

University of Vermont
Geology Department
Graduate Student Handbook
January 2008

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1.0 INTRODUCTION

Graduate school is a difficult but potentially rewarding period of any scientist's life. Getting an M.S. degree should be an intellectually stimulating and demanding experience. As faculty and advisors, it is our role to make the graduate school experience as pleasant and worthwhile as possible.

This document presents the process by which you will attain a graduate degree in Geology at UVM. It states explicitly the steps you will take to complete our program and our expectations of you as a student. The purpose of this document is to state clearly all expectations, to expedite progress through the program, to elaborate on important policies, and to ensure that you graduate a capable, proud and employable scientist.

In order to smooth the transition to graduate school and make progress through the program as productive and enjoyable as possible, the department faculty teach a one-credit course for first year graduate student entitled, "Introduction to Graduate Studies in Geology." All first year students are expected to register for this course.

It is imperative that you use this document in conjunction with the Graduate Catalogue, which is available from the Graduate College in the Waterman Building. The graduate school handbook sets official graduate school policy; this handbook lays out policies of the Geology Department. Exceptions to guidelines presented in this handbook may be requested by petitioning the Department faculty.

For general information relating to graduate studies and UVM graduate school policies it is best to contact:

Ralph Swenson or Joan Canizzaro
The Graduate College
656-1464
335 Waterman Bldg.
<http://www.uvm.edu/~gradcoll/>

2.0 GRADUATE PROGRAMS IN GEOLOGY

2.1 Scope of the Program

The Department of Geology at the University of Vermont offers the Master of Science (MS) degree.

2.2 Objectives of the Program

Students in the MS program will: 1) pursue advanced study and original research in one or more areas of geology, 2) eliminate deficiencies in their geological education, and, 3) prepare for employment in the geological sciences, science teaching, enrollment in a doctoral program, or employment in any other scientific field. Although MS students work toward a high level of proficiency in a chosen field of specialization, they should also acquire a broad understanding of the fundamentals of geology. Incoming MS students should select a thesis topic by the end of their first semester of course work. Incoming graduate students may find it helpful to sample a variety of graduate courses and to seek the advice of several faculty members during their first semester as they select a thesis topic, address deficiencies in their geologic preparation, and refine their thesis proposal.

2.3 Requirements for Master of Science Degree

See current graduate catalogue for the most up-to-date description of program requirements.

Prerequisites for Acceptance to Candidacy

1. Bachelor's degree from an accredited institution including year-long courses in Chemistry, Physics or Biology, and Mathematics. The M.S. program is also open to undergraduate majors in physics, chemistry, biology, engineering or mathematics who have accumulated 12 semester hours of coursework in Geology; required remedial course-work in Geology, if any, will be established by the student and the faculty during the admission process and during advising at the beginning of the first semester.
2. Strong undergraduate record, letters of recommendation, and satisfactory basic GRE scores.
3. Participation in the first year course, GEOL 302 "Introduction to graduate studies in Geology"
4. At least one 300 level course

Minimum Degree Requirements

Thesis and advanced courses in Geology must total at least thirty semester hours including a minimum of 6 and a maximum of 9 credit hours for thesis research. Advanced courses in related sciences are encouraged and may be substituted for Geology courses with the permission of the student's thesis committee. All students must complete successfully a course in field geology or equivalent before graduation. This can be satisfied by Geology 217, 201, a comparable course at another institution, or recognized experience with a state survey, U.S. Geological Survey, an oceanographic/limnological institute, or industry. Satisfactory completion will be determined by the student's thesis committee. You must pass both parts one and two of the comprehensive exam.

3.0 GENERAL REGULATIONS

3.1 Grades Required for Graduation

Letter grades are used to indicate levels of performance in courses as follows: A, excellent; B, good; C, fair; D, Poor; F, failure. Designations of S, satisfactory and U, unsatisfactory, are used to indicate levels of performance for credits received in Thesis Research and may be used to indicate levels of performance in Seminars.

A candidate for a graduate degree must complete his/her program with a minimum overall quality point average of 3.0. In determining a quality point average, 4 points are allowed for each credit hour graded A, 3 points for each credit hour graded B, 2 points for each credit hour graded C, 1 point for each credit hour graded D, and 0 points for each credit hour graded F. A course may be repeated for credit only when failed and only once; only the second grade is then considered. A student may be dismissed from the Graduate College if she/he receives more than two grades below a B, or if he/she receives the designation of U in Thesis Research.

The designation "I" is used to indicate course work that is incomplete for a reason approved by the Dean; the course must be completed within a time specified by the department and the Dean. The designation XC is for courses in which work is continuing and for which it would be inappropriate to give a grade at the conclusion of a semester, such as thesis credits.

Graduate students may elect to take an undergraduate course on a pass-fail basis provided that 1) they receive prior permission from the department chair and the dean of the Graduate College and 2) the grade will not be used in any type of evaluation. Courses for graduate credit may not be taken on a pass-fail basis. A form should be completed by the student's advisor and the instructor prior to taking the course. Forms are available in the graduate college office. One graded course at the 100 level may be taken for graduate credit.

3.2 Maximum Time Limits for Degree Completion

Full-time student	3 years
Day - part time	5 years
Summers only	7 years

These time limits apply both to study at the University of Vermont and to courses presented for transfer of credit. If a graduate student moves to part-time status after two years of full-time status, he/she is considered a part-time student.

