

# **DEPARTMENT OF GEOLOGY**

## **GRADUATE STUDENT HANDBOOK**

**February 14<sup>th</sup>, 2018**

# Contents

WELCOME! .....	3
Department Policy Changes .....	3
Goals of Graduate Programs in Geology .....	4
Getting Oriented.....	5
For academic issues.....	5
Departmental Staff .....	5
Business Office Staff .....	6
When You Need Help With: You Should See: .....	6
Email Policy.....	6
Important Reminder .....	6
Academic Integrity.....	7
Academic Misconduct.....	7
Websites Frequently Needed.....	7
Additional information for Geology Grad Students.....	8
Library .....	8
Department Colloquium & GEOL 591 course.....	8
Mail & UPS & FedEx Shipments.....	8
Wanless Room.....	8
Graduate Student Computer Lab .....	8
Main Office.....	8
Advising and Responsibilities .....	9
Annual Review Policy for all Geology Grad Students .....	10
Petition Process for Geology Department Grad Studies Committee Consideration.....	11
Master of Science Requirements .....	14
Milestones.....	14
Curriculum Requirements for Thesis & Non Thesis Master’s Options.....	15
Curriculum Requirements for Teaching Earth Science Master’s Options.....	16
Thesis Format .....	16
Thesis Readers.....	16
Procedures for Completing the M.S. Standard Option .....	17
Thesis Colloquium .....	17
Thesis Colloquium and Signing .....	17

## Contents continued

Depositing Your Thesis .....	17
Procedures for Completing the M.S. Applied Geology Option.....	17
Procedures for Completing the M.S. Teaching Earth Science Option .....	18
Ph.D. Requirements.....	19
Milestones.....	19
Ph.D. Degree with Master's.....	19
Ph.D. Degree without Master's.....	19
Ph.D. Part-time Student .....	20
Curriculum Requirements .....	21
Adviser and Dissertation Committee.....	21
Dissertation .....	22
Colloquium, Defense and Completion .....	23
Examinations .....	24
Qualifying Examination .....	24
Preliminary Examination .....	28
Final Examination.....	30

# WELCOME!

This Handbook is for both new and continuing students. In it you will find the Department's philosophy of graduate education, and information on how to successfully complete your degree. Contact your advisor or a member of the Department's Graduate Studies Committee (GSC), if you have additional questions, comments and suggestions.

## Department Policy Changes

If major changes in Department requirements occur, students may choose to fulfill **either** the requirements in effect when they began graduate study **or** the new requirements. Prior to major changes in policy, a meeting usually takes place among graduate advisors, the Department Head, and continuing graduate students to discuss proposed changes, timing of their implementations, and choices that continuing graduate students have in fulfilling either the old or the new requirements.

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For detailed information on policies and regulations affecting graduate students, including degree requirements, please refer to the:

## The Graduate College Handbook of Policy and Requirements for Students

<http://www.grad.illinois.edu/gradhandbook>

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# Goals of Graduate Programs in Geology

Our program aims to help students develop skills and acquire knowledge necessary for work as leaders in research, professional practice, and teaching in geoscience. The program centers on three complementary activities:

- 1. Independent research:** We strive to teach students how to formulate scientific problems, analyze data, make interpretations, and disseminate results. We expose students to examples of solid research and introduce them to methods for evaluating the research of others. As in most graduate programs, we emphasize work on research as the best means for developing skills of critical thinking and self-motivation.
- 2. Coursework:** We offer courses at the graduate and advanced undergraduate levels that efficiently communicate state-of-the-art information in geoscience. Our courses teach students to access and analyze current and classic geoscience literature, to think critically, and to develop skills in written and oral presentation.
- 3. Teaching:** Most students have the opportunity to serve as teaching assistants. We view TA's as apprenticeships in teaching, providing students with the opportunity to refine their own understanding of geoscience, and to organize and present information. Teaching also provides experience in public speaking and in developing teaching techniques. The TA experience helps all geoscientists, not just future teachers -- Presentation skills are also important in corporate and government settings.

## Independence: A Critical Part of the Program

Independent thinking and research form a central theme of our grad program. The grad program is as flexible as possible, so that students devise a plan of study that meets their individual needs.

Even though you have more independence than you did as an undergrad, you will still find yourself in need of advice. Don't hesitate to talk to your advisor, fellow grad students and staff members. Others with more experience may help you find the answers you need quickly.

# Getting Oriented

Getting used to a new environment may seem a bit daunting at first. To help out, the Department holds an orientation meeting at the beginning of the fall semester. All new graduate students are required to attend. If you must miss this meeting, please notify Lana Holben before the meeting. During the meeting, faculty members will introduce themselves and discuss their research programs, new students will introduce themselves, and share experiences.

Below is some essential information about the operation of the Geology Department.

## **Whom to ask and where to find it . . .**

### **For academic issues:**

- 1) Your advisor, or other members of your thesis/dissertation committee regarding specifics about courses recommended.
- 2) Lana Holben regarding course credit accumulations.
- 3) Members of the Graduate Studies Committee for petition issues.

### **Some Relevant Departmental Staff:**

**Lana Holben** (Assistant to the Head, 3028 NHB): In charge of many tasks of importance to graduate students. Helps with admissions, assistantships and fellowships, department and Graduate College funded awards, tracks curriculum requirements for each student, department and Graduate College policies and regulation pertaining to graduate students. Also assists with requests for master's and doctoral committee assignments, scheduling of oral exams, and assists with colloquium arrangements when a student is preparing for graduation.

**Rachel Davidson** (Office Support Associate, 3086 NHB): Keeping track of keys, office assignments, colloquium arrangements, audio-visual equipment, shipping, fax, copying, ordering/keeping office supplies, etc.

**Steve Altaner** (Associate Head, 3014 NHB): Organizing TA's and overseeing the operation of introductory geology laboratories.

**Mike Savage** (Information Technology Specialist): Providing computer support for the Department and computer security.

## **BUSINESS OFFICE:**

**Jill Randell** (Human Resource Associate, 3088 NHB): **Human Resources, Payroll, & Telecommunications**

Assists you regarding your I-9 and other forms necessary to set up your assistantships, any payroll questions, Visa applications and tracking, telecommunications coordinator.

