

DEPARTMENT OF GEOLOGY AND
GEOPHYSICS

GENERAL INFORMATION AND GUIDELINES
FOR
STUDENTS IN THE GRADUATE PROGRAM

FOR ACADEMIC YEAR 2002-2003

UPDATED JULY 30, 2002

Changes from 1st version are

- a) Page 4 - Registration requirement to maintain active status
- b) Page 6 - Correction of Pfannkuch contact info
- c) Appendixes attached

TABLE OF CONTENTS

1. General Information	
1.1. Definition of Graduate Program.....	4
1.2. Student Responsibilities	4
1.3. Functions of the Graduates Studies Committee	4
1.4. Department Contact Names and Responsibilities	5
1.5. Registration.....	7
1.6. UCard	8
1.7. Office Space	8
1.8. Keys.....	10
1.9. E-mail, Mailbox and Notices.....	10
1.10. General Office (copies, fax, supplies).....	10
1.11. Security.....	10
1.12. Phones.....	11
1.13. Computer Room	11
1.14. Rock Shop	11
2. Financial Support	
2.1. Maximum Level of Support	11
2.2. Time Limits for Support.....	12
2.3. Guarantee of Financial Support.....	12
2.4. Assistantship/Fellowship Opportunities.....	13
2.5. Salary and Benefits.....	13
2.6. Summer Support.....	14
2.7. Travel Support.....	14
3. Program Procedures and Requirements	
3.1. Coursework Requirements	15
3.2. Progress Toward Degree	16
3.3. Credit Hour Requirements.....	16
3.4. Official Degree Program	17
3.5. Thesis, Pre-Thesis, and Full-time Equivalent Credits	17
3.6. Graduate Examinations	18
3.7. The Thesis	21
3.8. International Students.....	22
3.9. Mandatory Safety Training.....	23
3.10. Mandatory Seminar Attendance Requirements.....	23
3.11. Mandatory Ethics Training.....	23
3.12. TA Training Program	24
3.13. University of Minnesota at Duluth.....	24
3.14. Exemptions and Appeals.....	24
3.15. Check-out Procedures.....	24
Appendix I - Graduate School Procedures Summary	25
Appendix II - Graduate Student Progress Check-list.....	26
Appendix III - Schematic Timetable	27
Appendix IV - Department Seminar Attendance Requirements	28

Welcome to the University of Minnesota's Department of Geology and Geophysics. We are happy you have chosen to continue your studies in our department, and we are confident that you will have a pleasant and productive experience.

This booklet contains general information to get you started, and it will be a valuable reference in the future. The guidelines (Program Procedures and Requirements) section has been designed to satisfy the Graduate School requirements and to reflect the philosophy of the Department of Geology and Geophysics regarding graduate study. Please read these guidelines carefully. You may contact the Director of Graduate Studies if you would like further information.

The Graduate School Catalog is a vital reference source as it lists the general requirements for all graduate students. Please familiarize yourself with these requirements and keep a copy of the catalog (available at the Graduate School, 316 Johnston Hall) for ready reference. Changes in policy often appear in the official Class Schedule, published at the beginning of each semester.

1. GENERAL INFORMATION

1.1 Definition of Graduate Program

Each student must designate a major in one of the two disciplines within the Department: Geology or Geophysics. This choice will influence the course program, the selection of major/ minor/supporting field, the composition of examining committees, and the choice of subject matter for Ph.D. written preliminary examinations. A change from one discipline to another requires formal application to the Graduate School.

1.2 Student Responsibilities

Graduate students within the Department of Geology and Geophysics are expected to be self-motivated, conscientious, and professional in the pursuit of their degrees. They are expected to show a broad range of interest in the earth sciences, not only by performing at a high level in coursework and in research, but also by reading current geological journals and attending departmental seminars and professional meetings.

Choice of Advisor: It is a condition for acceptance into the graduate programs that a faculty member agrees to accept the student as advisee. After the student is enrolled, he/she may change advisors at any time by obtaining the consent of the new advisor and notifying the old advisor and the Director of Graduate Studies. The Graduate Studies Committee will examine individual cases in the event that an advisor chooses to terminate an advisor-advisee relationship.

Course Program: The graduate student and advisor are responsible for the course program. This program should be arranged in such a way that the course work is completed as soon as possible.

Research Work: Early in their tenure at Minnesota, graduate students should become involved in research, preferably through individual research projects. This involvement will help them focus their interests and select possible areas for thesis research. It is the student's responsibility to formulate and focus his/her own research project(s). This should occur by discussion and mutual agreement with the advisor(s).

Registration: **NEW POLICY EFFECTIVE FALL 2002:**

To maintain active status, *ALL* graduate students must register every fall *and* spring semester to maintain their active status. For graduate students who must register solely to meet this registration requirement by the Graduate School, a special, free, zero-credit, non-graded registration mechanism has established - Geo 0999. As this policy was just established it is not in the Graduate School catalog, however details can be obtained on the web: <http://www.grad.umn.edu/gsss/grad0999.html>.

1.3 Functions of the Graduate Studies Committee

The Graduate Studies Committee of the Department of Geology and Geophysics has primary responsibility for formulating and administering policies that affect the academic life of graduate students in the Department. This activity is always subject to review by the Department faculty from whom the committee derives its authority and, for certain matters,

subject to review by the Graduate School. The Committee consists of the four faculty listed on the following page and two graduate students elected annually by the graduate student body.