The Geology Department faculty encourage graduate students to work with their advisor to develop a thesis topic and research plan, which can be completed in four to five semesters as well as summer fieldwork. We encourage this progress because: department funding is typically limited to four semesters, rapid progress through graduate school is a trait looked favorably upon by employers, demand for advising time is significant, and department admissions are limited by the time it takes for currently enrolled students to complete the program.

If you move to part-time status, you must continue to register as a continuing registration student.

3.3 Residence Requirements

The minimum residence requirement for any graduate degree is two semesters. If the student has interrupted graduate studies more than one year or failed to return from an approved leave of absence for more than one year, Department permission for readmission will be necessary as outlined in the graduate catalog.

4.0 THESIS REQUIREMENTS FOR THE MS DEGREE

4.1 General Policy

Independent research will be a significant part of the training of every graduate student in the M.S. program. The results of this research will be presented in the form of a thesis. The term thesis shall mean an organized and original work, submitted in partial fulfillment of the requirements for the Master of Science degree. Graduate students will be advised and encouraged to prepare and submit for publication their research work, either during term of residence or as soon as practical after completing their thesis. Graduate students will be expected to attain a standard of excellence in research and in the presentation of their thesis that is acceptable by scientific journals. In fact, the option exists for students to prepare their thesis in part as a paper for publication. This and other options are elaborated upon in "Guidelines for writing a Masters thesis" prepared by the graduate college. Each graduate student should obtain and read this guidebook from the graduate college.

4.2 Graduate Advising

Graduates students will be accepted for study at UVM by the entire faculty; however, for each student, a specific faculty will act as the student's initial advisor. If the student and the initial advisor do not develop a mutually acceptable thesis project during the first semester, the student and the initial advisor may wish to seek out and find another advisor with whom the student can work. Upon arrival at UVM, entering graduate students will meet with the advisor to assess deficiencies and plan the first semester's work. Subsequent course choices should be made in consultation with the student's committee.

4.3 The Thesis Committee

The thesis committee is an important component of a graduate education and is composed of at least two Geology faculty and at least one faculty member from outside the department. At least two faculty must be members of the Graduate College, including the chairperson. The outside committee member can bring valuable insight and talents to the student's committee and project (see attachment). There is no maximum number of committee members; however, large committees can be unwieldy. During the first semester, the student and advisor will work together to establish at least a 3-person thesis committee. **SUCH A COMMITTEE MUST BE ESTABLISHED BEFORE THE COMPREHENSIVE EXAM PART 1 IS TAKEN.** It is the purpose of the committee to provide guidance for you and your research and to help you place your research in the context of what has been done before. By working with a committee, you get a variety of opinions rather than just those of your advisor. Your advisor will help you select faculty for your committee, but it is your responsibility to communicate with these faculty, formally invite them to participate as members of your committee, and schedule regular committee meetings (at least once each semester).

Your committee will review all documents before they are presented to the full department. This is both to assure that the documents are of the highest quality and to prevent unpleasant surprises during and after public presentations. Expect that during committee meetings you will be asked probing and difficult questions about your research, your data, and your interpretations. The goal of such questions is to determine what weaknesses there are in your data and interpretations and to figure out how to strengthen these weaknesses before you make public presentations. You should look upon your committee as an academic resource rather than as a hindrance to your progress. Your committee can help you develop a reasonable and achievable timetable for completion of your research.

4.4 Written Proposal

The written proposal should demonstrate the feasibility and importance of your project to a scientifically literate audience. The proposal must discuss the objectives of your project and their significance to the advancement of geologic knowledge. The proposal must clearly lay out the hypothesis you plan to test and should include a work plan of detail sufficient to demonstrate that the project you propose can feasibly be accomplished in the time frame and with the financial resources available to you. The purpose of the written proposal is to ensure that your research is focused and achievable within the two-year time frame imposed by funding constraints. The written proposal should be a stand-alone document of the highest quality. It is your first scientific introduction to the faculty and will set the tone for future interactions. Be prepared for critical review and editing of your proposal by your committee. It is their goal that only the best and most defensible document be available for public consumption.

The proposal (excluding cover sheet) must contain no more than 10 pages of double spaced text (12 point, 2.5 cm margins) excluding all figures, tables and references. Single copies of up to three large maps or stratigraphic sections may be included as plates and displayed in the room where the proposal is to be given rather than attached to the proposal. A sample outline of the proposal is included in Appendix V.

One copy of your proposal should be submitted to the faculty as a PDF document no later than 7 days prior to the scheduled oral proposal defense. This draft must be approved by your committee prior to submission, and your advisor needs to have signed the cover sheet. The schedule for oral presentations will be posted by March 15th.

Oral presentations and comprehensive exams (part 1) will take place in April and May on Monday afternoons at 4:15 p.m.

4.5 Oral Proposal and Comprehensive Examination (Part 1)

The oral proposal to faculty, staff, students and other interested parties should communicate in a concise but detailed fashion, the information contained in the written proposal. It should provide your audience with background sufficient to evaluate the importance of your work and the feasibility of your project. The talk can be no longer than 30 minutes and should be well-illustrated with MS PowerPoint slides, maps or transparencies.

