

GEOLOGY (M.S.)

The Master of Science with a major in Geology consists of advanced studies that are designed to prepare the student to assume a position of responsibility as a professional geologist; or to enter a program leading to the doctor of philosophy in geology or a related discipline at another university. The Master of Science in geology is designed to provide the students with special training in the environmental aspects of this discipline in keeping with the urban setting of Wayne State University. Students receiving the degree of Master of Science in geology will be especially prepared to work in a capacity that deals with or provides solutions to environmental problems in which an intimate relationship between the environment and earth science is an important factor.

The master's degree program involves the rigorous, in-depth study of major concepts pertaining to the earth, and the techniques used to study them. Entrance into the program assumes a firm foundation in the basic and elemental concepts of geology.

Admission Requirements

Admission to this program is contingent upon admission to the Graduate School (<https://bulletins.wayne.edu/graduate/general-information/admission/>). Additionally, candidates are required to have an undergraduate major in geology, or a strong background in geology supported by courses in related sciences, and a grade point average of at least 3.0 in the major. Prerequisite study should include many of the following courses: mineralogy, petrology, sedimentation, geomorphology, environmental geochemistry, structural geology; plus a course in any two of the following fields: paleontology, stratigraphy, geological site assessment, geostatistics, and geophysics.

Two semesters of calculus, a year of chemistry and a year of physics are also necessary. Deficiencies in prerequisites may be made up concurrently with graduate work.

The verbal and quantitative parts of the Graduate Record Examination are required for admission to the graduate program, and the applicant must file three personal letters of recommendation and a personal statement describing goals and motivations for pursuing an M.S. Geology degree before acceptance.

Students transferring from other fields should make an appointment with the Graduate Officer or the Department Chairperson who will review the applicant's background and make recommendations regarding the graduate program.

Program Requirements

The Master of Science in geology is offered by this department only under the following option:

Plan A: *Thirty-two credits including an eight credit thesis.*

Students must complete twenty-four credits in graduate course work from the following courses:

Code	Title	Credits
Students must select six following courses:		24
ESG 5000	Geological Site Assessment	
ESG 5120	Environmental Geochemistry	
ESG 5150	Soils and Soil Pollution	
ESG 5210	Environmental and Applied Geophysics	
ESG 5360	Hydrology and Water Resources	
ESG 5420	Mathematical Methods in Earth Science	

ESG 5450	Hydrogeology	
ESG 5510	Environmental Fate and Transport of Pollutants	
ESG 5650	Applied Geologic Mapping	
ESG 6400	Isotopes: Applications in Geological and Environmental Sciences	
ESG 8999	Master's Thesis Research and Direction	8
Total Credits		32

Students can only take up to a maximum of 8 credits out of the required 32 credits outside the Geology Department and a maximum of 4 Geology credits are allowed as GEL 7990 Directed Study. If additional credits are required, then, courses may be selected from other graduate courses in chemical and/or civil engineering, or graduate courses in chemistry or physics. Graduate courses in disciplines other than geology require the approval of the thesis advisor and the graduate committee. All course work must be completed in accordance with the regulations of the Graduate School (<https://bulletins.wayne.edu/graduate/general-information/academic-regulations/>) and the College of Liberal Arts and Sciences (<https://bulletins.wayne.edu/graduate/college-liberal-arts-sciences/academic-regulations/>).

The graduate program may be modified by the Geology Department to conform to the needs of individual candidates.

Candidacy for the Master's degree is established by submitting an acceptable Plan of Work to the Graduate Officer of the College of Liberal Arts and Sciences. This plan must be submitted and approved by the College by the time twelve graduate credits have been earned. Once candidacy is established, the student, in consultation with his/her advisor and the Geology Department graduate officer, will select the thesis committee. The committee will be comprised of a minimum of three members of the graduate faculty with the student's advisor serving as one member and committee chairperson. Two of the three members of the committee (including the advisor) must be from the Department of Geology. The third member may be from another department if this third member will be making a significant contribution to the applicant's course work and/ or thesis study.

Cognate Requirements: Although there are no cognate courses required for the Master of Science degree, geology majors should consult their advisor regarding cognate courses which will be of value to their particular program. Depending on interests and future goals, courses in mathematics, physics, chemistry, and computer science, and especially those in chemical and civil engineering may be of particular value.