The work of the Graduate Studies Committee can be described under the following headings:

- a) Policy formulation and review for presentation to the faculty.
- b) Review of applications for admission, based upon evaluations by at least two faculty members. The final review is submitted as a recommendation to the Graduate School.
- c) Distribution of financial aids which are available for administration by the Department.
- d) Administration of Ph.D. Written and Oral Preliminary Examinations.
- e) Committee assignment recommendations to the Graduate School.
- f) Monitoring progress of graduate students toward completion of requirements for the degree.
- g) Termination of graduate student status for failure to meet guidelines for satisfactory progress.

The principle contribution by student members of the committee will be to item (a) listed above, through participation in committee discussions of policy matters and by providing liaison between the graduate student body and the committee and/or faculty. Except in special circumstances, student members will not participate in deliberations involving evaluation of other graduate students, current or prospective. Such reviews generally involve confidential information which, according to the university administration, should not be released to people who are not on the faculty.

1.4 Department Contact Names and Responsibilities

During the 2002-2003 academic year, the **Graduate Studies Committee** includes Drs. Christian Teyssier (Director), Donna Whitney (acting Director Fall 2002), David Kohlstedt, and Olaf Pfannkuch as well as two graduate student representatives. While final decisions rest with the committee as a whole, preliminary responsibility has been delegated as described below.

Dr. Christian Teyssier, Director of Graduate Studies

Contact info: 210 Pillsbury Hall, 624-6801, teyssier@tc.umn.edu

- Admissions.
- Advisor Assignments.
- Approval of Degree Programs.
- Administration of Examinations
- Recommendation to Graduate School of members for oral exam committees.
- Items requiring signature of Director of Graduate Studies (DGS).
- Supplies nominations for Graduate School and Doctoral Dissertation Fellowships.
- General matters relating to the Graduate Studies Committee.

Dr. Donna Whitney

Contact info: 116 Pillsbury Hall, 626-7582, dwhitney@umn.edu

- Acting Director for Fall 2002
- Admissions.
- Recruitment.

Dr. Olaf Pfannkuch

Contact info: 2D Pillsbury Hall, 624-1620, h2olafpf@umn.edu
-Admissions.
-TA assignments.

Dr. David Kohlstedt

Contact info: 22 Pillsbury Hall, 626-1544, dlkohl@umn.edu
-Admissions.
-Ethics.

Department Staff

Ms. Kathy Ohler, Department Administrator

Contact info: 104B Pillsbury Hall, 624-9031, k-ohler@umn.edu
-Office assignments.
-Departmental administrative issues.
-Keys.

Ms. Sharon Kressler, Student Support Services Assistant

Contact info: 104A Pillsbury Hall, 625-5068, kress004@umn.edu
-Registration information and materials.
-Keys.
-Graduate student progress.
-Travel and summer support applications.
-Seminars.
-General inquiries.

Ms. Joan Vindedahl, Accounts Supervisor

Contact info: 108 Pillsbury Hall, 624-2012, vinde001@umn.edu
-Payroll issues and paychecks.
-Direct deposit applications.
-Questions on payment to vendors.
-Financial aid.

Ms. Becky Cook, Senior Accountant

Contact info: 108 Pillsbury Hall, 624-3820, cookx071@umn.edu
-Travel and supply reimbursement.
-Paychecks.
-Copy cards.
-Purchase Order processing.

Ms. Karen Swanberg, Network/Systems Administrator

Contact info: 206 Pillsbury Hall, 624-6541, swanberg@umn.edu
-Network and Systems concerns.
-Computer lab.

Mr. Mark Griffith, Laboratory Machinist

Contact info: 10 Pillsbury Hall, 624-4069, griff062@umn.edu

-Machine and Rock shops.

-Vans.

-Building maintenance concerns.

1.5 Registration

1.5.1 Before initial registration, new graduate students are required to meet with their advisor to determine which courses will be taken. A plan to complete required coursework will be determined when the student and advisor meet with the Graduate Studies Committee just before the start of Fall Semester 2002. Course requirements are dependent upon the student's previous coursework and his/her program plan. For further information, please refer to section 3.1.

1.5.2 All graduate students must be registered full-time during fall and spring semesters throughout their terms of appointments (typically a minimum of 6 credits). You will lose your benefits if you do not register and you will pay a late fee if you register after the deadline. (Initial registration deadline for Fall 2002 is September 2, 2002)

1.5.3 For your information - about one week prior to registration, Class Schedules and Course Guides become available at any university bookstore. Changes in policy, procedures, tuition, and fees will be published in the official Class Schedule.

1.5.4 The two main ways in which you can register are via the web or in person.
Web address: <http://onestop.umn.edu/registrar/registration/index.html>.
In Person (three locations): 200 Frasier Hall (East bank and closest to Pillsbury), 130 West Bank Union Skyway, or 130 Coffey Hall (St. Paul Campus).

1.5.5 When you register, you will be asked about your insurance - be sure to check the appropriate box whether you register via the web or in person. If you are covered by the Graduate Assistant Insurance, check the box for Grad Assistant Health-Care Plan (first year students must apply for this insurance, please see page 14 of this booklet). If you are not covered by the Grad Assistant Health-Care Plan, you must provide your insurance company or HMO and the policy number. (More details about insurance and other benefits are listed in section 2.6 of this bulletin).