The oral proposal is your first public presentation and should be of the highest quality. The purpose of this presentation is to introduce the department to your research and for you to receive feedback from others. The oral proposal should be well rehearsed and its content should not come as a surprise to your committee. You should expect to receive public questioning regarding the content and feasibility of your proposal for 10-15 minutes after which the public will be asked to leave and the faculty will continue the questioning. Faculty questioning typically lasts for 60-90 minutes and may address your assumptions, methodology and the relationship of your work to and its dependence on auxiliary sciences. Bear in mind that this questioning constitutes Part 1 of a University-mandated comprehensive examination, which all graduate students must pass. This session is designed to 1) evaluate the scientific validity of the proposal; 2) evaluate the student's capability to successfully complete the research; and 3) advise the student on subsequent course selection and offer constructive criticism on the research approach.

It is the faculty's expectation that our graduate students should be sufficiently well-rounded that they can make a well-reasoned attempt to answer any geologic question. You should expect tough questioning and you should not be surprised if you are pushed to the limit of your knowledge. At the conclusion of the questioning session you will be asked to leave the room. The faculty as a whole (considering the recommendation of your committee) will evaluate the feasibility of the proposal you presented, the quality of the presentation, and your ability to answer the questions posed to you. You will pass Part 1 of the comprehensive examination if we feel you have met these three requirements. Alternatively, if the outcome of the Part I Comprehensive Exam is not successful, you will receive a written letter from your thesis advisor outlining the conclusions of the faculty. You might be allowed to rewrite your proposal to address these concerns or you may be asked to present a revised talk to the Department. A copy of this communication will reside in the student's Department file.

The Thesis Proposal will become a part of the student's record. Final approval of the proposal will be made by the student's Thesis Committee in consultation with the other departmental faculty not on the thesis committee, on the basis of the presentation and oral defense.

4.6 Written Progress Report

The written progress report should present the progress you have made since presenting your proposal. Realize that the progress report is NOT meant to be a completed work. Faculty expect that progress reports will differ dramatically in their content and style. What is important is that your progress report demonstrate to your committee, to the department, and to the graduate college that you are making continual and sufficient progress toward your degree by conducting high-quality research - a prerequisite for continued graduate standing and department funding. We expect that the progress report will summarize and present the data you have collected so far and offer initial interpretations. It must include a detailed work plan for the completion of your research and defense of your thesis. The progress report should also list in detail changes in your research plan, which have occurred since preparation of the proposal.

The progress report (excluding cover sheet) must contain no more than 8 pages of double spaced text (12 point, 2.5 cm margins) excluding all figures, tables and references. A sample outline of the

progress report is included in Appendix V. It is appropriate for a progress report to reference information in your proposal rather than restate the proposal in its entirety; a progress report should summarize your work to date and be the first step toward writing your thesis.

A PDF file of your progress report should be distributed to the faculty no later than 7 days prior to the scheduled oral progress report. A schedule for oral presentations will be posted by October 15th. Oral presentations and comprehensive exams will take place in November. A bound copy of progress reports from the current and previous years will be available in the Geology office.

4.7 Oral Progress Report and Comprehensive Examination (Part 2)

The oral progress report should communicate in a concise but detailed fashion, the information contained in the written progress report. It should provide your audience with background sufficient to place the data you have gathered in context so that a listener can understand the importance of your data. The talk should present the data you have gathered, your initial interpretations, and your detailed work plan. The work plan should consider the additional data you plan to collect and a timetable for completion of the thesis. The presentation must be no longer than 30 minutes and should be well illustrated.

The oral progress report brings the department up-to-date on your latest research findings and demonstrates to the department that you are making sufficient progress toward your degree. The format is similar to that used for the proposal presentation. Faculty questioning will typically be focused on the data you have presented, your interpretations, and your work plan to complete the thesis. The progress report is the second part of the graduate college comprehensive examination. You should expect tough questioning and should not be surprised if the validity of your interpretations is challenged. You should be able to offer data or a rationale by which to defend your interpretations. At the conclusion of the questioning session, you will again be asked to leave the room. The faculty as a whole (considering the recommendation of your committee) will evaluate the data you presented, the defense of your interpretations, the quality of the presentation, the amount of progress you have made toward your degree, and your ability to answer the questions posed to you. You will pass Part 2 of the comprehensive examination if the faculty feel you have met these requirements. If one or more of these requirements have not been met satisfactorily, you will not pass the comprehensive exam and the faculty will propose specific remedies which we will discuss with you.

The faculty realize that, for varied reasons, not all students will be able to present the same level of "hard data" pertaining to the solution of their thesis problem. The presentation is indeed a progress report, intended to assure adequate progress and a clear sense of direction. Upon successful completion of the progress report, as determined by the student's thesis committee in consultation with the Geology Department faculty, the Comprehensive Examinations requirement will be satisfactorily passed. Alternatively, if the outcome of the Part II Comprehensive Exam is not successful, you will receive a written letter from your thesis advisor outlining the conclusions of the faculty. You might be allowed to rewrite your progress report to address these concerns or you may be asked to present a revised talk to the Department. A copy of this communication will reside in the student's Department file.

4.8 Registration for Thesis Research

Every graduate student working on a thesis needs to register for at least 6 credit hours of thesis research (Geology 391). The actual number of credit hours should be determined by consultation with the student's Research Advisor. The University Graduate Office requires continuous registration during the academic year for students engaged on thesis research who have completed at least 6 credit hours of Geology 391 and a total of at least 30 credit hours. Whether the student is on campus or not, he/she must register for at least one credit hour, including the semester in which he/she completes his/her degree

requirements. No grade will be recorded for thesis research in progress. The student's record will show only registration for a given number of credit hours of research (Geology 391).

