

# THE UNIVERSITY OF IOWA GUIDELINES FOR GRADUATE STUDY IN GEOSCIENCE

[Last update 8/22/07]

The Department of Geoscience admits qualified students to the graduate program and offers programs leading to the following degrees: (1) M.S. in Geoscience with thesis, (2) M.S. in Geoscience without thesis, and (3) Ph.D. in Geoscience.

## 1. ADMISSION

The Department Graduate Admissions Committee will recommend for or against admission after a review of the student's application and supporting materials. A student may be admitted on regular, conditional, or professional improvement status. Foreign students with English as a second language may be admitted with additional language requirements.

### *1.1 Regular Status*

To be considered for admission to regular status for the graduate program requires: (1) a bachelor's degree from a college or university accredited by a regional accrediting association, and (2) either a grade-point average (GPA) of at least 3.0 for the MS program and 3.2 for the Ph.D. program or a total of 1100 or above on the combined verbal and quantitative portions, and 4.5 or above on the analytical writing portion of the Graduate Record Exam taken since October 1, 2002 (or a total of 1600 or above on the combined verbal, quantitative and analytical portions of the Graduate Record Exam taken before October 1, 2002). The GPA is computed on undergraduate plus graduate work if the student has completed less than 12 semester hours (s.h.) of graduate work; it is computed on graduate work if a student has earned 12 or more hours of graduate credit at the time of admission.

### *1.2 Conditional Status*

A student may be admitted to conditional status for the MS program provided his or her GPA is at least 2.3 and to the Ph.D. programs provided his or her GPA is at least 2.7. A student on conditional status must enroll in at least 8-semester hours (s.h.) of graduate level course work during each session and must attain regular status at the end of the second session of registration. To attain regular status, a student must earn a GPA of at least 3.0 on all course work within two sessions of registration taken after admission to graduate status at Iowa, including Geoscience courses that do not carry graduate credit. In addition, any other conditions imposed at the time of admission must be met.

### *1.3 Professional Improvement*

The department also admits students who are not candidates for a degree. To be considered for conditional or regular status admission, such students, called professional improvement students, must meet the same standards as those applying for the Master's program.

### *1.4 Foreign Students*

A foreign student with English as a second language may be admitted with a TOEFL score of at least 560 if he or she satisfies all the requirements stated above. New foreign students are to be evaluated by the English as a Second Language (ESL) office in regard to English proficiency prior to registration. Some English courses may be recommended based on a foreign student's English proficiency. Foreign students will be expected to enhance English proficiency by taking those courses recommended by the ESL Office.

## **2. FINANCIAL AID**

The Department of Geoscience offers Graduate Assistantships that are merit-based and competitive with other institutions. In recent years, a large percentage of all resident M.S. and Ph.D. candidates have received appointments and were considered residents for tuition purposes.

### *2.1 Qualification*

All students admitted on regular status are eligible for Graduate Assistantships. Graduate Assistantships are offered for a maximum of two academic years for the M.S. degree and four academic years for the Ph.D. degree. These offers apply as long as satisfactory work is being done for the Graduate Assistantship, and satisfactory progress is being made toward completion of the degree. Students starting a graduate program without university graduate appointments may reapply for such aid in competition with incoming new graduate applicants.

### *2.2 Teaching Assistantships*

In addition to the eligibility requirements outlined above, students are required to demonstrate proficiency in English before being considered for a Teaching Assistantship. Applicants whose primary language is English can establish proficiency by: (1) having a minimum score of 500 on the verbal GRE test, (2) having appropriate comments concerning English proficiency included in letters of recommendation, or (3) being interviewed by a member of the Graduate Admissions Committee. Applicants whose primary language is not English can establish proficiency by taking a test of oral English proficiency administered by the ESL Office.

Teaching Assistants are evaluated every semester for teaching proficiency and communication skills by compiling student evaluations and observation by a supervising instructor. Recommendations for enhancing these skills or reassignment may be made based on these evaluations.

### *2.3 Research Assistantships*

Research assistantships are typically funded by individual faculty grants, and vary depending on the nature of the funded project. Duties often involve activities such as: sample collection and preparation; collection, analysis, and interpretation of analytical or measurement data; preparation of maps and diagrams; and assistance with fieldwork.

### *2.4 Fellowships and Scholarships*

Outstanding students should apply for fellowships, scholarships and other special financial aid awarded by the Graduate College (see <http://www.grad.uiowa.edu/Students/FinancialSupport/> )

### *2.5 Departmental Tuition Scholarships*

In addition to out-of-state tuition adjustments, the Department also awards a significant number of tuition scholarships each year.