1.6 University ID Card (UCard)

To obtain a U Card, bring your driver's license, state ID or passport to the U-Card office at 825 Washington Avenue SE, Room 107. Among other benefits, this card will allow you access to the University library system.

1.7 Office Space

1.7.1 This policy is intended to allow graduate students fair and equitable access to the Department's limited and disparate office space. Departmental offices will be assigned following the guidelines and procedures listed below. Office space within faculty laboratories is under the jurisdiction of the individual faculty member and not bound by these policies. Students are expected to use their offices on a regular basis. If they do not, other students may apply for a trade in office space, at which point the situation will be investigated by the Office Space Committee to determine if the office should be made available to other students.

1.7.2 Seniority

Priority for office space will be given in the following order:

- (1) Visiting Professors
- (2) Postdocs/Research Associates (if sponsoring faculty does not have assignable space)
- (3) Graduate Students - seniority based on length of time within the Department, starting at semester of admission (this includes exchange students). Within a given class, students entering with an MS shall have more seniority than students entering without an MS.

Students from other departments working with a faculty member will be given offices on a space available basis (no seniority accumulated).

For each semester a student is not enrolled, one semester will be subtracted from his/her accumulated seniority.

1.7.3 Time Limits

From the time that a graduate student first enters the Department, the guarantee of office space shall extend for:

Master's candidates.....	3 years
Ph.D. after MS elsewhere.....	4 years
Ph.D. without MS.....	5 years
Ph.D. after MS at U of MN.....	6 years (total)

After this time, departmentally assigned office space that the student occupies will be available for reassignment.

The time limits apply whether or not a student has spent part or all of the time using office space in a laboratory controlled by a faculty member. Upon exceeding the time limits, such a student's seniority for departmental space will be lower than that of incoming students.

Students assigned office space in research labs will be provided with desk space in Pillsbury Hall only when they have a TA assignment.

Students conducting research or fieldwork elsewhere for a semester during the academic year may retain their office spaces. Students who plan to be gone for more than a semester should notify Kathy Ohler.

1.7.4 Termination of Office Privileges

Students (and their advisors) will be notified of the end of their guarantee to office space during their last semester of eligibility. The student may petition the Office Space Committee for an extension of their eligibility, indicating why they should be allowed to remain in their present office rather than moved into a less desirable office (if one should be available). The student's advisor must sign this petition. (Students assigned offices under the jurisdiction of their advisor are not bound by this policy, however they will be notified of the end of their eligibility.)

Upon request, the Office Space Committee will investigate cases where office space is not being used on a regular basis. Determination of eligibility will be made after consultation with the student and his/her advisor.

1.7.5 Notification of Office Vacancy

Students planning to complete their degree or relinquish their office space are asked to notify Kathy Ohler one semester prior to leaving.

A notice of a pending vacancy will be sent via e-mail. The office will be assigned to the requester with the most seniority. A lottery will be used in cases where there is a tie in seniority.

1.7.6 Requests

Requests for office changes must be in writing and include the specific offices desired. Requests may be made at any time and are to be given to Kathy Ohler. Offices will be reassigned after the two-week notification or during the summer. Students are advised to make requests for office changes prior to leaving for summer fieldwork. Once approved, students are expected to make the office changes that they had requested.

1.7.7 Petition

Students may petition the Office Space Review Committee for exemptions from the Office Space Policy. The Committee will review and act upon the petition within one month.

1.7.8 Office Space Review Committee

The committee consists of the Department Head or designee, Department Administrator, and one Graduate Student Representative.

1.8 Keys

At the minimum, you will be issued two keys for Pillsbury Hall, one for the outside doors and a “submaster” that allows access to your office, the main offices, and classrooms. There is a cash deposit required for each key: \$10 for the outside door and \$5 for each subsequent key. This deposit will be returned to you when you return your keys. In the case of lost keys, you lose your deposit and will need to pay another deposit for replacement keys. You may need keys for another building (e.g. Shepherd Labs) which you will need to obtain from someone at that location. Your advisor will help you with this.

1.9 E-mail, Mailbox and Notices

You will receive a University e-mail address, which you will need to activate via the web at <http://www.umn.edu/validate>. If you change your alias at any time, please keep the office informed so we can update the mailing list. This mailing list is the primary means of mass communication within the department.

You will be assigned a mailbox in room 108 Pillsbury Hall where you will receive any mail or intercampus notices. If you will be TAing a course, please be sure to tell people that the mailboxes are in room 108.

1.10 General Office (copies, fax, supplies)

1.10.1 The copier located in room 108 is for departmental use, not the general University populace. It is operated using copy cards. The “Teaching Card” is only for teaching purposes if you are a TA (a separate card is to be used for Geo 1001). Please do not use the “Department Card” without getting approval from an office staff person. You may purchase your own personal copy card from Becky or Joan. There is a \$5 cash deposit for the card along with a minimum of 100 copies at 5 cents per copy (\$5), totaling \$10 for the initial set-up. After that, copies may be purchased in increments of 100 copies.