**Valerie Heinz** (Staff Clerk, 3088 NHB): **Purchasing**

Assists with the purchase of items for research, also works with faculty to coordinate field trips.

**Lori Baker** (Account Tech III, 3088 NHB): **Travel, Reimbursements, Property**

Assists with travel arrangements & reimbursements when you receive a department-funded award for conference travel or research, and miscellaneous employee reimbursements.

### **When You Need Help With:**

Grad College petitions and forms, procedures, petitions, thesis procedures and formatting, questions regarding your curriculum requirements

Keys, copying, shipping, video, building repairs, thermostats, lights, copier repairs, air conditioning, ordering office supplies

Teaching assistantships

Curriculum choices, courses, and registration

### **You Should See:**

**Lana Holben**

**Rachel Davidson**

**Steve Altaner**

**Advisor or Grad Studies  
Committee Chair**

## **E-mail Policy**

Following the Graduate College policy, the @illinois.edu email address should be used for all University related correspondence. The Department's support staff, faculty and Graduate Studies Committee chairs will send e-mails to your @illinois.edu address only.

## **IMPORTANT Reminders**

Students are responsible for their own registration and for ensuring the accuracy of their schedules. Students can check their registration online and print their schedules as needed. Students who find errors in their schedules should immediately correct these errors. THE STUDENT IS RESPONSIBLE FOR TRACKING THEIR PROGRESS TOWARDS CURRICULUM REQUIREMENTS AND CONFIRMING WITH LANA HOLBEN, THEIR ADVISOR OR THE CHAIR OF THE GRADUATE STUDIES COMMITTEE.

## **IMPORTANT Reminders continued....**

The Graduate College provides announcements concerning academic deadlines, fellowship opportunities, and workshops each week through GradLinks. These email announcements and departmental emails are sent to your University of Illinois email address, @illinois.edu.

In addition to departmental policies, graduate studies are expected to follow Grad College policies. All Graduate College policies can be found in the Graduate College Handbook of Policy, and Requirements for Students on the Graduate College web site at <http://www.grad.illinois.edu/gradhandbook> .

### **Academic Integrity**

Responsible academic integrity and professional conduct are important for maintaining the high quality of research and education at the University of Illinois Urbana-Champaign (UIUC). The UIUC official statement can be found on the Academic Human Resources web site at [www.ahr.uiuc.edu/ahrhandbook/chap5](http://www.ahr.uiuc.edu/ahrhandbook/chap5) . In addition, the School of Earth, Society, and Environment requires a Responsible Conduct of Research Training to be completed each year. Graduate students should also be aware of the policies regarding academic integrity and intellectual property on Graduate College Handbook for Students, Faculty and Staff at [www.grad.illinois.edu/gradhandbook](http://www.grad.illinois.edu/gradhandbook) .

### **Academic Misconduct**

Please be sure that you understand university policy concerning plagiarism and cheating. If you have any questions, talk to your advisor or to the Chair of the Graduate Studies Committee. The most common mistakes that students make involve using inadequately referenced source material in a report or thesis (e.g., direct quotes must be bounded by quotation marks and must be attributed to their source; concepts and paraphrases must also be attributed to their source), or using completed problem sets by others to help you finish your own problem set.

**It is expected that all graduate students in the Department of Geology will read and adhere to the University of Illinois and Graduate College campus policies.**

#### **Web information:**

Geology	<a href="http://www.geology.illinois.edu">www.geology.illinois.edu</a>
Courses, Schedules & Requirements	<a href="http://catalog.illinois.edu/">http://catalog.illinois.edu/</a>
Check your own course schedule and	
Financial responsibility	<a href="https://uiucgrad.askadmissions.net/vip/">https://uiucgrad.askadmissions.net/vip/</a>
Forms Used for Graduate Students:	<a href="http://www.grad.illinois.edu/forms">http://www.grad.illinois.edu/forms</a>
Graduate College	<a href="http://www.grad.illinois.edu">http://www.grad.illinois.edu</a>
Student Health Insurance	<a href="http://si.uiuc.edu">http://si.uiuc.edu</a>
Tuition and Fee Rates	<a href="http://www.registrar.illinois.edu/financial/tuition.html">http://www.registrar.illinois.edu/financial/tuition.html</a>

## Additional information for Geology Grad Students

**Library:** Geology's virtual library can be found at: <http://www.library.illinois.edu/gex/>

**Library:** Our assigned librarian is: Mary Schlembach, Chemistry and Physical Sciences Librarian, Grainger Library. You can contact her at: [schlemba@illinois.edu](mailto:schlemba@illinois.edu) or phone 217-333-3158

**Departmental Colloquium:** Regularly held on Thursday afternoons when the campus is in session. The lecture begins at 3:30 in a campus classroom as assigned each semester and with a reception at NHB afterwards. Graduate students are required to attend colloquia, and participate in the "Current Research in Geoscience" course (GEOL 591). Graduate students are in charge of the reception.

The current colloquium schedule can be found at:

<https://www.geology.illinois.edu/cms/One.aspx?portalId=127672&pageId=286278>

**Current Research in Geoscience:** All graduate students must register for and attend this seminar course under the rubric 30405, "Geology 591". Petition to be excused from the course is strongly discouraged but may be considered for the final semester prior to earning a Ph.D. degree or under special circumstances.

**Mail:** U.S. Mail and Campus mail are sorted by Departmental staff and distributed to your mailbox in the mailroom (3081 NHB). To decrease the work load on the staff, please avoid having personal mail and packages sent to the Department.

The complete address for the Department used for campus mail is:

(your name)  
Department of Geology, UIUC  
3081 Natural History Bldg., MC-102

**The Wanless Room:** Room 4047 NHB is a conference room that seats 14 people. Reservations are made by contacting Rachel Davidson. The room is named after Prof. Harold Wanless, a distinguished member of the faculty who taught sedimentary geology in the 1950s and 1960s.

**SESE Student Computer Lab:** Room 1088 NHB has computers, printers, a scanner, and other computer peripherals. The room has swipe card access so be sure to bring your iCard with you.

**Main office:** Room 3028 NHB – Lana Holben's office.

## **Advising and Responsibilities**

In many ways, graduate education is carried out as an apprenticeship, and the interaction between the grad student and the advisor is central to the mission of the Department.