4.9 Defense of Thesis

Defense of the M.S. thesis may be scheduled only after the candidate has passed the Comprehensive Examination (Part 2, Progress Report). Students wishing to graduate in a certain semester must enroll in GEOL 399 during that semester.

It is the responsibility of the student to obtain guidelines for thesis format and deadlines from the Graduate College. Upon completion of a draft of the thesis that has been accepted by the student's research advisor, the student will present copies to other members of his/her thesis committee. In accordance with Graduate College regulations, these copies must be distributed at least THREE weeks prior to the scheduled defense. If any committee member receives a complete thesis copy less than THREE weeks before a scheduled defense, they may ask for the defense to be postponed. The student should allow up to six weeks after the defense for revisions and preparation of the final draft.

The oral defense of the thesis will be scheduled with both the Department and the Graduate College no less than THREE weeks following the advisor's approval of the draft. The thesis defense is open to the public and the examination will cover material concerning or pertaining to the student's research. The student will begin the Defense with an oral summary of his/her results and conclusions. This oral presentation should be about 40 minutes in length and will be followed by questions from the floor, and then questions from the student's Thesis Committee, with the student's outside member of the Thesis Committee serving as Chair of the Defense. The result of the Defense of Thesis will be determined by the student's committee. These may be as follows:

1. Pass with minor or no revisions necessary and immediate preparation of the final draft recommended.
2. Pass with substantial revision, which must be approved by the student's committee prior to preparation of the final draft.
3. Fail, requiring major revisions of the thesis and another scheduled Defense of Thesis.
4. Fail, requiring withdrawal from the program.

Upon completion and approval of the final draft, the thesis must be signed by all members of the student's committee and, hence, submitted to the University Graduate Office. Normally this must be done at least two weeks before the date of commencement. An electronic copy of the thesis and accompanying maps and figures must be left with the student's advisor.

4.10 Research Materials

The Department is responsible for ensuring that research done under its auspices can be reviewed and utilized by other scientists both within and outside of the department. Because of this, materials (rocks, fossils, thin sections, air photos, stratigraphic sections, raw data, etc.) used for the preparation of departmental theses must be accessible to the Geology Department even after students who prepared these materials have graduated. Typically, this requirement is fulfilled by leaving with the faculty advisor a suite of samples cited in the thesis such as thin sections, rocks, or rock powders. In addition, it is appropriate to leave with the faculty member copies of critical field notes, field maps, or raw analytic data when interpretation of material contained in the thesis requires that these primary sources be consulted. These materials will be catalogued and will become part of the departmental collections. The graduate

student must either catalogue these materials or participate in their cataloguing while he/she is still in residence here. These catalogued materials may be loaned to a former graduate student or to other qualified persons who wish to carry out further research on these materials at other institutions.

If the materials or equipment were paid for by departmental funds, faculty grants or grants given to the student (AAPG, GSA, VGS, Sigma Xi) as part of completing a thesis, the materials will typically remain resident in the department unless the faculty advisor gives explicit permission for materials to leave with the student. If the student paid for research materials such as air photos or thin sections out of his or her own pocket, then arrangements should be made with the supervising faculty member or department chair to duplicate pertinent materials in such a way that the important data can be retained by the department.

Research undertaken with the support of a grant or other external funds awarded to UVM for a program directed by the student's Research Advisor carries additional conditions. In the event that the student must withdraw from the graduate program or from the research project, all of his/her preliminary materials, including maps, field notes, and laboratory results, remain the property of the institution to which the grant was issued. These materials may be available for future loan to the student upon approval of his/her former Research Advisor.

4.11 Authorship and Data Ownership

The question of authorship of papers and abstracts resulting from research pursued cooperatively between students and faculty should be discussed explicitly by the student and her or his advisor at the beginning of the project to prevent later misunderstandings. Advisors differ in their policies regarding inclusion on student-authored abstracts. In every case, a person whose name is included on an abstract or paper must be consulted before submission of the document. See the attached paper for an informative discussion of this issue. The best approach to authorship is open discussion before and during paper and abstract preparation.

5.0 SUMMARY OF REQUIREMENTS FOR M.S .DEGREES

Requirements for the Master of Science Degree

The Departmental shall recommend as candidates for the Degree of Master of Science to the Graduate College, those students who have completed the minimum requirements outlined below. These requirements are not necessarily listed in order of fulfillment.

The M.S. degree candidate must have:

1. Satisfied any and all remedial undergraduate course work recommended upon his/her entrance into the program.
2. Completed an approved program of at least 30 credit hours of advanced courses in geology, including the "Introduction to Graduate Studies", including a minimum of 6 and a maximum of 9 hours of Thesis Research, and with no credit allowed for courses in which a grade less than "C" has been recorded.
3. Maintained at least a "B" (3.0) average? in course work counted for graduate credit.
4. Selected a thesis topic and submitted an approved proposal of the thesis.
5. Given satisfactory evidence that he/she has general understanding of the fundamental principles and problems in geology relating to his/her thesis research by successfully passing the Comprehensive Examination (Parts 1 and 2) and prepared an acceptable thesis.
6. Submitted and successfully defended an oral examination and approved thesis, and submitted electronic copy of thesis to advisor.

It is recommended that every graduate student obtain from the Graduate College their instruction packet for the preparation of the thesis, which includes a list of deadlines that must be met and actions, which must be taken in order to graduate.