1.10.2 There is a fax machine in room 104 Pillsbury Hall. Use of this machine is free of charge, however we ask that you keep personal faxes to a minimum. Should you do any long distance or over seas calling, you will need either a UPAC (University Personal Access Code) number if it is business and can be charged to an account (your advisor will provide you with this) or your own calling card if it is personal.

1.10.3 The supplies in room 108 are available for teaching use only. Personal supplies can be purchased at the bookstore in Williamson Hall.

1.11 Security

During the week, Pillsbury Hall is unlocked around 7 a.m., locked up around 9-10 p.m. and is locked all weekend. As this is a public building, people are free to walk in and out at will. We have had some thefts in the past (bikes, computers, wallets), so please be aware of this and keep your belongings secure, office doors shut and locked when not occupied. Use your common sense.

Safety is an issue everywhere so, again, use your common sense if you work in the department at night or on weekends. There is an escort service available to walk you to your car or the bus; 624-WALK (9255).

Should you need to report a crime, call the University Police at 624-3550. If it is an emergency, dial 911. Please also report incidents to the Department office so that others may be alerted.

1.12 Phones

Each of the grad office areas (100 and 200 wings, room 125A) is equipped with a common phone. Campus and local phone calls are free of charge, however as with the fax machine for long distance and overseas calls you will need either a UPAC number for business or your own calling card if it is personal. As these phones are common to several students, please be respectful and courteous in their use and in taking messages for others.

1.13 Computer Room

The Computer Lab in 206 Pillsbury is designed for the use of undergraduate and graduate students taking classes in or relating to the Department of Geology and Geophysics, and for the use of researchers, staff and faculty related to the Department.

In order to use the lab, users must obtain the key code from either the Lab Manager (Karen Swanberg, swanberg@umn.edu, x6-6541) or the front office (Rm. 104), and sign an Acceptable Use Policy to insure that they are aware of what is acceptable and unacceptable use of the 206 lab. They also need to be aware of the rules governing all use of computer facilities related to the University. In addition, in order to print to the printers in the lab, the user must have or obtain a printing account from Karen Swanberg.

1.14 The Rock Shop

The rock shop (10 PillsH) is available for your use and is normally open during the weekdays. Should you need a key, you will need to obtain this from Mark Griffith in room 8. As the rock shop is a common area, it is vital that the room is kept clean. Please report any equipment malfunctions or needed repairs to Mark.

2. Financial Support

The Department normally admits students with guaranteed support. Under rare circumstances, students may be admitted to the programs without financial support. Requirements regarding progress toward the degree are the same for students admitted *without* financial aid as students admitted *with* financial aid.

2.1 Maximum Level of Support

According to University regulations, financial aid from all University sources combined may not exceed 3/4-time during the academic year. The Department, however, normally

does not grant more than 1/2-time support. This includes teaching assistantships, research assistantships, and non-service fellowships. The main exceptions are summer assistantships, night school teaching assistantships, and support primarily from a research assistantship following completion of the Ph.D. preliminary oral examination.

2.2 Time Limits for Support

For MS candidates, financial support through the Department is normally limited to two years.

For Ph.D. candidates, departmental support will normally be limited to four years, including any support provided while working for an MS degree. For students entering with an MS degree from another institution, the limit is three years.

Ph.D. candidates entering with a Graduate School Fellowship or GAANN Fellowship can expect support by the Department for three years beyond the year of the fellowship.

Support may be extended beyond these limits, but when this is done, it may be at reduced rates. In the case where candidates are supported by research assistantships, the faculty person holding the research grant may, at his/her discretion, extend support beyond these limits.

2.3 Guarantee of Financial Support

Students who have received written offers of support may expect that support to continue up to the respective maximum listed above, so long as their performance on assigned tasks and their progress toward a degree are satisfactory, and subject to availability of funds. Support may be terminated, however, if these conditions are not met. Premature termination of support must be discussed by the Graduate Studies Committee.

The term “satisfactory progress” includes, but is not limited to:

- taking and successfully completing the appropriate number of credits, considering other (RA/TA) responsibilities;
- passing courses with satisfactory grades;
- completing the required examinations in a timely manner;
- for non-native English speaking students, satisfying the English competency requirement; and
- making satisfactory progress on research.

Students who have not received written offers of support may be hired on a semester-to-semester basis as necessary to carry out the teaching and research functions of the Department.

2.4 Assistantship/Fellowship Opportunities

2.4.1 Teaching Assistantships

A teaching assistant helps teach students in a specified course or courses under the general supervision of the academic staff and may be assigned primary responsibility for an entire course. Generally, first year graduate students will TA the lab portion of the introductory geology course (Geo 1001). You will work closely with Kent Kirkby, the Geo 1001 coordinator. When you register for a semester, please be sure to notify Kent of your schedule so he may create the lab TA schedule. Typically, these positions are half time (20 hours per week) and include full tuition benefits and a health care package.

After the first year, if you are not assigned to a research assistant position, you will need to notify the Graduate Studies Committee of your need to TA. At that time you can request to TA a specific course, but be aware that the greatest need lies with the introductory course.

Each year, the Department recognizes Outstanding TAs, which includes a monetary award. This is accomplished by soliciting nominations/input from faculty and students, then voted on by the Awards Committee. Names of previous Outstanding TAs are engraved on the plaque near the northeast entrance of Pillsbury Hall.

