the following):^{1,2,3} 3-4

GEO 408	Soil Geomorphology Field Study	4
GLG 412	Glacial and Quaternary Geology	3
GLG 422	Organic Geochemistry	3
GLG 471	Applied Geophysics	4
GLG 481	Reservoirs and Aquifers	4
GLG 822	Biogeochemistry	3
GLG 824	Stable Isotope Biogeochemistry	2
GLG 863	Mineral-Water Interactions	4

Additional Requirements for Plan A

1. Tier III Requirement (courses must be approved by student's guidance committee)..... 7-13

2. Tier IV Requirement: Thesis Research (GLG 899). The research area may focus on any topic that may have applications to solving problems related to the environment. The student must include in the thesis proposal a paragraph that addresses the environmental applications of the thesis topic selected. 4-7

Additional Requirements for Plan B

1. Tier III Requirement (courses must be approved by student's guidance committee) 13-16

2. Tier IV Requirement: 1

GLG 898 Special Problems in Environmental Geosciences⁴

¹A student who completed any course listed in the Tier I requirements or in the Tier II requirement prior to enrollment in the program must substitute another course approved by the student's guidance committee.

²A given course may be used to satisfy either the Tier I or the Tier II requirement, but not both of those requirements.

³With the approval of the guidance committee, a student may substitute a course listed in the Tier I requirements for one of the courses listed below.

⁴The student must complete a research paper or project while enrolled in GLG 898. The topic of the paper or project must be mutually agreed upon by the student and the student's academic advisor.

Doctor of Philosophy in Environmental Geosciences (3952)

The core of the Doctor of Philosophy program is independent research. Course requirements are designed to support the candidate's professional goals. Commonly, research programs are pursued within the specialty of the staff, but innovative research is encouraged in any area of the geological sciences.

In addition to meeting the requirements of the University and of the College of Natural Science, students must meet the requirements specified below.

Admission

Students holding bachelor's or master's degrees may be admitted for study at the doctoral level on the basis of their performance during the previous two years of academic work. Satisfactory scores on the GRE General Test are required.

Requirements for the Degree

The program of study is determined by mutual agreement between the candidate and the guidance committee. The student must complete the following:

1. Thesis (research) credits (GLG 999)..... 24
2. A student must complete, or have completed prior to admission, 9 credits of course work in geological sciences including a course in physical geology and 3 credits in 800-level course work.
3. A comprehensive examination which involves both an oral and a written portion and covers the area of the student's research specialty, those areas that interface with that specialty, and the program with master's degree must pass the comprehensive examination during the second year of enrollment in the program. Students who are admitted to the doctoral program with bachelor's degrees must pass the comprehensive examination during the third year of enrollment in the program.

Doctor of Philosophy in Environmental Geosciences-Environmental Toxicology (3968)

For information about the Doctor of Philosophy degree program in Environmental Geosciences-Environmental Toxicology, refer to the statement on *Multidisciplinary Doctoral Programs in Integrative Toxicology* at <http://www.iet.msu.edu/>.

Master of Science in Geological Sciences (3925)

PLAN A ONLY (THESIS REQUIRED)

In addition to meeting the requirements of the University and of the College of Natural Science, students must meet the requirements specified below.

Admission

Academic record, letters of recommendation, and Graduate Record Examination (GRE) General Test scores are considered in admission decisions.

For regular admission, the student must have:

1. A bachelor's degree in a physical or biological science or in mathematics from a recognized educational institution.
2. Completed the courses in physics, chemistry, mathematics, and geological sciences that are required for the Bachelor of Science degree with a major in geological sciences at MSU, or equivalent courses.
3. A grade-point average of at least 3.0.
4. Satisfactory scores on the GRE General Test.

Depending on the proposed area of specialization, provisional admission may be granted to an applicant who has not completed the courses referenced in item 2. above. Deficiencies must be removed by completing collateral courses before a thesis proposal will be accepted.

Requirements for the Degree

Total credits (minimum of 16 credits, including GLG 899, at 800 level)..... 30

1. Program course credits23-26
2. Thesis (research) credits (GLG 899).....4-7

Doctor of Philosophy in Geological Sciences (3927)

The core of the Doctor of Philosophy program is independent research. Course requirements are designed to support the candidate's professional goals. Commonly, research programs are pursued within the specialty of the staff, but innovative research is encouraged in any area of the geological sciences.

In addition to meeting the requirements of the University and of the College of Natural Science, students must meet the requirements specified below.

Admission

Students holding bachelor's or master's degrees may be admitted for study at the doctoral level on the basis of their performance during the previous two years of academic work. Satisfactory scores on the GRE General Test are required.

Requirements for the Degree

The program of study is determined by mutual agreement between the candidate and the guidance committee. The student must complete the following:

1. Thesis (research) credits (GLG 999)..... 24
2. A comprehensive examination which involves both an oral and a written portion and covers the area of the student's research specialty, those areas that interface with that specialty, and the significance of the proposed research program. Students who are admitted to the doctoral program with master's degree must pass the comprehensive examination during the second year of enrollment in the program. Students who are admitted to the doctoral program with bachelor's degrees must pass the comprehensive examination during the third year of enrollment in the program.

Doctor of Philosophy in Ecology, Evolutionary Biology and Behavior (3986)

For information about the Doctor of Philosophy degree program in Ecology, Evolutionary Biology and Behavior, refer to the statement on *Dual Major Doctoral Programs* at <http://www.msu.edu/~eebb>.

Handicapper accommodations for GLG courses may be requested by calling the Department of Geological Sciences at 517-355-4626 two months prior to the beginning of the semester in which a course is to be taken to ensure sufficient time to make arrangements. Requests received after this time will be met when possible.