6.0 TEACHING FELLOWSHIPS

6.1 General Information

Teaching fellowships are awarded to both incoming and second year graduate students each academic year (See Appendix IV for additional information). Although incoming students are typically awarded two years of support, satisfactory academic and teaching performance are required for renewal of the fellowship for the second year. Students are not typically awarded a teaching fellowship during their third year. The Graduate College assumes a time commitment of 20 hours per week for a full-time teaching fellow. Teaching responsibilities usually include five introductory physical geology laboratory sections each academic year. Fellows assigned to upper level classes may teach fewer sections.

6.2 Fellowship Appointments

Because the University funds assigned to stipends are limited, Graduate Teaching Fellowships are awarded on a competitive basis. Applicants with stronger recommendations, academic records, and basic GRE scores are normally given preference in selection of candidates.

6.3 Tuition Remission

A graduate student holding a full Graduate Teaching Fellowship is awarded up to 10 credit hours tuition remission per semester. A graduate student holding an assistantship for two semesters of the academic year has a maximum of 20 credit hours of tuition remission for the entire year. Tuition remission does not relieve the student of payment of the various other University fees and charges.

6.4 Course-Work Load

The maximum number of graduate credit hours to be carried by a Graduate Teaching Fellow during one semester is 12 credit hours. Graduate Teaching Fellows must register for a minimum of 6 credit hours during every semester in which the Fellowship is held. Two courses per semester during the first year and one course per semester during the second year, plus thesis research, are typical loads. Exceptions may be made for those students who have completed their residence requirements.

6.5 Fulfillment of Teaching Obligations

Graduate Teaching Fellows are expected to fulfill their assigned fellowship obligations in a competent and professional manner. Fellows are advised to keep their supervisors informed of the progress of their duties and of attendant problems. Students not performing their teaching duties satisfactorily will be warned initially, and if no improvement is observed afterwards, their appointment will be reviewed by their supervisor and the Department, and the teaching fellowship may be terminated.

6.6 Maintaining Academic Standing

Graduate students are expected to maintain a minimum grade point average of 3.0 on their graduate course work (200- and 300-level courses) during their tenure as Graduate Teaching Fellows. Students falling below this average may be placed on one semester's probation. If, during the following semester significant improvement is not demonstrated, the funding will normally be withdrawn. In cases of extremely poor academic performance during any given semester, funding may be terminated immediately without the institution of a probation period.

6.7 Renewal of Fellowship

All funded students will be reviewed at the conclusion of each academic semester with regard to their academic performance and the quality of their work as assistants. The Department will recommend reappointment from these considerations.

6.8 Tenure of Fellowship

Any graduate student whose performance is satisfactory in both academic work and fellowship obligations can expect to retain his/her appointment for a second year (upon annual application). Students will receive support for more than two years only in exceptional circumstances and if extra funds are available.

7.0 RESEARCH ASSISTANTSHIPS

7.1 Faculty Grant Support

If your research or your salary is supported by external funds, there are discrete obligations, which your advisor has to the funding agency supporting the research. If you receive a research assistantship or summer salary, you should consider this support much as you would a job which carries with it discrete obligations and responsibilities. These obligations may include specific deliverables and inflexible deadlines. Because of these demands, it is your advisor's responsibility to discuss with you the responsibilities of the RA before the RA begins. You should be both fully aware of and be willing to accept conditions of the RA before accepting such support. Among other things, it is appropriate to discuss with your advisor policies regarding expected working hours, vacations, authorship of papers, and specific deadlines which must be met during the RA.

7.2 Tuition Payment

If you are supported on a Research Assistantship, you will pay the in-state rate for your coursework and thesis research credits. Such payments may be deducted automatically from your paycheck. It is best to check that such deductions are being made correctly at the beginning of the semester to avoid unpleasant surprises.

8.0 OTHER FUNDING

8.1 Summer Funding

Early in the fall semester you should talk with your advisor regarding summer support. The department is able to nominate one student for the graduate College Summer Fellowship Competition, and the Geology

department faculty nominates the student we consider to have the greatest likelihood of winning this award. There are several summer Teaching Assistantships available in the department; students are advised to contact faculty members who are teaching summer courses directly. We have one department summer scholarship from the Burlington Gem and Mineral Club. Faculty try to raise summer support from as many sources as possible so that you will be able to continue your research without getting another job. If you must take another job, it is important that you leave at least 5-6 weeks of the summer available for field-work or laboratory research.

8.2 Student Grant Support

If you receive funding yourself from such sources as GSA, Sigma Xi, AAPG or VGS, there are obligations attached to this funding. These funds are for use directly supporting research; they are not summer salary. You must account for the money received and should keep receipts. For accountability and for tax purposes, it is best to keep such funds in a separate account. In most cases, you should be prepared to submit a final report to the funding agency detailing how the money was spent (including receipts) and the scientific results the funding generated. Your performance on these grants not only reflects upon you personally, it also reflects upon your research group and the department as a whole.

9.0 EXPECTATIONS

Below are guidelines by which the faculty hope to establish a dialog with students in the Geology Department. They are by no means inclusive.

9.1 Faculty Expectations of M.S. Students

1. The data you collect will be of the highest quality, that these data are collected in a fashion that you or others could reproduce, and that your data are presented in an accurate fashion.
2. Your interpretations will be defensible and will be supported by data you or others have collected.
3. You have read and understand the work of others pertinent to your research. This work must be cited correctly and you must acknowledge collaborators and assistance you have received from them.
4. You become part of a community of scholars by attending seminars, proposals, progress reports and thesis defenses.