There are additional policies for International Students. Please refer to the Language Requirements/SPEAK Test section (3.10) of this booklet.

2.4.2 Research Assistantships

Research assistants are paid from the advisor's research grants, and the duties of an RA are determined by mutual agreement with the advisor. In general, the duties coincide with degree research activities. When this is not the case, the RA is expected to spend no more time on his/her duties than does a TA appointed at the same percent time. Prompt, cooperative, and quality job performance is expected. Typically, these positions are half time (20 hours per week) and include full tuition benefits and a health care package.

2.4.3 Fellowship Opportunities

There are numerous fellowship opportunities available through the Graduate School (<http://www.grad.umn.edu/fellowships/index.html>) and the Department (<http://www.geo.umn.edu/dept/programs/Grad-sch.html>). As these are subject to change, it is best to check the respective web sites for updates.

Several students have also obtained funding from sources outside the University community (e.g. NSF, NASA).

2.5 Salary and Benefits

2.5.1 Salary/Paychecks

The Department pays teaching and research assistants the same hourly wage. The salary for those on fellowships will vary according to the fellowship itself. Paychecks are

issued bi-weekly and you have the option of picking up your paycheck or having it directly deposited into an account (see Joan in room 108 PillsH).

2.5.2 Tuition and Fees

In addition to a salary, the financial support package includes full tuition benefits. Students must reach the minimum qualification for eligibility and receive a tuition benefit equal to twice the percentage of time worked. For example, a 50% time appointment includes a 100 percent tuition benefit, which applies only to tuition costs. The maximum benefit is 100 percent and applies to a *maximum* of 14 credits each academic term. The minimum number of credits to be considered a full-time student is typically 6 credits but may vary from year to year, so please refer to the Graduate School Catalog for any updates.

The tuition benefit *does not* cover course or student services fees. Students are responsible for paying these fees.

2.5.3 Health Insurance

University-subsidized health insurance is available to most Graduate School students who hold an appointment as a TA, RA or Fellow. For these students, the University pays 50-100 percent of the insurance premium during the academic year (fall through spring), the percentage depending on the level of appointment. To receive this coverage, eligible students must apply for it by the end of the second week of classes. To apply, and for more information, contact the Graduate Assistant Insurance Office, N-323 Boynton Health Service, 612-625-6936.

2.5.4 Graduate Assistant Employment Office

For questions pertaining to your employment as a TA or TA, the Graduate Assistant employment office is located at the Donhowe Building; phone is 612-624-7070; web site: www.umn.edu/ohr/gao.

2.6 Summer Support

New students in the 2002-2003 academic year will receive summer support for either 2002 or 2003. For students in their second year and beyond, there is a limited amount of money allotted from the Department for summer field and/or research expenses. Students must apply for these funds in spring, you will be notified when applications are to be submitted. As these funds are limited, summer support is not guaranteed.

2.7 Travel Support

The Department also provides partial support for students traveling to professional meetings to present papers based on thesis research. Upon approval from the DGS, a student may receive up to \$350 in travel monies. Applications are available in room 104.

3. Program Procedures and Requirements

Attached is a copy of the Graduate School's Summary of Procedures from Initial Registration to Graduation, as well as a progress check-list and timetable (Appendices I, II, and III) - keep these handy. Following is detailed information.

3.1 Coursework Requirements

Each incoming student, together with his/her advisor, will meet individually with the Graduate Studies Committee in the early part of Fall Semester. This meeting is very important for defining the gaps in each student's curriculum and outlining a plan of courses to correct weaknesses in the Earth Sciences or general background; the latter must include ***one year each of college calculus, physics, and chemistry.***

Each student, in consultation with his/her advisor, should formulate a plan for courses to be taken in the first 2 years of graduate study. This plan should list course names, numbers, and credits, keeping track of whether it satisfies course distribution requirements and total number of credits. This plan should be submitted in writing to the Graduate Studies Committee at the student-advisor meeting. In the fall semester of the student's second year, the Graduate Studies Committee will again meet with the student and his/her advisor to evaluate the coursework plan.

Students who have participated in extended "field" programs involving aspects other than classical geology, such as hydrogeology field practices, oceanographic cruises or geophysical surveys may ask the Graduate Studies Committee to consider these in place of the geology field course. The Director of Graduate Studies will oversee the student's progress and ensure that all courses are passed at a satisfactory level.

Two additional semesters of mathematics (or statistics) and two additional analytical courses taken outside the Department are required of all Ph.D. graduate students. Students may have taken some or all of these courses (or their equivalent) before entering the graduate program. The appropriateness of equivalencies will be discussed at the first meeting with the Graduate Studies Committee. Some courses may meet both the math and analytical requirements (e.g. Geostatistics taught through Civil Engineering). *Examples* of courses that may be used to satisfy the analytical course requirement include

Chem 5715, 5745	Physical and Advanced Inorganic Chemistry
CE 4512, 5321, 8352, 8511, 8541	Open Channel Hydraulics, Geomechanics, Groundwater Mechanics I & II, Aquatic Chemistry
Physics 5001, 5002, 5024	Quantum Mechanics I & II, Intro to Electric & Magnetic Fields
BioC 5527	Physical Biochemistry
EEB 5051	Analysis of Populations
MatS 8001, 8002	Structure & Symmetry of Materials, Thermodynamics & Kinetics

At least two-thirds of the course work in the major field at the 4xxx level and above must be taken on an A/F basis. Two-thirds of the total credits must be taken on an A/F basis.