## **3. REQUIREMENTS**

General requirements for both M.S. and Ph.D. degree are described in this section. More detailed requirements are provided in section 4 for the M.S. and 5 for the Ph.D.

### *3.1 General*

Students are expected to be familiar with the Manual of Rules and Regulations of the Graduate College (<http://www.grad.uiowa.edu/Pubs/ManualRulesRegs.asp>), particularly with Sections IX (General Requirements for Advanced Degrees), X (Master's Degrees) and XII (Doctor's Degrees). The University calendar (<http://www.registrar.uiowa.edu/calendars/academic.aspx>) should be consulted for pertinent deadline dates such as those for degree applications, examinations, and thesis deposit. The individual student must assume ultimate responsibility for meeting requirements and deadlines.

### *3.2 Initial Counseling, 12:20-Geologic Orientation and 12:201-Geoscience Seminar*

Prior to enrolling in courses new students should consult with their Advisor or the Director of Graduate Studies for initial counseling. All entering graduate students are required to enroll in 12:207 - Geologic Orientation during the Fall semester of their first year of study. In addition, all new students must enroll in 12:201 – Geoscience Seminar. M.S. students must enroll in this course for each of their first four semesters of study; Ph.D. students must enroll in 12:201 for each of their first six semesters of study.

### *3.3 Advisory Committee*

By the first month of their second semester in residence, all students should have their choice of Advisor approved by the Department Executive Officer (DEO) and recorded in their file. The advisor should be a tenured or tenure-track member of the Geoscience faculty.

During their second semester in residence, students should consult with faculty members who relate to their field(s) of research interest, and arrange for an Advisory Committee to assist in planning a degree program. Advisory committees for the M.S. must have at least three members including the Advisor. Ph.D. committees must have at least five members including the Advisor and one member of the University of Iowa Graduate Faculty from outside the Department of Geoscience. Advisory Committees should have a majority of members from the Department of Geoscience and at least one member in addition to the Advisor should be tenured or tenure-track faculty from the Department of Geoscience. In some circumstances a faculty member from another University may be added to a committee, but it requires special permission from the Geoscience DEO and Dean of the Graduate College.

Names of proposed Committee members should be forwarded to the DEO during the second semester and, after approval, are to be recorded in the student's departmental file not later than the end of second semester of graduate residence. The student shall arrange a formal meeting of the entire Advisory Committee to discuss their progress at least once a year and the Committee will submit a written summary of the meeting to the DEO, who will place it in the student's file.

Although the Committee will advise students on academic choices as they progress towards their degree, the students are responsible for timely completion of all requirements.

### *3.4 Plan of Study*

All students are required to submit a plan of study, which should be approved by their committee and the DEO prior to the end of their second semester of residence. The plan of study consists of courses arranged by semesters, indication of the research topic, and schedule for completion of the degree program. Ph.D. students also should provide a tentative date for their comprehensive exam (no later than the fourth semester of residence) in the plan of study. M.S. students usually submit their plan of study with their thesis proposal. Ph.D. students usually submit it a semester before submitting their thesis proposal.

### *3.5 Thesis Proposal*

A research proposal approved first by the Advisory Committee and then by the DEO is required to be submitted to the Department by the end of the second semester of residence for M.S. students and the third semester of residence for Ph.D. students. The proposal should consist of a description of the proposed research project and its importance, and include a statement of the topics to be addressed, summary of the present state of knowledge (a list of references cited is required), planned research procedures, adequacy of facilities, availability of needed financial support, anticipated results, and estimated duration of the project. Unanimous approval of the Proposal by the Advisory Committee is required. The proposal should be finished and completely approved before the bulk of the research is accomplished.

Accompanying the Proposal will be a formal letter requesting approval of the final examination committee (usually the same as the advisory committee), documenting degree requirements outlined in the plan of study that have been completed (and course grades) and those which remain outstanding, plus a schedule for fulfilling these obligations. It also will identify any proposed changes in the original plan of study. All documents will be circulated to the faculty for their information and suggestions. Reservations of other faculty members should be discussed individually with the candidate, and any outstanding problems will be resolved in a meeting of the faculty. Formal approval of the thesis proposal is to be communicated to the candidate, in writing, by the DEO.