9.2 Faculty Responsibilities to Graduate Students

1. Strong support of you, your education, and of your research both within and outside of the department (e.g., meetings, fieldwork).
2. Editing of proposals, grants, progress reports and theses when the faculty member is give reasonable "lead" time.
3. Consistent and pointed questions regarding the progress of your work, reliability of your methods, and justification of your interpretations in order to make sure that your work is

reproducible, accurate and of the highest quality and that you do the best work of which you are capable.

9.3 What Happens if Expectations are Not Met

This document puts forth specific expectations of you as a graduate student. The structure of our program is such that your committee and advisor closely support and oversee much of your work; there are numerous discrete deliverables and deadlines, which should encourage you to make continual and sufficient progress toward your degree.

If you do not meet the guidelines set out in this document various things may happen. If drafts of your proposal or progress report are not acceptable to your committee, advisor or the faculty as a whole, you will not be allowed to defend these documents before the department and take your comprehensive examination. If you do not perform satisfactorily on either part of the comprehensive examination, you will be asked to repeat the exam before either your committee, the faculty, or the department as a whole. If you fail the comprehensive exam for a second time you will be asked to resign from the program. If you are not making what the faculty judges as sufficient progress toward your degree, your funding may not be renewed for the following semester. If you continually miss deadlines or your work is not of sufficient quality, you may be asked to leave the program.

If a faculty member does not meet your expectations, you should discuss problems directly with that faculty member as soon as possible. If such discussion does not address issues of concern to you, consider speaking with your committee, the Department chair, the Graduate College Dean or the University Ombudsperson.

9.4 Competencies

At the completion of your graduate degree you will have the skills to:

- Design and complete a research project under the guidance of an advisor
- Write a scientific article that could be published in a refereed journal
- Make a professional public presentation of your research
- Demonstrate facility in a variety of instrumentation and subsequent quantitative data analysis related to your research
- Apply the concepts and information learned from your thesis research to a variety of more broadly based problems
- Demonstrate an ability to place your scholarship into the broad context of subject knowledge in geology as well as in the context of the appropriate sub-discipline
- Integrate the historical development of their field of scholarship into your research
- Use the graduate research experience as a foundation for future applications of the scientific research method to the solution of a wide range of geosciences problems.

Metrics for success:

- Presentations at professional meetings, publication of research
- Pass parts I and II of the Comprehensive Exam
- Computer design of figures, illustrations, data analysis, develop a model in the context of M.S. thesis research or class work
- The M.S. Thesis or refereed publications places the research in a broad context, including exposition of why the research problem is significant, as well as a literature review.
- The research results can be conveyed to a broad audience of both specialists and non-specialists as

- demonstrated by presentations to non-geologic audiences, such as Graduate Research Day
- Analysis of longitudinal data collected from alumni surveys in each year's fall newsletter will inquire about post-graduate employment or enrollment in further degree programs

9.5 Data and Publications

All students are strongly encouraged and expected to publish their research results. Faculty-supported research often mandates rapid publication of results. It is best to discuss the need for and timing of publication explicitly with your advisor at the beginning of the project. If the student is unwilling or unable to publish data promptly which were gathered as a result of faculty financial or logistical support, then the faculty member may publish these data but must properly cite the student's contribution to the project. In many cases, such citation would result in junior authorship for the student.

9.6 Potentially Troublesome Issues

A variety of issues may cause strain between a student and her or his advisor. It may be advantageous to discuss the following issues with your advisor directly so that both you and your advisor are in agreement: time commitment, vacations, attendance at professional meetings, authorship of papers and abstracts, summer funding, and faculty-student interaction. In most cases, keeping lines of communication open will prevent uncomfortable situations from arising.

9.7 Attendance at Department Functions

It is expected that you will attend all formal department functions including graduate student meetings, progress reports, proposals, thesis defenses, and seminars of visiting lecturers. Please try to schedule your classes so that Monday afternoons (4:30 p.m. to 6 p.m.) are left open. At these functions, you are encouraged to interact by asking questions of the speaker. Such questions are particularly encouraged at graduate student presentations and form an active part of the learning process both for the questioner and the speaker. There will be occasions when invited speakers are on campus before or after their lectures. Although optional, we hope you will join these individuals for meals, socializing, and professional interaction.

9.8 Office Space

Office space is provided to all graduate students who request such space for their first two years of residence. After the first two years, office space will be provided at the discretion of the department and only if space is available. The choice of office space will be based on seniority with first choice going to second-year students, second choice to first-year students, and last choice to third-year students.

Appendix I. Format for Proposal and Progress Report Cover Sheets

TITLE
(in capital letters)

A (Thesis Proposal/Thesis Progress Report) Presented

by

John Alden Doe

to

The Faculty of the Geology Department

of

The University of Vermont

(Date Presented)

Accepted by the Faculty of the Geology Department, the University of Vermont, in partial fulfillment of the requirements for the degree of Master of Science specializing in Geology .

The following members of the Thesis Committee have read and approved this document before it was circulated to the faculty:

_____ Advisor
(Type name of Advisor below line)

Date Accepted: _____

Appendix 2. Graduate Timeline

For students starting in the Fall Semester

Prior to first semester

1. Meet with faculty advisor to discuss project possibilities and decide tentatively about classes; clarify and document any remedial course work needed.
2. Review this document, discuss MS program schedule and clarify faculty and student expectations.
3. Discuss funding situation explicitly.
4. Get assigned and move into office space.