For the doctoral degree, a minimum of 12 credits must be completed in the minor field or supporting program. The minor field must be declared before the student passes the preliminary oral examination. For more details, please see page 21 of the 2001-2003 Graduate School Catalog.

3.2 Progress Toward Degree

Normal progress toward the degree entails taking an appropriate number of classes, with satisfactory results, as well as making satisfactory progress in research. A student with a 50% teaching or research commitment will normally take 9 credits each semester. A student with a 25% commitment will normally carry more than 9 credits each semester. A student engaged primarily in thesis research may take fewer formal courses or none at all. The choice of courses is generally determined by the research interests and should be discussed between the student and the advisor.

3.3 Credit Hour Requirements

Plan A Masters (with thesis)	<ul style="list-style-type: none"> Total 30 credits minimum consisting of: at least 14 credits in the major field and a minimum of 6 credits in the related field/outside the major, and a minimum of 10 Master's thesis credits.
Plan B Masters (project with final exam, either oral or written)	<ul style="list-style-type: none"> Total 30 credits minimum consisting of: at least 14 credits in the major and 8 credits in the supporting program.
Plan C Masters (coursework only with emphasis in hydrogeology)	<ul style="list-style-type: none"> Total 30 credits minimum consisting of: at least 14 credits in the major and 9 credits in a minor or supporting field. This is a course-work only option with emphasis in hydrogeology and environmental science
Ph.D.	<ul style="list-style-type: none"> Total 36 credit minimum consisting of: at least 24 course credits in the major field and 12 credits in the minor or supporting field. In some cases, fewer than 24 credits in the major field are acceptable provided the total is at least 36. Up to 40% of the credits (15 credits) can be transferred from other graduate institutions. The transfer is arranged by entering those to be transferred onto the Official Degree Program form (see below), which is submitted to the Graduate School for final approval. Although the Graduate School will allow A, B, C, and S grades on a Degree Program, A/F coursework should be completed with an average grade of B. The 36 credits must all be taken at the 4xxx and 5xxx levels, with several formal courses to be included at the 8xxx level. Minimum of 24 thesis credits are required.

3.4 Official Degree Program

All students are required to file an Official Degree Program with the Graduate School. The program form is available in 104 PillsH or outside the Graduate School office at 316 Johnston Hall. On this form, students list all completed or proposed coursework that has been or will be taken in fulfillment of degree requirements, including any transfer credits that may be appropriate. On the basis of this program and after having been approved and signed by the Director of Graduate Studies, the Graduate School will appoint the members of the student's examining committees. For MS candidates, this is the final examining committee; for Ph.D. candidates this is the preliminary oral examining committee.

MS candidates should file the degree program after completing 10 credits and no later than the second semester of registration.

Ph.D. candidates should file the degree program in the first semester of the second year of study, the semester before the Preliminary Written Exam is taken.

3.5 Thesis, Pre-Thesis, and Full-time Equivalent Credits

Plan A MS candidates must enroll for a minimum of 10 master's thesis credits before receiving the degree. These credits are not graded therefore cannot be used to meet course credit requirements (Geo 8777).

Doctoral Pre-Thesis credits are available to Ph.D. students who have not yet passed their preliminary oral examination but need to be registered in the Graduate School to meet requirements of agencies or departments outside the Graduate School (e.g. loan agencies). These credits are not graded and therefore cannot be used to meet any Graduate School requirements (Geo 8666).

Ph.D. candidates must enroll for a minimum of 24 thesis credits while writing the doctoral thesis. Students may not register for these credits until the semester *after* they have passed their preliminary oral examination. These credits are not graded therefore cannot be used to meet course credit requirements (Geo 8888).

Advanced MS and Ph.D. students have an option of registering for a one-credit full-time equivalent (Geo 8333, Geo 8444 respectively). This option is used *only* when all pre-thesis and thesis credit requirements have been met and the student needs to register to be considered full-time (mainly for financial purposes). This allows a student to remain at full time status yet register for only one credit, resulting in a significant cost savings in tuition paid by the Department or faculty advisor. For each term the student wishes to register for these credits, he/she must fill out a form (obtainable from Sharon or the Graduate School) which must be signed by the student's advisor and the Director of Graduate Studies.

3.6 Graduate Examinations

3.6.1 MS Final Examination

The only formal examination in the Master's program is the final examination. The Plan A program requires the thesis and the final examination, which consists of the student's oral defense of the thesis. At the option of the examiners, the exam may cover other material relevant to the program. Plan B programs may include either one or two research papers, depending on depth of coverage, and a final exam (either oral or written).

3.6.2 Ph.D. Examinations

There are three examinations for Ph.D. candidates to complete: Preliminary Written Examination, Preliminary Oral Examination, and Final Oral Examination (Thesis Defense).