### *3.6 Credit and Residence Requirements*

The M.S. degree requires a minimum of 30 s.h. of graduate credit of which no more than 8 s.h. of "research" registration can be applied. For the M.S., at least 24 s.h. must be completed in residence. The Ph.D. program requires an overall minimum 72 s.h. of graduate credit with a minimum of two semesters (at least 9 s.h. each) spent in full-time residence on campus beyond the first 24 s.h. in graduate work. Candidates who have passed the Ph.D. Comprehensive Examination are required to register each semester until the degree is awarded.

It is generally recommended that students complete 9 s.h. (12 s.h. max) of graduate credit (i.e., 100-level courses or above) during each of their first two semesters. Candidates who have passed their Ph.D. comprehensive examination and completed their Plan of Study may register for '000:000 PhD Postcomprehensive Registration' and pay a minimum registration fee.

### *3.7 Presentation Requirement*

All Ph.D. students are required to deliver a one-hour public presentation (including questions) associated with their dissertation defense and M.S. students are required to deliver a half-hour public presentation associated with their thesis defense. In addition, all students are encouraged to present their research at local, regional, national, or international meetings. The Department provides partial funding for travel to such meetings.

### *3.8 Student Office Space*

Office space is assigned to all graduate assistants on appointments. Students not on appointments will be provided space, if available, on the basis of need. Occupation of office space is subject to satisfactory progress.

### *3.9 Academic Standing, Probation and Dismissal*

Graduate college regulations on probation and dismissal are found in the Manual of Rules and Regulations of the Graduate College (<http://www.grad.uiowa.edu/Pubs/ManualRulesRegs.asp>). The student is responsible for being familiar with these regulations.

In addition to the above University-wide requirements, the Geoscience Department requires that a student on regular or conditional status be placed on departmental probation if the student's cumulative grade-point average (GPA) on all Geoscience courses taken after admission to graduate status at Iowa (including Geoscience courses that do not carry graduate credit) is below 3.0. If, after the next session (including a summer session) of registration, the student's cumulative GPA on such course work is below 3.0, the student will not be allowed to continue in the Geoscience graduate program. If the cumulative GPA on all Geoscience courses is 3.0 or above, the student will be returned to good standing.

Any curricular deficiencies specified at the time of admission must be cleared within the time limits set by the Director of Graduate Studies (DGS) or the student will not be allowed to continue in the Geoscience graduate program.

## **4. MASTER OF SCIENCE DEGREE**

### *4.1 General*

The Master of Science program is designed primarily to prepare a student for a professional career in Geoscience or for more advanced studies.

### *4.2 Program Planning*

The following tasks must be completed in order to be considered making satisfactory progress towards the M.S. degree.

- a) Entering graduate students must select a thesis advisor or consult with the DGS prior to enrolling in courses.
- b) By the first month of his/her second semester in residence, all M.S. students must select an Advisor and a thesis topic and have forwarded them to the DEO for approval. The advisor must be a tenured or tenure-track faculty member of the Department of Geoscience.
- c) During the second semester, the student should propose the names of at least two additional faculty members to complete their Advisory Committee. At least one other committee member besides the Advisor should be a tenured or tenure-track Geoscience

faculty member. After approval by the DEO, the Advisor and the other members of the Advisory Committee are recorded in the student's file by the end of the second semester of residence.

- d) Prior to the end of the second semester of residence, the student is responsible for obtaining the Committee's approval of a suitable plan of study and thesis proposal (see Sec 3.4). These are submitted to the DEO for approval, then circulated to the entire Geoscience Faculty for comment and placed in the student's file.

Automatic continuation of financial aid beyond the first year will be contingent on a M.S. graduate student making satisfactory progress as stated above.

In consultation with the student and Advisory Committee, the DEO may designate a different Advisor or Committee member to conform more closely with the developing research interests of the student. The Advisor is responsible for signing registration materials, for general supervision of the academic program and development of research plans, and for maintaining a written record of Committee recommendations and decisions and placing it in the student's file. The Advisory Committee, chaired by the Advisor, functions as examiners for the Final Examination. M.S. students are required to deliver a half-hour public presentation followed by an oral defense of the thesis, supporting research, and related topics.

#### *4.3 Departmental Requirements*

To qualify for admission to the Final Examination, the candidate must have at least a 3.0 GPA on those graduate courses, which are being offered towards the 30 s.h. minimum required for the degree. Additionally, the grade-point average on all graduate Geoscience courses is to be at least 3.0.