### Early in the program

Many students enter the program intending to work with one particular faculty member, while others consider multiple options in their first year. Students are assigned advisors when they arrive in the Department. In many cases, a student's initial advisor becomes his/her research advisor, but this does not need to be the case. We encourage students to interact with other faculty members in order to develop a breadth of research skills and interests, and to explore the range of research opportunities available in the Department. Each student works closely with the advisor to choose classes and to begin developing a research topic.

### The initial advisor has the following roles:

Advise the student in choosing a course of study. Assist in initiation of research projects.

Later in the program, the research advisor is responsible for monitoring the student's program. At least once a year, the Graduate Study Committee (GSC) monitors a student's program to ensure that satisfactory progress toward a degree is being made.

### The research advisor has the following roles:

- Advise the student in choosing a course of study and completing the coursework requirements.
- Act as a mentor in the planning and execution of research projects.
- Educate the student as necessary to develop his/her understanding of how scientific research is carried out in a methodical and ethical manner.
- Facilitate the execution of research projects by providing access to equipment, field sites, or research funding.

### Student's Responsibilities

Students should be aware that they have new responsibilities that they may not have had as an undergraduate. One major goal of our program is to help students become independent thinkers and contributors, rather than followers, in the scientific community. Graduate students are afforded great flexibility in designing their coursework and in pursuing research topics, but this freedom comes with an important responsibility. Students must take charge of their education and are expected to contribute to the upkeep and improvement of the Department.

## **ANNUAL REVIEW PROCESS FOR ACADEMIC PROGRESS**

Following the policy of the Graduate College the Geology program will conduct an annual review of all currently enrolled graduate students. The purpose of the review is to evaluate a student's progress and to identify an ongoing pathway to professional success. This form of annual progress-tracking allows the student and supervisor to meet and establish objectives for the year. This ensures that both students and advisors be held accountable for timely progress and for constructive feedback.

The annual review of Geology degree candidates will be conducted in the spring semester. The review will begin with a self-assessment. This and other written parts of the process are done online at [my.atlas.illinois.edu](http://my.atlas.illinois.edu).

Once the student has completed the online form, their advisor will make comments on the student's progress and the plan for the upcoming academic year.

Following Graduate College guidelines, the student and advisor must meet in person to communicate and discuss the advisor's feedback. A Geology affiliate should be present for the review discussion between the student and their advisor. The meeting will include an oral presentation of up to 15 minutes in length by the student, outlining progress made during the past year, and research plans for the upcoming year.

If there is disagreement of opinion between the student and the advisor on the performance evaluation, proposed plan of action, or both, the Grad Studies Committee Chair must be informed immediately by the advisor. It is stressed that the primary purpose of this review is to provide feedback and discussion to assist the student in their progress towards graduation and other career goals. The review will also be used as the basis for appointment and funding decisions. A meeting of the Grad Studies Committee of the Department will be held to discuss the annual reviews of every student.

## **DEPARTMENTAL PETITION PROCESS**

Deviations from policies are allowed under appropriate circumstances, upon approval of a student's petition by the student's advisor, and the Graduate Studies Committee or by the Dean of the Graduate College as appropriate. The departmental grad student petition must be completed by the student, and the student must have their advisor complete the advisor portion before submitting it to Lana Holben for review by the Grad Studies Committee.

**It is strongly advised that a student file a petition before a deviation from policies occurs.**

The petition request should be made to Lana Holben within the semester of the policy deadline if requesting an extension. Petitions should only be filed for "exceptional cases".

An example of the petition can be seen on page 12 and 13.



**2nd page of Grad Student petition:**

UIN: \_\_\_\_\_

Student's Name: \_\_\_\_\_

**INSTRUCTIONS FOR COMMENTS AND RECOMMENDATIONS**

**Comments and Recommendations** should be indicated below. The more unusual the request, the more detailed the comments should be. Petitions with minimal comments such as "support" ~~may be returned~~ for more detail. All petitions require a **minimum of two different signatures**. A signature from the student's adviser is required. The second signature must be from another person designated as being an "authorized signature" for graduate petitions from the department's Graduate Studies Committee. If relevant, please attach additional letters and forms.

**Student's Adviser Comments & Recommendations – Signature required**

\_\_\_\_\_  
Adviser's Signature

\_\_\_\_\_  
Date

**Graduate Studies Committee Chair, Comments & Recommendations – Signature required**

\_\_\_\_\_  
Graduate Studies Chair, Signature

\_\_\_\_\_  
Date

Completed petitions should be submitted to:  
Lana Holben, Department of Geology Graduate Student Administrator  
3028 Natural History Bldg., MC-102

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## Master of Science Requirements

The Master of Science Degrees are designed to give students a solid background in geology, skills that can be applied in geology-related industry or teaching, experience in research and, in most cases, experience in teaching.

The department offers three options for the M.S. degree. Students in the Master of Science program can follow the “standard” (or thesis) option or the “applied geology” (or non-thesis) option. The non-thesis option is intended as a terminal degree for students preparing for professional work in environmental and engineering geology or in applied geophysics and who have already been admitted to the program. We do not currently accept new students for the non-thesis master’s degree. Admitted students must declare their intent to pursue the non-thesis option at least one semester prior to completing degree requirements. Such requests must be approved by the Department Head for the non-thesis option to be pursued.

**The Standard Option** awards the degree of M.S. in Geology. This option requires the completion of a thesis. It is the most commonly used option, and is designed for students who will pursue geological careers in research or industry, or who plan to continue graduate study toward a Ph.D. Most oil companies, for example, prefer to hire students who have completed a thesis, because of the valuable experience that students gain by doing thesis research. This option is designed to be completed in about two years, though students who enter the program with a sparse background in geology may need additional time.

**The Applied Geology Option** also awards the degree of M.S. in Geology. It is designed for students who plan to enter an area of applied geoscience (e.g., engineering geology, hydrogeology, applied geophysics, environmental geology). This option can be completed in about 1.5 years by students who enter the department with no deficiencies, but generally will take 2 years. Students pursuing this degree option do not write traditional theses. As many employers expect M.S. recipients to have completed a thesis, this option is not commonly used.