3.6.2.1 Preliminary Written Examination

The Graduate School states that this exam should "cover all work completed in the primary field and may include any work fundamental to this field." The Department considers that our graduate program in Geology-Geophysics is too broad to expect all students to be knowledgeable in all subdisciplines, and at the same time recognizes that interdisciplinary research is the foundation of modern geoscience. The Written Examination is designed to provide the student with an opportunity to review his/her coursework and to bring together a breadth of knowledge around the central thesis research.

Timeline: In the second week of the Fall Semester *preceding the written exam* and after discussion with his/her advisor, each student will submit names of four faculty examiners to the Graduate Studies Committee for approval.

Ph.D. candidates will take the Written Prelims in the *beginning* of the second year's Spring Semester. Incoming students in possession of an MS degree, will be expected to take the Ph.D. Written Prelims during Spring Semester of their first year of doctoral studies. Any request to deviate from this normal procedure must be presented in the form of a petition to the Graduate Studies Committee no later than the end of Fall Semester of the first year of study.

Examining Committee: There are a total of 4 faculty examiners. Two of the four faculty examiners will serve as examiners in the primary subdiscipline; at least one primary subdiscipline examiner must be from the Department of Geology and Geophysics. The other two faculty, who must be from the Department, will serve as examiners in two different disciplines of the geosciences considered outside the candidate's Ph.D. thesis research. For example, if the candidate's research is in experimental geophysics, the two primary subdiscipline examiners could consist of the advisor and a Materials Science faculty member, and the two outside examiners could be in petrology, structural geology, or any other area of geosciences.

The Graduate Studies Committee will review the names of the faculty members who will serve as examiners for the written exam to verify that sufficient breadth is covered by the examiners' fields of expertise. It is expected that, by the time the names are submitted, the student will have acquainted the chosen faculty members with his/her research and background. It is generally recommended that the two outside examiners evaluate depth of knowledge in areas that are not the candidate's primary subdiscipline, but that have some relation to the thesis topic. Therefore, it is in the student's best interest to see to it that the examiners are aware of his/her work. Some guidance on the part of the examiners as to the general areas to be covered in the exam is appropriate and encouraged.

The Examination: The written examination will consist of four hours in the primary subdiscipline and four hours in the two outside disciplines. Typically done in two days (Friday and Monday), the 4 hours are split by a lunch hour, allowing for a two-hour session per examiner. Grading by the examining committee is to be completed within one week of the exam.

Grading: Each question in the exam will be graded by the examining faculty member on a scale of

PASS
PASS WITH RESERVATION
FAIL.

In order to pass the examination, the student must obtain a PASS grade in the primary subdiscipline and at least a PASS WITH RESERVATION grade in each of the outside disciplines.

If the student obtains a PASS WITH RESERVATION grade in the *primary subdiscipline*, the student has not passed the exam and must take it again at the beginning of the following Fall Semester. Examiners will meet with the student to explain any reservation, and recommend a program of study. Following a FAIL grade on the first examination or a PASS WITH RESERVATION or FAIL grade on the second attempt, the candidate will not be able to pursue a Ph.D. degree, and the option of switching to an MS program will be evaluated jointly by the student, advisor, and Graduate Studies Committee.

A PASS WITH RESERVATION grade is the minimum requirement for passing each of the outside subdiscipline parts of the examination. Any reservation will be presented to the student in the form of a written report from the examiners, relaying the points of concern constructively, and perhaps recommending appropriate coursework or independent study. In the case of a FAIL grade in either outside subdiscipline parts of the written exam, the student can retake that exam once at the beginning of the following Fall Semester. In case of a second FAIL grade, the option of switching to an MS program will be evaluated jointly by the student, advisor, and Graduate Studies Committee.

The results of the exam are reported on the “preliminary written examination report” form, signed by the student’s advisor and the Director of Graduates Studies. Although the Department will send this form to the Graduate School, it is the student’s responsibility to assure it is on file at the Graduate School before scheduling the Preliminary Oral Examination. The student will be allowed to review his/her graded exams that will be kept in the student’s graduate file in the Department (see Sharon).

3.6.2.2 Ph.D. Preliminary Oral Examination

Timeline: This oral examination is expected to be taken *before the start of the Fall Semester* of the third year (either late Spring semester of the 2nd year, or that following summer), following the Written Preliminary Examination.

- One month before the scheduled exam, the student must obtain approval from the Director of Graduate Studies of his/her research proposal.
- Two weeks before the scheduled examination, the student will provide a research proposal to each member of his/her Ph.D. committee. It is also suggested that each student distribute a one-page abstract of the research proposal to faculty and grad students in the Department of Geology and Geophysics, in order to enhance communication and provide a feedback mechanism to the student.

Both the proposal and examination will be judged on the basis of creativity, originality, depth of understanding of the topic, and the student’s ability to formulate a problem in the geosciences and to define a logical research strategy aimed at solving this problem.

The Proposal: The proposal will outline the background, methodology, any preliminary results, and anticipated implications of the proposed research. The Department insists that one fundamental trait of the proposal must be originality in ideas and authorship. The format of the proposal should conform to the standard suggested by most funding agencies, for example, NSF’s 15-page minimum, single-spaced text, a one-page abstract, plus figures and a reference list (a hard-copy example is available from Sharon). In addition, the student will attach to the front of the proposal a one-page resume, an up-to-date Ph.D. Degree Program, and any paper or abstract published, accepted, or submitted for publication.