#### *4.4 Master of Science Degree with Thesis*

The thesis project for the M.S. degree is to be planned by the candidate in consultation with the Advisory Committee. A plan of study and thesis proposal is to be approved by the Advisory Committee and forwarded to the DEO for approval before the end of the second semester. This proposal can be, but does not have to be, in the form of an AAPG, GSA, Sigma Xi, or similar grant proposal application. Accompanying the proposal should be a plan of study (see section 3.4 and a letter to the DEO requesting approval of the Advisory Committee (if it hasn't already been approved), approval of the plan of study and approval of the thesis proposal. After approval by the DEO the thesis proposal and accompanying documents will be circulated to the faculty for their information and suggestions. Formal approval of the entire program will be communicated to the candidate in writing by the DEO.

When possible, theses should be of a length and format that facilitates publication in an appropriate journal. The research scope of a M.S. thesis is commonly suitable for a single journal article and should not exceed 50 pages in length. Much information traditionally included in theses and dissertations, usually deemed inappropriate for publication (details on methodology, core descriptions, measured sections, thin-section descriptions, and extensive data tables), is often more appropriately placed in an appendix to expedite submission to a journal. Lengthy reviews of the literature are inappropriate and voluminous descriptions and/or data should also be consigned to appendices.

Before beginning to write, a student should consult with all members of the Advisory Committee to establish a consensus regarding format, organization, and appropriate length for their specific research report. If the student perceives a conflict of philosophy amongst committee members, it would be advisable to resolve the conflict in a committee meeting prior to manuscript preparation.

It is prudent to keep all members of the Advisory Committee current on developments in the research and thesis work. Consultation with the Committee during the thesis preparation minimizes the prospect of late major revisions. In order to be admitted to the Final Examination, a candidate must provide the advisor and committee members with one copy each of the revised thesis at least ten working days prior to the scheduled time of examination. Only under exceptional circumstances will thesis examinations be conducted during final examination weeks or during the summer. The thesis copies must be complete, including all illustrations and appendices. Failure to meet the submission requirements will automatically involve rescheduling of the examination.

Graduate College regulations require submission of one copy of the final thesis. This copy is eventually bound and deposited in the Geoscience Library. Departmental policy requires submission of a second copy of the final thesis to the DEO prior to graduation. A third copy must be provided to the Advisor. The members of the Advisory Committee may request additional copies.

#### *4.5 Master of Science Degree without Thesis*

The Master of Science degree without thesis is designed for students with extensive geological background and experience. Permission must be obtained from the DEO to pursue this program. Relatively few students will be allowed to pursue M.S.-without-thesis option.

- 1) The M.S. degree without thesis requires a minimum of 30 s.h. of course work at graduate level up to 8 hours of which could be research hours. All the other departmental M.S. program requirements will apply under this option.
- 2) In lieu of a thesis, the student must submit a manuscript deemed acceptable for submission for publication or a previously published manuscript for approval by his/her thesis committee; it is to be formatted in the style of the proposed journal. This manuscript must be deposited in the library.
- 3) A Final Examination will cover course work and the work done in lieu of the thesis.

## **5. DOCTOR OF PHILOSOPHY DEGREE**

### *5.1 General*

The Ph.D. program is designed primarily to train students to be independent researchers and/or teachers, and to bring students to the forefront of a specialized area of Geoscience.

### *5.2 Program Planning*

Ph.D. students usually enter the program with established fields of interests and a Research Advisor already selected. Under exceptional circumstances, a student may be admitted to the Ph.D. program without an established field and is assigned to the DGS who will be replaced by the Research Advisor when an area of specialization is selected. The Advisor is responsible for

general guidance and supervision of progress, including approval and signing of registration materials.

The following tasks must be completed in order to be considered making satisfactory progress towards the Ph.D. degree:

- a) Entering Ph.D. students must consult with a research advisor or the DGS prior to enrolling in courses.
- b) By the first month of his/her second semester in residence, all Ph.D. students must select an Advisor and a thesis topic and have forwarded them to the DEO for approval. The advisor must be a tenured or tenure-track faculty member of the Department of Geoscience.
- c) During the second semester, the Ph.D. student should propose the names of at least five faculty members for their Advisory Committee, including the Advisor and one member of the University of Iowa Graduate Faculty from outside the Department of Geoscience. Advisory Committees should have a majority of members from the Department of Geoscience and at least one member in addition to the Advisor should be tenured or tenure-track faculty from the Department of Geoscience. After approval by the DEO, the Advisor and the other members of the Advisory Committee are recorded in the student's file by the end of the second semester of residence.
- d) Prior to the end of the second semester of residence, the student is responsible for obtaining the Committee's approval of a suitable plan of study (see Sec 3.4). It is then submitted to the DEO for approval, and placed in the student's file.
- e) Prior to the end of the third semester of residence, the student is responsible for obtaining the Committee's approval of a suitable dissertation proposal (see Sec 3.5). It is then submitted to the DEO for approval, then circulated to the Geoscience faculty for comment and placed in the student's file.
- f) Prior to the end of the fourth semester of residence the Ph.D. student must have satisfactorily completed their comprehensive examination.