Faculty responsibilities:

read and evaluate student transcripts
provide office space for student
clearly present program schedule and funding situation

Student responsibilities:

read this document
consider implications of funding situation

During first semester

1. Meet frequently with faculty advisor to discuss and define project.
2. Find and read literature sufficiently to help define project.
3. In coordination with Faculty advisor, select committee, outline MS proposal and hold first exploratory committee meeting before December 1.

Faculty responsibilities:

make time available for meetings
suggest project ideas
assist in committee selection
review and assist in revising proposal outline

Student responsibilities:

make time to read and think about project
begin work on proposal
interview, select and organize committee
participate in seminar

During Second Semester

1. By beginning of classes, prepare draft of thesis proposal for review by faculty advisor, thesis committee, and peers in seminar.
2. Schedule committee meeting to discuss and edit draft proposal.
3. Prepare and submit written project proposal for review by faculty no later than March 1. Get committee signatures on this draft before submitting.
4. If your proposal is approved by the faculty, you will be assigned a date for public presentation. If proposal is not acceptable to the faculty, it should be rewritten until it is acceptable.
5. Present proposal orally to department followed by the oral comprehensive examination Part 1.

6. Participate in one credit seminar, Introduction to Graduate Studies in Geology (GEOL 302)

Faculty responsibilities:

help student find appropriate references
thoroughly review and edit draft project proposal
provide specific feed back on proposal and project feasibility at committee meeting
do not allow student to progress to comprehensive examination until student is prepared

Student responsibilities:

read extensively in order to understand context of project
plan project in detail and demonstrate feasibility to committee
timely preparation of documents and scheduling of meetings
timely revision of proposal
professional presentation of proposal orally and in writing

During third semester

1. Schedule committee meeting to review summer progress and draft of progress report.
2. Submit written progress report to faculty by October 1.
3. If progress report is accepted by faculty, you will be assigned a date for public presentation.
5. Present progress report orally to department followed by the oral comprehensive examination Part 2.

Faculty responsibilities:

thoroughly review and edit draft progress reports
provide specific feed back regarding progress and focus of research at committee meeting
do not allow student to progress to comprehensive examination (Part 2) until student is prepared

Student responsibilities:

work sufficiently to make progress on research
timely preparation of documents and scheduling of meetings
timely revision of progress report
professional presentation of progress report orally and in writing

APPENDIX III

TEACHING ASSISTANT GUIDELINES

I. Compensation

A graduate student teaching assistantship in the Geology Department consists of an appointment, which includes a stipend and tuition remission. The Geology Department makes this commitment to a graduate student for two years (four semesters) pending continued progress through the program. Partial financial support for a semester of a third year, although possible, can not be depended upon. The graduate student should, in consultation with their advisor, strive to select a thesis project that can be completed in this time frame.

II. Course Load Commitment

For first year graduate students, the award carries with it the commitment to teach 5 Introductory Geology lab sections per year. The potential exists for the Introductory Geology lab assignments to be partially or wholly replaced by a limited number of advanced Geology courses. Selection of T.A.'s for Geology courses is made by the Geology faculty who teach each class.

III. Time Commitment

1. Each incoming Geology Teaching Assistant is required to attend the three-day late August "Orientation Session", the bulk of which reviews the Introductory Geology labs.
2. Each Introductory Geology lab lasts for approximately 3 hours per week, not including set up/break down time or time involved in grading assignments. For each lab section, a T.A. should set aside and post at least one office hour per week. Each T.A. has the option, but is not required, to offer additional office hours in advance of hourly exams. Each T.A. should anticipate being asked to help with proctoring and grading at least one hourly exam during the semester.
3. There might be occasions during the semester where you will have to miss one of your lab meetings, for example to attend a Geological Society of America meeting. In order to keep all the lab sections on schedule, your lab should not be canceled. Make arrangements with another T.A. to provide coverage for you, a favor you should offer to reciprocate later in the semester. You should not put the burden of accommodating your schedule on the students in your lab; in other words, they should not need to shuffle into other labs for the week.

IV. Instruction

1. Department Philosophy -- The purpose of the Introductory Geology labs is to introduce students, the bulk of whom are non-science or undecided majors, to the intellectual currency and thought processes of our science. In order to do this, it will be necessary for students to understand some of the language as well as several fundamental facts and theories; however, we seek to help students develop their higher cognitive learning skills: integration, synthesis and creativity, as opposed to memorization and repetition. We seek to convey the excitement and enthusiasm that arises when we become

actively involved in our own learning. In lab settings especially, we wish to diminish the amount of time students spend passively listening in lieu of making observations, evaluating data, and drawing conclusions. As a department, we are also committed to improving every student's written and oral communication skills. At every opportunity, students should be encouraged to articulate and defend their thoughts, in writing and verbally. Students who demonstrate special needs should be referred to the Learning Co-Operative (x64075).

2. Grading -- Despite stressing the development of critical thinking skills, many students will be very concerned with evaluation mechanisms and their grades. It is important to tell students at the beginning of the semester what your grading policy is and how their lab grade will be calculated. It is recommended that this be done in writing, in a lab syllabus, which includes your office location, office hours, and attendance policy, so this document can become a "contract" between you and your students. After clearly articulating your grading policy (for example, "will spelling count?") you must strive to be consistent and fair in its application within and between lab sections. This clarity can be helpful later when, for example, students question the grade they received. Rather than becoming defensive, try to reinforce your grading policy and explain to the student why they received a particular grade. In labs such as those in Introductory Geology, we often ask questions that require students to draw analogies, evaluate hypotheses, or engage in informed speculation, in other words, situations where there is no "right answer." These more subjective responses mean that students may have difficulty distinguishing why one of their friends received a different grade.