**The Teaching of Earth Sciences Option** is a separate degree program designed for students who will teach at the secondary school level, and requires education classes and other sciences in addition to geology. It awards an M.S. Degree in the Teaching of Earth Science.

### Milestones for Standard Master of Science options

Milestone	Normal Progress	Limit
Select research advisor	End of 1st semester	End of 2nd semester
Complete background coursework	End of 3rd semester	End of 4th semester
Thesis Colloquium	4th semester	6th semester
Thesis Completion	4th semester	6th semester

Most full semester courses count as 4 hours for grad students. 4 hours of credit is roughly equivalent to 10 hours of work per week.

## Curriculum Requirements for Master's of Science Geology degrees – Thesis and Non/Thesis Options

In addition to the policies in the Geology Grad Student Handbook, you should also refer to the Graduate College Handbook at <http://www.grad.illinois.edu/gradhandbook>.

Required Courses:	Thesis Option-Required Hrs.	Non-Thesis Option-Required Hrs.
Formal Coursework Hours must be at the 400-level or greater and approved for graduate credit. Reading courses or independent study are not considered to be formal courses.	24 minimum hours	32 minimum hours
Thesis Hours Required	Minimum of 8 hours	Not required
Research/Project Hours Min/max applied toward degree:		4 minimum
<b>Total Hours:</b>	<b>32</b>	<b>40</b>
Of the Total Hours these are required & can be combined (ie. GEOL 562 4hrs counts as a 4/12 Geology course credits required and 4/12 500 level course credits required):		
Minimum # of hours – Geology courses	12	12
Minimum 500-level Hours	12	12
<b>Other Requirements:</b>		
Student must be registered for GEOL 591	0 hrs credit	0 hrs credit
	Each student must present a colloquium on their thesis research	Each student must complete a written report on their research project
		400 level coursework is limited to 8 hours required in any of the options of the undergraduate curriculum in geology and geophysics at UIUC.

All students must maintain a minimum grade point average (GPA) of 3.0 (A=4.0). If the GPA falls below this minimum after 12 or more graduate hours of graded coursework, it must be raised to 3.0 or above after the completion of 12 additional graduate hours of graded coursework and must be maintained at or above the minimum thereafter.

## **Curriculum Requirements for Master’s of Science Geology degrees – Teaching of Earth Science**

Contact the certification officer of the Council on Teacher Education (130 Education Building, 217-333-7195) for information pertaining to pursuing certification while enrolled in the graduate program.

Required courses:	Required Hours
Electives in earth science	8
Elective in education	8
<b>Total Hours</b>	<b>32</b>
Minimum Hours Overall Required Within the Unit Hours must be at the 400-level or greater and approved for graduate credit Reading courses or independent study are not considered to be formal courses.	16
Minimum 500-level Hours Required Overall	12

### **Thesis Format**

The M.S. thesis can either be in the "traditional format" (a multi-chapter document that is typically 40 to 100 pages long, including figures) or in the "publication format" (a manuscript ready for submission to a quality peer-review journal). All theses should follow format guidelines provided by the Graduate College on their website.

As a rough guide, a thesis should describe an original research project carried out under the supervision of the thesis advisor. It should include:

- Definition of an original scientific problem
- Collection of data
- Interpretation of results
- Clear written presentation of results and interpretation, with clear figures

### **Thesis Readers**

- A thesis must be approved by two readers -- your advisor and one other reader (called the "second reader") of your choice. Your advisor must be a member of the graduate faculty in the Department of Geology. The second reader may be another graduate faculty member in the Department, or may be an adjunct member of the faculty, or may be a member of another department in the University. Both readers must approve and sign the thesis in order for it to be officially accepted.
- You may have a third, optional reader from a relevant campus unit (e.g., the ISGS or another department) or from off campus. The third reader can help advise the work, and may sign the thesis, but does not vote on its acceptability.

- Be sure to choose the second reader (and third reader, if desired) early during your research. Keep all readers up to date on your progress. It is best to show both your advisor and the other reader(s) chapters of your thesis as you proceed, so there are no surprises.

## **Procedures for Completing the M.S. Standard Option**

**Thesis Colloquium:** When you have completed your research to the point where you can communicate the important conclusions, you must schedule a thesis colloquium (do this with Lana Holben). The thesis colloquium lasts for 30 to 50 minutes, during which you make an oral presentation describing your thesis work, your results, and your interpretation to your fellow students and interested faculty. The thesis colloquium must be presented during a spring or fall semester while classes are in session and scheduled prior to the last two weeks of the instruction.

Students should generally plan to give their thesis colloquium during the academic year. In rare cases when a student must present the colloquium during the summer session, they must petition the Graduate Studies Committee (a departmental petition) for approval. In general, the thesis colloquium comes after your advisor and second reader have read the thesis. But if the thesis will not be completed until the summer, and the advisor approves, the student may present the thesis colloquium in the spring before the writing is complete.

**Thesis Completion and Signing** After you complete your oral presentation (in many cases, immediately afterward), you must meet with your advisor and your second reader, preferably at the same time. If your oral presentation occurs significantly before you complete the written thesis, the meeting will be delayed until the written thesis is complete. During this meeting, the readers will discuss any remaining questions about the research, and point out any final changes in the thesis that need to be made. If there are no changes needed, they will sign the *thesis form* (available on the Graduate College website). This signifies acceptance of the thesis. They may, alternatively, request that you make some changes, and can delay signing until you have made the corrections. Finally, you must obtain the signature of the Department Head on the thesis form. To do this, please bring your form to Lana Holben so that she can have it signed and retain a copy for your student file.

**Depositing your Thesis** The University requires that the thesis meet certain format criteria. You formally complete the requirements for the degree when you deposit your thesis at the Graduate College. See the Graduate College website for instructions and a Thesis Checklist for Master's Students. You will need to send Lana Holben a pdf version of your thesis, so that a format check can be done.

