

GEOSCIENCES, PHD

The Department of Geosciences offers the Doctor of Philosophy (PhD) degree program, which is designed to produce scholars capable of independent research that deepens humanity's understanding of science, as well as practitioners capable of applying their training to achieve sound and pragmatic solutions to real problems in the field. As a PhD student, you will become an expert and scholar in your field who is starting to generate an international reputation as an independent scientist that can devise and conduct creative research, mentor and teach, and contribute to the advancement of your field. Students in the doctoral program will normally spend four years completing their degree.

The Geosciences PhD program provides our students with a strong scientific background and intensive research experience, culminating in a formal dissertation. The PhD degree requires both coursework and research. These help the student build observation, critical thinking, quantification, and presentation skills. Our goal is for students to gain deep knowledge in a subfield of geosciences and a broad understanding of the overall discipline. We strive to prepare students for scientific careers in academia, government, or industry.

Admission Requirements

Application Deadlines

Application deadlines vary by program, please review the application deadline chart (<http://uwm.edu/graduateschool/program-deadlines/>) for specific programs. Other important dates and deadlines can be found by using the One Stop calendars (<https://uwm.edu/onestop/dates-and-deadlines/>).

Admission

To be considered for admission to the program, an applicant must meet Graduate School requirements (<http://uwm.edu/graduateschool/admission/>) plus the following program requirements:

1. Hold a master's degree in one of the natural sciences, engineering, or mathematics or have equivalent experience.
2. Have an appropriate background in aspects of the geosciences relevant the intended field of study.
3. Arrange to have at least three (3) letters of recommendation sent to the Graduate Coordinator of the Department of Geosciences.

Exceptional students without a M.S. degree may be considered for admission. A student who holds a master's degree from UWM must formally reapply for admission to the Graduate School before continuing studies toward the Ph.D.

Credits and Courses

Code	Title	Credits
	Credits taken from formal master's study	24
	At least 21 formal graduate credits beyond the master's degree	21
	Elective and GEO SCI 998 Doctoral Dissertation credits	9
	Total Credits	54

Doctoral students must earn 54 credits beyond the bachelor's degree, of which 24 credits may be taken from formal coursework completed as part of the master's study. At least 21 graduate credits beyond the master's degree must be earned in formal coursework.

Each student must prepare a formal Program of Study to be submitted to the Graduate School within the first semester in the program. Courses are selected in consultation with the student's advisor with approval from the Doctoral Committee. Students are strongly advised to take courses from each of their committee members prior to taking the doctoral preliminary examination. For full time students, coursework should be completed within 4 semesters after admission to the Ph.D. program. In unusual situations, this timetable may be extended beyond 4 semesters. A timetable for coursework completion for part time students will be established on an individual basis.

Additional Requirements

Residency Requirement

The Graduate School requires satisfaction of a residency requirement. This involves completing at least 8 graduate credits in 2 consecutive semesters or 6 graduate credits in 3 consecutive semesters (including summer sessions) while in full doctoral status at UWM. In addition, at least half of the graduate credits required for the Ph.D. must be earned at UWM.

Quantitative Skill

A working knowledge of computer programming, statistics, numerical methods, or GIS appropriate to the student's field of study is required. Standards for this requirement will be established by the student's Doctoral Committee. Undergraduate courses taken to meet this requirement do not apply to the course requirements for the Ph.D.

Doctoral Committee

The membership of the Doctoral Committee will be established in the student's first semester. The Committee must consist of the following: the doctoral student's advisor as chair (or co-advisors as co-chairs); at least three additional graduate faculty members from the Geosciences Department; and at least one member from outside the student's fields of specialization. The student is required to arrange a meeting with the Doctoral Committee at least once each year.

The student may request a change of advisor if another faculty member is available, willing, and able to assume that role. If this change involves a significant modification of the area of specialization or research, the student's record will be reexamined to determine whether the student's background is sufficient for the new specialty. If it is not, it may be necessary for the student to withdraw from the program and reapply in the new specialty. Normally such a change of direction will not be allowed once the dissertation proposal has been defended.

Doctoral Preliminary Examination

Advancement to dissertator status requires that students must pass a doctoral preliminary examination and then develop and successfully defend a dissertation proposal. The doctoral preliminary examination is administered in two parts: a set of written exams and a follow-up oral exam. The structure of the examination will be established by the student's Doctoral Committee. It must be passed prior to the completion of 24 credits in the program and must demonstrate knowledge in the fields of geology and related sciences defined by the Doctoral Committee. The written and oral exams are taken after the residency requirement is fulfilled.

Subsequently, the student must present to the Doctoral Committee a written proposal in NSF format for her/his dissertation research. At a minimum, it should provide an overview of and approach to the problem being addressed, a budget, and appropriate bibliographic references. The dissertation proposal should be defended within one semester of completion of the preliminary exam. Students who successfully pass all

three elements of the doctoral preliminary examination are admitted to doctoral dissertator status.

Annual Presentation of Results

Each dissertator is required to make a 30-minute presentation of research results at a Geosciences Colloquium each year. Dissertators also are required to make a 50-minute colloquium presentation of the results of the completed doctoral research prior to the dissertation defense.

Dissertation

The candidate must present a written dissertation reporting the results of independent, original research carried out under the direction of the major professor. Prior to a defense, the dissertation must be reviewed by a Reading Committee consisting of the major professor and at least two other members of the Doctoral Committee. Information regarding dissertation deadlines, preparation, and review of the dissertation is available from the Student Services Office of the Graduate School.

Dissertation Defense

The student first will present research results in a colloquium. Then the dissertation must be orally defended before the entire Doctoral Committee. The defense may include questions related to any of the dissertator's fields of study. If the dissertation is defended and the oral examination is passed to the satisfaction of a majority of the Doctoral Committee, the candidate is passed and recommended for the degree.

Time Limit

All degree requirements must be completed within ten years from the date of initial enrollment in the doctoral program.

Additional Requirements and Information

Detailed information about program requirements is provided to each student following admission and is available from the Department office. For additional information on Graduate School Ph.D. requirements, see the Doctoral Requirements (<http://uwm.edu/graduateschool/doctoral-requirements/>) Webpage.