GEOSCIENCES PH.D.

General Graduate Program Requirements

Graduate School policies and standards can be found on the Graduate School Policies page (https://catalog.umt.edu/graduate/school-policies/).

The minimum GPA for any graduate program is 3.0. Individual programs may require more than a 3.0 to remain in good standing.

The minimum grade for a course to be accepted toward any master's or doctoral requirement is C. The minimum grade for a course to be accepted toward a certificate program is B-. Individual programs may require higher grades for specific courses.

Doctor of Philosophy - Geosciences

A minimum of 60 graduate- level credits the Ph.D. The committee will often require additional coursework beyond the minimum of 60 credits. A minimum of 40 credits of formal coursework and 20 thesis credits (GEO 699) must be completed. The following additional constraints apply:

- At least half (i.e., 20) of the coursework credits must be at the 500 or 600 level;
- At least 14 of the 40 formal course credits must be Geosciences courses;
- No more than 6 credits of Research (GEO 590) may be applied;
- A minimum of 6 graduate credits of coursework must be taken outside of the Geosciences Department in cognate science areas;
- Transfer credits from a Master of Science degree may be used to satisfy any of the above formal coursework requirements with committee approval. Thesis credits cannot be transferred.
- This coursework must comprise a coherent program relevant to the student's dissertation research and/or professional goals. Cognate courses are generally in biology, mathematics, physics, chemistry, or computer science. Some courses in other units may be suitable for some fields of study.
- All requirements for the doctorate must be completed within seven years of commencing graduate course work at the University of Montana. Courses that fall outside this time limit must be recertified for currency of knowledge.

Required Coursework

Code	Title	Hours
Complete all of the following:		
40 credits of graduate-level coursework chosen in consultation with your advisor.		40
GEO 699	Dissertation Research	20
Total Hours		**60**

Ph.D. Committees

A Ph.D. committee must have at least five qualifying members. The committee must include the major advisor, at least one more faculty member from Geosciences, and at least one member of the UM faculty from outside the Department of Geosciences. Additional members beyond the latter three may be added from Geosciences, other departments at UM, or from other institutions provided their credentials are approved by the graduate school. Not more than one member may be emeritus or research faculty of the Department. This committee is responsible for evaluating the student's research, for providing supplemental instruction in their research specialties to complement the primary training of the student, for administering the comprehensive exam, and for assessing the dissertation. Committee members should therefore be selected by the pertinence of their expertise in the intended course of study. Ph.D. degree seeking students who fail to establish and maintain a committee after two years will be dismissed.

Comprehensive Exam and Dissertation Proposal

By the end of fourth semester of study, the student will complete written and oral comprehensive examinations covering the major discipline. Successful completion of the comprehensive examinations is required for a student to be advanced to candidacy in the doctoral program. See the suggested description of the exam process (https://www.umt.edu/geosciences/graduate/phd/exams.php) on the Graduate School website; however, the structure and process of the comprehensive exam are at the discretion of the advisor and research committee.

Dissertation

Completion of the degree requires submission and defense of a doctoral dissertation. This document may consist of two or more papers submitted or ready for submission to peer-reviewed scientific publications or of a single long document containing original scientific research. The journal paper format is strongly encouraged. Length and content requirements are subject to the advisor and the committee. In the case of the journal paper format, additional chapters or appendices including data, detailed methods, or other unifying material may be required. However, an advanced degree in the physical sciences requires a demonstration of competence in scientific method as well as familiarity with the current state of knowledge in a specialty and a substantive new contribution either to the body of methodology or the body of theory applicable in the field of expertise. All graduates of the program must also demonstrate a thorough understanding of the principles in their specialization, current techniques and methods in that field, a thorough understanding of scientific data and error analysis, and competence in scientific writing.

Dissertation Defence

The oral defense of the dissertation may be scheduled only after the research committee has approved the draft dissertation. A copy of the accepted and corrected committee draft of the dissertation must be placed in the department office at least one week before the defense for inspection by any university faculty member. The defense should be held during the period of a regular autumn or spring semester and must be completed at least 15 days before commencement. However, the defense can be held during the summer with the approval of the research committee if normal semester deadlines cannot be met.

The dissertation defense has two parts: a public oral presentation and the examination conducted by the faculty. The public presentation is open to all students and faculty of the department and any other interested people.

The final defense before the research committee and members of the university faculty follows the public presentation. The purpose of this defense is to test general comprehension of the dissertation project and related material. Following a period of questioning, the committee will meet in closed session to vote. Possible outcomes are:

1. Unanimous pass without revision.
2. Unanimous pass with minor revisions to the dissertation.

3. Failure of defense that in most cases will lead to major revisions of the dissertation. If one or more failing votes are cast, the candidate must make the changes required by the committee and must defend within 30 days. A second failure is final and the student will be dismissed from the program.

Program Time Limit

All requirements for the degree must be completed within seven years of commencing graduate coursework at the University of Montana. Candidates are not excused from program time limitations by virtue of a leave of absence except when the leave is granted prior to commencing coursework.

Application for Graduation

At least one semester before the Ph.D. degree is to be awarded, the student must submit three copies of the Application for Graduation form (https://www.umt.edu/grad/docs/forms/graduation-app.pdf) to the Graduate School and pay a graduation fee. See the Calendar of Deadlines (http://www.umt.edu/grad/current-students/completing-degree/deadlines/default.php) for the exact dates to file paperwork. The Graduate School will conduct a degree audit and send two copies of this form back (one departmental copy and one student copy) early in the graduating semester. The department and student should note any problems and rectify them at least two weeks prior to the end of the final semester by using a Graduation Amendment Form. If the student fails to meet the original graduation date as requested on the form, the student may request the application be reactivated for the following semester by notifying the Graduate School one semester prior to the revised completion date.

After the defense, the successful candidate must follow the Graduate School rules for submitting the dissertation. In addition, the student must complete the following tasks:

1. Prepare one hard copy of the thesis for each research committee member. The copy should be bound according to the requirements of the thesis advisor. Some committee members may prefer only an electronic copy.
2. Where appropriate, the advisor may require a representative collection of samples, specimens, thin sections or other materials, as well as a copy of all field and laboratory notes, for the departmental collections.
3. Clean up all lab and office space and return any departmental equipment and keys (remember to claim key deposits!).
4. Return any books or other items borrowed from the faculty.
5. Provide forwarding contact information to the department secretary.

Intellectual Property Rights

The preservation and publication of samples and data collected during thesis research is of the highest priority. Therefore, raw data and samples generated as part of research projects supported by faculty grants and/or support from the Department of Geosciences will reside in the Department. The student must develop a plan for the archiving and transferring of data and samples with his/her advisor prior to finishing research and writing the dissertation. The advisor has the responsibility to explain to the student any restrictions or dispensations on intellectual property rights of the data/information generated during the student's research. The advisor and student should consult to determine content, authorship and acknowledgements before papers are submitted for publication.