The **Applied Geology Option** is intended as a terminal degree for students training for professional work in environmental and engineering geology, and applied geophysics. After completion of this option, admission to the Ph.D. program can only be obtained by reapplying for admission. Students with strong backgrounds (e.g., graduates from the geology, environmental, and geophysics undergraduate options in Geology at UIUC) may be able to

complete this option in one academic year plus one summer session, but generally it will take two years. Students in this option may do their research projects with staff from the ISGS. **Students must declare their intent to pursue the non-thesis option at least one semester prior to completing degree requirements. Approval of the Department Head is required.**

**Advisor Requirement:** The student's program must be developed with the academic advisor and approved by the advisor and the Graduate Studies Committee. The advisor is responsible for monitoring the student's program and ensuring that all degree requirements have been satisfied.

**Written Report:** The written report for the Applied Geology Option is not as involved as a thesis, but must demonstrate the student's ability to work independently, communicate scientific ideas, and present a polished written product. The report must be read by the advisor and a second reader (the second reader may be from the Geology Department or from a relevant campus unit, e.g., the ISGS or the Civil Engineering Dept.). The student must keep both readers informed of progress throughout the project.

Reports are generally between 20 and 40 pages in length, including figures. The report may be:

- A case study with well supported conclusions
- A "report to management" with supported recommendations
- A description of the students research in a thesis format ("mini-thesis")

The report must represent an original piece of work. Rehashed term papers from courses are not acceptable. As always, good [scientific writing](#) practices should be followed.

**Report Completion and Signing:** Upon completion of the report, and after the readers have had an opportunity to read the report, the student must make a 20 to 30 minute oral presentation of the report to the two readers. This presentation can be open to the department at the option of the student. This presentation will be followed by a meeting with readers. If, at this time, the readers consider the report to be acceptable, they will sign the departmental signature sheet (obtained from Lana Holben). The readers may, alternatively, require corrections before signing, or they may reject the report. Once the report has been signed by the two readers, the student must then obtain the signature of the Department Head. The signed copy must be deposited with Lana who will place the report in the department's files. Upon deposit of the report, the requirements for the Applied Geology Option are complete.

**The Teaching of Earth Sciences Option** is suitable for those intending to teach earth science or physical sciences at the high school level. A written report or thesis is not required for this degree.

## Ph.D. Requirements

### Milestones

The following table applies to full-time students entering **WITH A GEOSCIENCE MS DEGREE**. Students entering with a Geoscience MS degree are expected to progress more quickly in the first two years of the program than students entering without a Geoscience MS Degree.

Semesters are defined as Spring or Fall. The summer semester is not counted.

Milestone	Normal Progress	Limit
Select research advisor	End of 2nd semester	
Complete background coursework	End of 3rd semester	End of 4th semester
Qualifying Exam*	2 <sup>nd</sup> semester	3 <sup>rd</sup> semester
Preliminary Exam**	4 <sup>th</sup> semester	5 <sup>th</sup> semester
Dissertation Colloquium	9 <sup>th</sup> semester	12 <sup>th</sup> semester
Dissertation Completed	9 <sup>th</sup> semester	12 <sup>th</sup> semester
Final Examination	9 <sup>th</sup> semester	12 <sup>th</sup> semester

The following table applies to full-time students entering **WITHOUT A GEOSCIENCE MS DEGREE**. Students entering with a Geoscience MS degree should progress more quickly in the first two years of the program.

Semesters are defined as Spring or Fall. The summer semester is not counted.

Milestone	Normal Progress	Limit
Select research advisor	End of 2nd semester	End of 4th semester
Complete background coursework	End of 3rd semester	End of 4th semester
Qualifying Exam*	3 <sup>rd</sup> semester	4 <sup>th</sup> semester
Preliminary Exam**	5 <sup>th</sup> semester	6 <sup>th</sup> semester
Dissertation Colloquium	9 <sup>th</sup> semester	12 <sup>th</sup> semester
Dissertation Completed	9 <sup>th</sup> semester	12 <sup>th</sup> semester
Final Examination	9 <sup>th</sup> semester	12 <sup>th</sup> semester

**The following table applies to PART-TIME Ph.D. STUDENTS.** Students entering with a Geoscience MS degree should progress more quickly in the first two years of the program.

Semesters are defined as Spring or Fall. The summer semester is not counted.

Milestone	Normal Progress	Limit
Select research advisor	End of 2nd semester	
Complete background coursework	End of 4 <sup>th</sup> semester	End of 8 <sup>th</sup> semester
Qualifying Exam*	4 <sup>th</sup> semester	6 <sup>th</sup> semester
Preliminary Exam**	5 <sup>th</sup> semester	7 <sup>th</sup> semester
Dissertation Colloquium	9th semester	12th semester
Dissertation Completed	9th semester	12th semester
Final Examination	9th semester	12th semester

\*Geology grants a student another opportunity to take their qualifying exam one additional time if a deferred result is given on their first attempt. The student will only be allowed to take the qualifying examination one additional time while working toward the completion of their degree.

A petition is not required for this re-take option, however it must be scheduled and completed within 6 months of the date of the first completed exam or by the end of the next semester. Petition for an extension beyond the 6 months for the re-take is strongly discouraged and will only be considered under special circumstances.

\*\*Geology grants a student another opportunity to take their preliminary exam one additional time if a fail is given on their first attempt. The student will only be allowed to take the preliminary examination one additional time while working toward the completion of their degree.

A petition is not required for this re-take option, however it must be scheduled and completed within 6 months of the date of the first completed exam or by the end of the next semester. Petition for an extension beyond the 6 months for the re-take is strongly discouraged but will be considered under special circumstances.

A new committee must be appointed, and may, but does not have to, consist of the same members as the original committee.

## Ph.D. Program Requirements continued

A Ph.D. degree requires at least 96 hours of credit. See the Programs of Study site (<http://provost.illinois.edu/ProgramsOfStudy/2014/fall/programs/graduate/geology.html>) for full coursework requirements.