Discussions of grades are a matter of privacy and should only occur between you and an individual student. The University policy on privacy requires that no graded materials should be left out in public areas. Issues of Academic Honesty are discussed below.

Because of our desire to encourage the development of critical thinking skills in all students, the Introductory Geology lab exercises are designed to stress the analysis of data and observations. For the T.A. this means that grading of assignments can involve reading "essay" responses and not the less time consuming "multiple choice" or "fill-in the blank" answers. Attention paid to grammar, spelling and writing mechanics can absorb even more time. You must learn to balance time commitments for grading with your own class and research commitments.

3. Academic Honesty -- In the course of teaching and evaluating students, it is possible that incidents will occur which may be recognized as cases of cheating, or academic dishonesty. In fairness to all students in a class, it is essential that all T.A.'s respond to alleged incidents firmly and in the same fashion.

All students are referred to the University's Academic Honesty Policy, which states in part,

"Offenses against academic honesty are any acts which would have the effect of unfairly promoting or enhancing one's academic standing within the entire community of learners which includes, but is not limited to, the faculty and students of the University of Vermont. Academic dishonesty also includes knowingly permitting or assisting any person in the commission of an offense of academic dishonesty."

Occurrences of academic dishonesty may be classified as either minor or major in nature. Minor offenses include such acts as inadequate citation of reference materials or unauthorized collaboration outside of the classroom. Minor offenses can be dealt with directly by the faculty (T.A. or Professor) with appropriate sanctions. Major offenses are defined as those in which the student gained an unfair academic advantage over others and includes such acts as cheating on exams or the misrepresentation of significant or substantial portions of written work. Major offenses must be reported to the Coordinator of Academic Honesty, housed in the Provost's Office (x64400). After consultation with

the Coordinator, a formal complaint may be filed. Please note that no instructor (T.A. or Professor) or department chair has the right to discipline students in alleged cases of major academic dishonesty.

4. Teaching Awards -- Every year, the Graduate College sponsors an award, which recognizes the Outstanding Teaching Fellow at the University. Each Department may nominate one candidate, who we recognize as the Outstanding Geology Teaching Fellow. Competition for this prestigious University-wide honor is fierce, and is based on several criteria, including letters of recommendation from the supervising faculty and department chair, and on classroom evaluations. It is therefore in your best interest to do evaluations in each lab section at the end of the semester. By the end of your second year, you may be a strong candidate for departmental or College honors (very impressive on your curriculum vitae) and you will have the data to back up your nomination. Besides competition for this award, evaluations are one way in which you can receive feedback on your performance and areas in which you can improve. Satisfactory performance as a T.A. is also described in the Graduate Handbook as a pre-requisite to continued departmental funding. See any faculty member for examples of frequently used evaluation forms.
5. Harassment -- It is a policy of the University that no member of the community may harass another. Disciplinary action can be brought against any student, faculty or staff member. Sexual harassment is defined as "unwelcome sexual advances, requests for sexual favors, and other verbal or physical conduct of a sexual nature when: (1) submission to such conduct is made either explicitly or implicitly a term or condition of an individual's employment or education, or (2) submission or rejection of such conduct by an individual is used as a component of the basis for employment or education affecting that individual, or (3) such conduct has the purpose or effect of substantially interfering with an individual's professional or academic performance or creating an intimidating, hostile or offensive employment, educational or living environment."

Reports of sexual harassment should be made directly to the Office of Affirmative Action (x63368), where they will be handled in confidentiality.

It is a priority of our Department to be considered a safe and welcoming place for a broad spectrum of individuals, regardless of race, gender, ethnicity or sexual orientation. Behavior or language that is offensive to others will not be tolerated. Behavior or language, which others find a form of harassment will be subject to University Affirmative Action/Equal Opportunity policies. Avoid potential problems by treating everyone with respect, regardless of perceived differences. Needless to say, dating a student in your lab while you are in a position of power places you in a vulnerable position regarding a potential harassment charge and certainly brings up the issue of "fairness."

APPENDIX IV

GUIDELINES FOR PROPOSAL AND PROGRESS REPORTS

The research proposal should include at minimum the following sections. The faculty realize that students and advisors may prefer various styles of presentation and that research proposals will differ in structure and style. In all cases though, a well-researched proposal is the first step toward writing a thesis.

1. Title and signature page. **MUST BE SIGNED BY COMMITTEE BEFORE SUBMISSION.**
2. Abstract -- a succinct (no more than 200 word) summary of the proposed research that directly states the problem to be addressed.
3. Introduction
4. Selected evaluation of previous work, which demonstrates that you understand the current status of research related to your project.
5. Research plan that indicates specifically how you will accomplish your research objectives. Such a plan should include a sampling or mapping strategy and indicate how you plan to fund the research.
6. Discussion of possible outcomes and impact on the specific field of study.
7. Bibliography including literature cited and literature germane to thesis research.

The progress report should be succinct. It should present your findings to date and elaborate upon any changes made to your original research plan. The progress report should include sufficient background information to guide the reader, but should not restate the proposal. The progress report can be considered the second step toward writing the thesis. The progress report should include at least:

1. Title and signature page
2. Introduction
3. Concise summary of work conducted to date
4. Initial interpretations of data collected
5. Description of work remaining
6. Detailed time line for completion of research