Automatic continuation of financial aid beyond the first year will be contingent on a Ph.D. graduate student making satisfactory progress as stated above.

In consultation with the student and Advisory Committee, the DEO may designate a different Advisor or Committee member to conform more closely with the developing research interests of the student. The Advisor is responsible for signing registration materials, for general supervision of the academic program and development of research plans, and for maintaining a written record of Committee recommendations and decisions and placing it in the student's file. The Advisory Committee, chaired by the Advisor, functions as examiners for the Comprehensive and Final Examinations. Ph.D. students are required to deliver a hour public presentation followed by an oral defense of the thesis, supporting research, and related topics.

### *5.3 Departmental Course Requirements*

Within broad limits, courses selected should reflect the individual needs, interests and talents of the student, and their advisor and advisory committee must approve them. All doctoral candidates must satisfy the course requirements of the Graduate College. An appropriate graduate course in another discipline is to be included in the Ph.D. program. It should be

completed before the Comprehensive Examination. Courses that are cross-listed between Geoscience and other departments are *not* interpreted as meeting this requirement.

#### *5.4 Comprehensive Examination*

The Comprehensive Examination Committee consists of five faculty members, including the Thesis Advisor, a University of Iowa faculty member from outside of the department and the rest of the Advisory Committee. The Comprehensive Examination is intended to be the final written and oral evaluation of the aspirant's mastery of the discipline. Each aspirant is examined in the area of expertise represented by the members of the Committee. It is also presumed that the aspirant is proficient in the basic elements of general Geoscience as presented by current elementary textbooks. The written Comprehensive Examinations are given by each committee members separately. The oral Comprehensive Examination usually lasts 2-3 hours with all committee members present. Questions during an oral exam may be follow-ups of the written exam on a basic area of Geoscience, or on subject matter taken with the outside member of the Committee. Upon passage of the written and oral exams, the aspirant becomes a candidate for the degree. Most course work should be completed prior to the Comprehensive Examination.

#### *5.5 Dissertation*

The candidate, in consultation with the Advisor and other appropriate faculty, must prepare a formal dissertation Proposal. This should consist of a description of the proposed research project and its importance, and include a statement of the problems, summary on the present state of knowledge (a list of references cited is required), planned research procedures, adequacy of facilities, availability of needed financial support, anticipated results, and estimated duration of the project. The proposal is to be forwarded to the DEO not later than the beginning of the third semester of full time doctoral study and before the bulk of the research is accomplished. Accompanying the Proposal will be a formal letter documenting degree requirements completed (and course grades) and those which remain outstanding, plus a schedule for fulfilling these obligations. It will also identify proposed changes in the plan of study. All documents are to be circulated to the faculty for their information and suggestions. Unanimous approval of the Proposal by the dissertation committee is required. Reservations of other faculty members should be discussed individually with the candidate, and any outstanding problems will be resolved in a meeting of the faculty.

Formal approval of the dissertation proposal is to be communicated to the candidate, in writing, by the DEO. Such approval should be secured at least two semesters prior to graduation. It is advisable to keep all members of the dissertation committee current on research progress, as committee consultation will minimize necessity of late major revisions. Graduate College requirements state that "Written dissertations shall be made available to all members of the examining committee not later than two weeks before the date of examination." For departmental purposes, this is interpreted to mean that a revised dissertation will be available to the committee at least 10 working days prior to the Final Examination. These copies must be complete, including all illustrations and appendices. Failure to meet this deadline will automatically involve rescheduling of the examination. Only under exceptional circumstances will a dissertation defense be conducted during a final examination week or during the summer. The Ph.D. dissertations generally should not exceed 100 text pages in length (exclusive of appendices) and should be written in a style appropriate for publication in refereed journals.

Any dissertation including a study of Paleontology Repository collections requires curating and taxonomic review of the materials studied. All such materials, together with representative suites from new collections, are to be catalogued and permanently deposited, to the satisfaction of the Advisor and the Paleontology Repository Curator, before the degree is conferred.

Graduate College regulations necessitate submission of two copies of the final dissertation. Departmental policy requires that one of these two copies be deposited permanently in the Geoscience Library and the additional copy in the Paleontology Repository. Another copy must be provided to the advisor. The members of the Advisory Committee may request additional copies.