### Curriculum Requirements for Ph.D. degree

Required Courses:	Required Hours – Entering with approved MS degree	Required Hours – Entering with approved BS degree
Formal Coursework Hours must be at the 400-level or greater and approved for graduate credit. Reading courses or independent study are not considered to be formal courses.	28 minimum hours	40 minimum hours
Thesis Hours Required – GEOL 599 (min/max applied toward degree)	32 minimum hours	32 minimum hours
Additional formal coursework (400-level or greater) and approved for graduate credit, or combination with Research Thesis Hours (GEOL 599) – student choice	4 minimum hours	24 minimum hours
<b>Total Hours:</b>	<b>64</b>	<b>96</b>
Of the Total Hours these are required & can be combined (ie. GEOL 562 4hrs counts as a 4/12 Geology course credits required and 4/12 500 level course credits required):		
Electives outside of the Geology department	4 minimum hours	4 minimum hours
Student must be registered for GEOL 591	0 hrs. credit	0 hrs. credit
Minimum # of hours – Geology courses	12	12
Minimum 500-level Hours	20	20

All students must maintain a minimum grade point average (GPA) of 3.0 (A=4.0). If the GPA falls below this minimum after 12 or more graduate hours of graded coursework, it must be raised to 3.0 or above after the completion of 12 additional graduate hours of graded coursework and must be maintained at or above the minimum thereafter.

### Adviser and Dissertation Committee

All Ph.D. students should select a research advisor soon after joining the Department. Any student who has not identified an advisor for their MS or PhD advisor by the end of their first academic year may be dropped from the graduate program.

Upon completion of the Preliminary Exam, each Ph.D. student must have a research advisor and a dissertation committee. If the student cannot find a faculty member who is willing to serve as the advisor or cannot assemble a committee (i.e., if faculty refuse to advise or serve on the committee), the student must leave the department without the Ph.D. degree. Typically, members of the Preliminary Exam Committee continue to serve on the Dissertation Committee, but a new committee can be established if the student so desires. The Preliminary Exam Committee and the Dissertation Committee must include four voting members, three of which must be Graduate Faculty, and two of which must be tenured. Committee should include faculty from more than one area of specialization. The chair must be a member of the Graduate Faculty.

**Annual Meetings:** It is recommended that each student who has passed the Preliminary Exam meet once a year with the Dissertation Committee to discuss research progress including accomplishments, remaining tasks, and schedule for completion. This meeting will keep the Committee informed of the student's progress and provide the Committee with an opportunity to advise the student and ensure that satisfactory progress is made toward completion of the degree.

## **Dissertation**

Each candidate must complete a dissertation. The dissertation may be in a "traditional format" (a multi-chapter document that is generally about 100 to 200 pages long), or in a "publication format" (2 or more manuscripts ready for submission to quality peer-review journals).

Typically, progress on the dissertation follows the following steps:

- begin initial work to choose a topic
- select an appropriate Qualifying Exam Committee
- pass the Qualifying Exam
- conduct research and select an appropriate Preliminary Exam Committee
- prepare for and take the Preliminary Exam
- hold annual review meetings with the Thesis Committee
- write dissertation (it is best if Committee members see the chapters during the writing process)
- present the dissertation colloquium
- defend the dissertation in front of your Thesis Committee (this is the "Final Exam")
- make corrections and obtain signatures on "thesis form"
- have the format of your dissertation approved (see Lana Holben)
- deposit thesis with the Graduate College

You should work closely with your advisor throughout this process.

## **Colloquium, Defense, and Completion**

**Colloquium:** A dissertation colloquium is presented before the dissertation is deposited. This is designed to improve your presentation skills, inform the entire Department of your work, and give you suggestions to improve your conclusions. You should present your research results in 30-50 minutes and answer questions from members of the university community in the audience. The research need not be fully complete, though you should have your conclusions established before the colloquium is prepared. Colloquia should be presented while classes are in session (summer colloquia may be allowed by petition). By Graduate College policy, the dissertation colloquium and final exam are open to the entire department and campus.

The student schedules the Colloquium at least 3 weeks prior to the end of the semester of graduation or within the scheduling deadlines for the degree.

**Final Exam:** After the colloquium, the student must arrange the final exam to defend the dissertation. Please see the section on Final exam for further details.

**Signing:** Once you pass the Final Exam, have made any corrections required by the Committee, and have prepared the final copies, you must obtain signatures of all members of your Committee and the Department Head. These signatures must be affixed to the thesis form that you obtain from the Department Office. You must also arrange with Lana Holben to have a format check by the Graduate College. Upon approval by the Graduate College, you must deposit your dissertation with the Graduate College. When you have deposited your dissertation, you have officially completed all requirements for the Ph.D. degree. Congratulations!

## **Examinations**

All Ph.D. students must take three exams. Together, these exams demonstrate a student's ability to conduct independent scientific research, including:

- Breadth of scientific knowledge beyond a specific field.
- The ability to define and defend a research proposal.
- Proficiency, at an advanced level, in a specialized field.
- Ability to develop, complete and defend a research project.

The exams, in the sequence that you take them, are:

1. **Qualifying Exam** A Departmental requirement to test your depth and breadth of knowledge in geoscience, and your potential to do research. This exam must be taken by the fourth semester without a MS degree in geoscience, or must be **taken** by the third semester if the student already has a MS in geoscience prior to admission in the Department. The student must have a research advisor who is willing to supervise their research in order to take this exam.
2. **Preliminary Exam** A Graduate College requirement to test your ability to do dissertation research; this exam focuses on the viability of the dissertation project and on your ability to complete it. This exam must be taken within two semesters of passing the Qualifying Exam. The student must have a research advisor who is willing to supervise their PhD research in order to take this exam.
3. **Final Exam** A Graduate College requirement to determine whether your dissertation is adequate and that you fully understand all aspects of the dissertation. There are two parts to this exam -- first, you present a dissertation colloquium to the Department, then you defend your dissertation in front of your thesis committee. The Final Exam is open to the campus.

## **Ph.D. Qualifying Examination**

Milestones

Scheduling

Preparation

The Committee

Advance Meeting

Exam Format / Part 1 and Part 2

Presentation

Questioning

Outcome of the exam

### **Milestones**

The Qualifying Exam is the first exam leading to completion of Stage II requirements of the Graduate College. It is a departmental requirement which determines if the student is capable of graduate study and research at the Ph.D. Level. The results of this exam are not reported to the Graduate College, although the Graduate College recommends that departments have some formal evaluation of student progress such as the Qualifying Exam.

### Scheduling

This exam should be scheduled according to the following:

Students entering with a Geoscience MS degree in geoscience: normally by the 2<sup>nd</sup> semester and limited to the 3<sup>rd</sup> semester.

