

# GEOSCIENCES M.S.

## Master of Science - Geosciences

Degree Specific Credits: 30

Required Cumulative GPA: 3.0

### Notes

#### MS Committees

A MS thesis committee must include the major advisor, and at least two additional members of the UM faculty: one more from Geosciences (active or emeritus), and one from a Department other than Geosciences. Optional members beyond the latter three may be added from UM or other institutions provided their credentials are approved by the graduate school. This committee is responsible for evaluating the student's research and for providing supplemental instruction in their respective research specialties to complement the primary training of the student. Members of the committee should be selected by the pertinence of their expertise in the intended course of study. Master's degree seeking students who fail to establish and maintain a committee after one year will be dismissed.

#### MS Coursework

The Master's degree requires 30 credits of courses designated for graduate credit in the university catalog (those labeled "G" or "UG"). The committee, however, may require additional coursework beyond the minimum of 30 credits as needed for the students' program. A minimum of 24 credits of formal coursework and 6 thesis credits must be completed. The following additional constraints apply:

1. At least 14 of the formal course credits must be Geosciences courses (i.e., up to 14 credits from other departments can be applied, if committee approved);
2. At least half (i.e., 12) of the formal course credits must be at the 500 or 600 level;
3. No more than 6 credits of Advanced Problems (GEO 597) may be applied toward the total of 30 credits required for the degree;
4. Seminars (GEO 587) may be taken more than once with the consent of the instructor.
5. All courses used to meet graduation requirements must be at the graduate level (see section C1.000-Credit Requirements in the Grad School Policies (<http://catalog.umt.edu/graduate/school-policies/>)).

Cognate science courses taken outside the Geosciences Department may be required, depending on the field of study, advisor, or research area. Cognate science courses are generally taken in Math, Physics, Chemistry, Biology or Computer Science. Some courses in other units may be suitable for some fields of study. The nature of the cognate coursework will be decided in consultation with the research committee. All Master's students are also required to take GEO 508, during their first fall term in residence.

All degree requirements for the Master's degree, including the use of transfer and nondegree credits, must be completed within five years. To apply courses taken outside of this time limit, course content must be recertified for currency of knowledge.

#### MS Thesis

The Master's thesis must present the results of original scientific research in the field of specialization in an appropriate scientific style and format. Length and content requirements are subject to the requirements

of the advisor and the committee. 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.

#### MS Thesis Proposal

A thesis research proposal must be fully approved by the end of the second semester of the M.S. degree. The proposal must include a concise description of the scientific problem to be addressed, a summary of current research relevant to that problem, the importance of the problem, and a description of the experimental design or methodology to be used. This content should demonstrate basic scientific literacy as well as familiarity with the specialty chosen. An acceptable thesis may consist of one or more papers submitted or ready for submission to peer-reviewed scientific journals or a single longer document presenting the thesis research.

The first step of the proposal process is for the thesis committee to approve and sign the proposal draft. The committee-approved draft is then submitted by April 15 to undergo review by all faculty of the department. All proposals are discussed at a departmental faculty meeting within 7-10 days after April 15. The faculty will either approve as written, approve with changes, or not approve, each proposal. If a proposal is not approved, a plan of action will be stated by the faculty which may include resubmission for approval after revision. Missing the deadline can result in dismissal from the program; requests for extensions or alternations to the time-line must be submitted to the department Chair. If more than half the faculty do not approve a second (revised) submission to the faculty, the student will be dismissed from the program.

#### MS Thesis Defense

The completed research and thesis must be defended to the committee and approved by all members. In case of failure, one repeat examination is permitted. Defense of the written thesis also consists of a public oral presentation to students, faculty, and other interested members of the public, and an oral examination conducted by the faculty. The presentation typically includes 40 minutes allotted to the presentation and several minutes for questions from the audience for a total time limit of 50 minutes. The final exam follows the public talk. The exam includes the defense of the thesis as well as questions designed to test competence in the course of study. The exam is conducted by the committee, and chaired by the advisor, but the exam is open to interested members of the university faculty as well. The defense should be held during the period of a regular Autumn or Spring semester and must be completed at least 15 days before graduation. However, the defense can be held during the Summer with the approval of the research committee if normal semester deadlines cannot be met.

#### There are three possible outcomes of the exam:

1. Pass with thesis accepted as it stands.
2. Pass with minor revisions required on thesis.
3. Fail or major revision required on thesis.

After a failure, a second defense is allowed after 2 weeks, but not more than 6 weeks, excluding semester breaks. Only one repeat exam is permitted. A second failure results in the student being dismissed from the program.

#### MS Time Limit

The Graduate School requires that the Master's degree be completed within five years of beginning coursework at The University of Montana.

A leave of absence does not waive these time limits except when the leave is granted prior to commencing coursework. A leave of absence or delayed admission requires a "Request for Leave of Absence from the M.S. Program" form from the Graduate School. Such a leave of absence may be granted for a maximum of one calendar year. The Graduate School, upon receipt of a written request and with agreement from the Geosciences Department, may grant a 12-month extension to a leave of absence.

### **Intellectual Property**

The preservation of samples and data collected during thesis research and the publication of research findings 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 thesis. 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.

### **Application for Graduation**

At least one semester before the Master's 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 (<https://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 to the Geosciences Department (one departmental copy and one student copy) early in the semester of graduation. The faculty advisor 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 then 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 thesis (<https://www.umt.edu/grad/current-students/completing-degree/masters-degree/default.php>). Formatting guidelines for the thesis are available at the same site. In addition, the student must complete the following tasks:

1. Prepare one hard copy of the thesis for each research committee member if requested. 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 copies of field and laboratory notes, for the departmental collections and for documentation of funded research.
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.

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