Students entering without a Geoscience MS degree: normally by the 3<sup>rd</sup> semester and limited to the 4<sup>th</sup> semester.

### Preparation

This exam is very significant, and students should prepare intensively for it. It is intended to evaluate:

- The student's integrated knowledge of geosciences
- The student's ability to select, frame, and defend a research problem
- The student's ability to solve problems in a creative manner

Preparation for this exam is a critical step in the education of a Ph.D. student. It provides an opportunity for the student to synthesize information and concepts from coursework, research, and independent reading (in both geoscience and other disciplines) and integrate such knowledge to form a coherent understanding of geoscience. The exam can be roughly broken down into two parts, and the total length is usually 3 hours or less.

### The Committee

The Committee must be composed according to the following guidelines:

The Committee consists of four or five faculty members, including the advisor or a tentative advisor.

Two members are chosen by the Graduate Study Committee; one of these acts as exam chair.

At least three members of the Graduate Faculty in the Department must be included.

One faculty member aside from the academic advisor is chosen by the student.

Steps to follow:

- 1) Student chooses one member from the faculty pool to sit on their committee with assistance from their research advisor, and confirms their choice is willing to serve on the committee.
- 2) Student shares those names with Lana Holben and the Graduate Studies Committee Chair who requests the Grad Studies Committee (GSC) to assemble remaining committee members.
- 3) The Graduate Studies Chair will be in touch with the student once he/she hears from the Committee.
- 4) Student will then poll their committee members with proposed dates of the exam and verify with Lana that the selected date does not conflict with any Departmental events.
- 5) The exam will be held in an NHB conference room, unless otherwise requested. It is the student's responsibility to ask office staff to reserve the room and any necessary audiovisual equipment for the exam.

### Advance Meeting

Exams will occur no later than 2 weeks prior to the end of the fall or spring semester. The

identity of the examining committee and the anticipated week of the exam will be provided to the student by the GSC about one semester before the exam, or as soon after the student requests the committee to be formed. As soon as possible thereafter, the student should meet or communicate with the Chair and individual members of the committee to clarify:

- What the student considers his/her area of specialization.
- What relevant areas of geoscience will be examined at the 400 level.
- Deficiencies that should be addressed before the exam.
- **Any conflicting advice should be sorted out by the advisor.**

### Exam Format

The Qualifying Exam is a two-part examination. Both parts of the Exam are in oral format. The committee chair mediates as faculty ask questions in turn. Faculty may provide guidance during the Exam to guide a student into a productive line of reasoning. It is not expected that a student will be able to answer all questions. The length of the exam will be 3 hours or less

*Scope of topic:* The student should select the problem carefully in order to demonstrate their ability to define and organize a scientific investigation, and to use original literature. However, the scope must be restricted enough to allow presentation and questioning in one hour. A problem that is too restricted may not provide enough material for questioning, while a problem that is too broad gives a student too much material to defend.

The research problem should be chosen to address a single hypothesis that is stated in the research proposal.

**Part One:** Presentation of a prospective research problem.

The first part of the exam tests the student's ability to define and develop a research problem. In advance of the exam, the student selects a research topic and prepares a proposal on the topic. During the exam, the student makes a 15-20 minute presentation of the topic. This is followed by about 30-45 minutes of questioning centered on the topic. The maximum time given to Part One will be 1.5 hours.

*Nature of the Proposal:* The student prepares a 12- page (maximum; 1.5 spacing) written presentation of the problem, a hypothesis that will be tested, the significance of the problem, a description of a research program which could be undertaken to address the problem (e.g., experimental or theoretical methods), and outlines possible outcomes of the research. The proposal must be submitted to members of the Committee at least one week before the exam. The student should discuss the proposal with her/his advisor while preparing it.

### *Format of the Proposal*

- The body of the proposal will be a maximum of 12 pages in length, including all figures and tables. The summary and references do not count toward the 12-page limit. No appendices are permitted unless approved by all committee members.
- 12 point font, 1.5 spacing, 1" margins, and Times New Roman font should be used throughout the proposal except for figure captions, which can be single spaced.
- A one-page summary of the proposal, stating what research will be done, its

significance and broader impacts will precede the body of the proposal. The summary should indicate the hypothesis to be tested.

Proposals that do not adhere to the guidelines above will be rejected.

*Choosing a topic:* A variety of topics of interest to the student can be used as the research problem. The research problem is not necessarily a potential dissertation topic, but it often is. The topic cannot be identical to previous research work for M.S. or B.A. theses. The student defines and develops the problem, but is encouraged to discuss potential topics with the research advisor or other members of the Committee.

### **Part Two:** General Questions

During this part of the exam, the student must respond to questions designed to test breadth of knowledge in geoscience, and level of knowledge in the student's specialty.

Level of questioning:

- 500 level in the specialty area
- 400 level in related basic sciences and geoscience Geology 107/108 level in other areas of geoscience

### Outcome of the exam

The Committee decides among the following options, and the decision must be unanimous. If a unanimous decision cannot be reached, the matter is referred to the GSC. The results are submitted to the Graduate Secretary in the Department of Geology.

### **Pass.**

**Decision Deferred.** If the student shows potential for Ph.D. candidacy but has too many deficiencies in his or her background to pass the Exam, this option is used. The examining committee must recommend remedial reading or course work. If the student wishes to retake the exam, they must retake the exam within six months or by the end of the following semester.

A petition is not required for this re-take option; however it must be scheduled and completed within 6 months of the date of the first completed exam or by the end of the following semester. Petition for an extension for the re-take is strongly discouraged but will be considered under special circumstances.

**Fail.** The committee decides that the student is clearly not qualified for further work in the Ph.D. program. A student who fails the Ph.D. Qualifying Exam is allowed to pursue a M.S. degree at the Department subject to the M.S. degree requirements.

## **Ph.D. Preliminary Examination**

Scheduling

Objectives

The Committee

Written Proposal

Exam Format

Outcome

The Preliminary Examination is required by the Graduate College and defines the end of Stage II in the pursuit of the Ph.D. degree.

### Scheduling

It should be administered as soon as the student is ready to embark on research and has a clear plan for a research program. This should occur no later than two semesters after completing the Qualifying Exam. The Preliminary Exam must not be delayed until after the student has completed substantial work on the dissertation.

Steps to follow:

- 1) Student chooses entire committee with assistance from their research advisor, and confirms their choices are willing to serve on the committee.
- 2) Student shares names of those willing to sit on the committee with Lana Holben and the Graduate Studies Chair.
- 3) Student will then poll their committee members with proposed dates of the exam and verify with Lana that the selected date does not conflict with any Departmental events.
- 4) The exam will be held in an NHB conference room, unless otherwise requested. It is the student's responsibility to ask office staff to reserve the room and any necessary audiovisual equipment for the exam.

### Objectives

The objectives of the Examination are to determine if:

- The student is prepared to carry out original research at the Ph.D. level.
- The topic and scope of the proposed dissertation are appropriate.
- The student can communicate clearly.

### Committee

The Committee is proposed by both the student and the research advisor, is approved by the GSC, and must be composed according to the following guidelines:

The Committee can have a maximum of 5 members, including at least four voting members.

The Chair of the Committee (research advisor) must be a member of the Graduate Faculty.

At least 3 members of the Committee must be Graduate Faculty in the Department.

At least 2 members of the Committee must be tenured.

Up to 2 Committee members can be from outside the Department.

### Written Proposal

The student writes a proposal of 15 pages maximum in length, with 1.5-spacing, of dissertation research and must deliver the proposal to Committee members at least one week prior to the Exam. The proposal describes the scientific problem, review of previous work, research objectives, proposed methodology, and potential results, significance, and implications of the research.

#### *Format of the Proposal*

- The body of the proposal will be a maximum of 15 pages in length, including all figures and tables. The summary and references do not count toward the page limit. No appendices are permitted unless approved by all committee members.
- 12 point font, 1.5 spacing, 1" margins, and Times New Roman font should be used throughout the proposal except for figure captions, which can be single spaced.
- A one-page summary of the proposal, stating what research will be done, its significance and broader impacts will precede the body of the proposal. The summary should indicate the hypotheses to be tested, and how the proposed research will resolve the hypotheses.

### Exam format

The Exam is oral in format. Questions by the Committee concerns the research project and, if appropriate, the student's background in relevant subjects. Because the Qualifying Exam has already been passed, the Preliminary Exam focuses on the proposed research project and the student's competency to undertake that particular project. A formal presentation (30 min. or less) is usually a part of the exam. The Exam generally lasts a maximum of three hours.

### Outcome of the exam

The Committee decides among the following options, and the decision must be unanimous. If a unanimous decision cannot be reached, the matter is referred to the GSC.

**Pass.** Minor revisions or remediations are often suggested by the Committee, and the student may be asked to meet with the Committee again to demonstrate completion of these actions.

**Fail (with second chance).** The student is given one more opportunity, within six months, to take the exam. The Graduate College is informed of the failure and the Committee Chair will indicate that the student should be given a second examination. If the second exam results in a failure, the student must leave the Department without a Ph.D. degree at the end of the academic year.

A petition is not required for this re-take option, however it must be scheduled and completed within 6 months of the date of the first completed exam **or by the end of the following semester. Petition for an extension for the re-take is strongly discouraged but will be considered under special circumstances.**

**Fail (final).** The Department notifies the Graduate College immediately and the student may

not continue in the Ph.D. program beyond the end of the academic year.

**Decision Deferred.** If substantial changes are required in the research program, this option is used. The examining Committee must recommend changes and improvements, and the student must re-take the exam within six months **or by the end of the following semester.** **Petition for an extension for the re-take is strongly discouraged but will be considered under special circumstances.**

## **Ph.D. Final Examination**

Scheduling

Objectives

The Committee

Written Proposal

Exam Format

Outcome

The Final Exam, administered after completion of the dissertation, determines whether or not the dissertation and the student's defense of the research are of acceptable quality for the Ph.D. This is the "Final Oral Examination" required by the Graduate College.

It is aimed at the following questions:

- Is the research at an appropriate level?
- Are the results original and significant?
- Is the dissertation well-written?

### Scheduling

The student should schedule the Exam well in advance of the deadline to deposit their dissertation in the graduating term they desire. Lana Holben will help arrange the day and time. Communicate with Lana to reserve a room for the Colloquium and to assemble an information flyer that will be distributed to faculty and fellow students. Members of the Final Exam Committee must be given copies of the dissertation no later than ten days before the scheduled Final Exam. The Exam should be taken after the Dissertation Colloquium has been completed.

### The Committee

The Committee is normally the same as the Preliminary Exam Committee, but if this group cannot be reconvened, the GSC and the advisor will establish a new Committee. The Committee must include four voting members, three must be Graduate Faculty members in the Department, and two must be tenured faculty. The Committee should include faculty from more than one area of specialization. The Chair must be on the Graduate Faculty. The Committee should have no more than five members.

### Nature of the Exam

As the Committee members will have attended the dissertation colloquium, the Final Exam does not contain a formal oral presentation. The Exam consists of oral questioning by the Committee concerning the dissertation. The student should come prepared with illustrations, suitable for projecting on a screen, to aid discussions. The Exam generally lasts 3 hours, after which the student is excused temporarily while the Committee deliberates on the outcome of the Exam.

### Outcome of the Exam

The Committee decides among the following options, and the decision must be unanimous. If a unanimous decision cannot be reached, the Committee Chair must confer with the Dean of the Graduate College.

**Pass.** Each Committee member must indicate that the thesis has been read and approved.

**Fail (with second chance).** The student is given one more opportunity, within six months **or by the end of the following semester**, to retake the Exam after completing additional research or writing, as recommended by the Committee.

The Graduate College is informed of the failure and the Committee Chair will indicate that the student should be given a second examination. A new committee must be appointed by the Graduate College. The new committee may, but does not have to, consist of the same members as the original committee.

If the second exam results in a failure, the student may not continue in the Ph.D. program of the Department.

**Fail (final).** The Department notifies the Graduate College immediately and the student may not continue in the Ph.D. program of the Department.

**Decision Deferred.** If substantial changes are required in the dissertation, this option is used. The Examining Committee must recommend changes and improvements, and the student must retake the Exam within six months **or by the end of the following semester**.