The Exam: The student will present his/her research proposal orally for a maximum of 30 minutes, with questions to follow. Although questions may range rather widely, a significant part of the examination will focus on discussion of the student’s research proposal. This is a closed examination attended by only the student and the examining committee.

Grading: The grading scale is the same as for the written exam:
PASS
PASS WITH RESERVATION
FAIL

In a four-member committee, the student must receive at least 3 passing votes in order to pass the examination. A vote of PASS WITH RESERVATION still constitutes a passing vote.

If the exam is passed with reservations, the student is informed immediately, but the committee is permitted *one week* in which to convey its reservations to the student in writing, informing the student of the steps that must be taken to remove them. *A copy of this letter must be sent to the Graduate School and should accompany the signed oral examination report form.* When the student has satisfied the committee's reservations, *a second letter informing the student and the Graduate School that the reservations have been removed is required. **The final oral examination may not be scheduled until the Graduate School has received a copy of the letter indicating that the reservations have been removed.*** (This letter must also be on file in the Graduate School should the student wish to apply for a Doctoral Dissertation Fellowship).

3.6.2.3 The Final Oral Examination (Ph.D. Defense)

The final oral examination will be taken following completion of the Ph.D. thesis. It is the responsibility of the student to assure that all appropriate forms are filed in the Graduate School and all requirements have been met. The examining committee for the thesis defense may be different from the committee for the oral preliminary exam.

The student must schedule the examination at least one week in advance with both the committee and the Graduate School (refer to Clearance for Graduation on page 25 of the 2001-2003 Graduate School Bulletin). Once cleared to take the exam, the report form for the final oral exam will be forwarded to the chair of the examining committee. Although the student's advisor serves as a member of the final oral examining committee, another member of the committee is designated as the chair and functions in this capacity at the final oral examination.

3.7 The Thesis

3.7.1 Plan A Master Thesis

The thesis title is submitted for approval as part of the information provided on the student's official degree program form. When the draft of the thesis is ready to be distributed to the thesis reviewers, the student must register the *title* with the Graduate School by submitting a copy of the thesis title page as it will appear in the final document. Once approved, the student is provided with the thesis reviewers report form as well as the other forms and information necessary to graduate. **The examining committee must have at least two weeks to review the thesis;** the entire committee must be unanimous in certifying that the thesis is ready for defense as indicated by their signatures on the thesis reviewer's form. Once this signed form is returned to the Graduate School, the student is provided with the final examination report form.

3.7.2 Ph.D. Thesis

At the time of submission of the doctoral program, students must file the thesis proposal form with the Graduate School. The form must include the proposed thesis title and a thesis proposal, about 250 words in length, describing the research to be undertaken and the methods to be employed in carrying it out. A thesis proposal approved by the Graduate School must be on file before the reviewer's form can be issued to the student.

At the time the student submits a draft of the thesis to the thesis reviewers, copies must also be provided to all other members of the final oral exam committee. The thesis abstract must be included with the thesis when it is distributed to the committee. **The examining committee must have at least two weeks to review the thesis.** The reviewers must be unanimous in certifying that the thesis is ready for defense, whether as presented or with minor revisions. If this is the case, and all other requirements have been met, the Graduate School authorizes the final oral examination. In any instance where revisions are required, the committee must inform the student in writing of the revisions required, and all questions concerning such revisions must be resolved before the final copies of the thesis are submitted and the degree is conferred. *It is the advisor's responsibility to ensure that revisions required by the reviewers are satisfactorily made.*

3.8 International Students

3.8.1 International Student and Scholar Services (ISSS)

Upon arrival, all international students must go to International Student and Scholar Services (ISSS is at 190 Humphrey Center) so they may review immigration documents and schedule a time for the mandatory International Student Orientation Program (ISOP).

ALL international students will be charged an ISSS Administrative Cost Fee of \$50 per semester, \$25 for the summer. This will show on the fees statement and the student is responsible for paying this fee.

3.8.2 Language Requirements/Speak Test

The Department of Geology and Geophysics, in consultation with the Center for Teaching and Learning Services, and in compliance with the requirements of the University of Minnesota, has determined that the following shall be the departmental policy for non-native-English-speaking students entering the graduate program and expecting to be supported financially by the Department at any time during their academic career.

All international students are required to register to take the SPEAK Test upon arrival and to participate in the three-week, pre-academic training session. The IT Dean's Office pays for all expenses relating to the teaching of this course, and in addition provides a modest stipend (typically \$300) to assist these newly entering graduate students with living expenses incurred by their arriving several weeks prior to the start of the academic year. On the basis of SPEAK Test results as well as English proficiency during the training

session, a general recommendation is provided by the Center for Teaching and Learning Services instructors. Recommendations fall into four categories:

- 1- Ready to teach;
- 2a- Cleared for teaching of lab, recitation, or lecture course under the supervision of a TA English Program instructor;
- 2b- Cleared for holding office hours, tutoring, or assisting other instructors in a lab;
- 3-Not cleared for teaching a lab, recitation, or lecture course.

A minimum recommendation of **2a** is necessary to pursue graduate studies in the Department of Geology and Geophysics, irrespective of the type of appointment (Teaching Assistantship, Research Assistantship, or Fellowship). In the event that this minimum grade is not achieved at the conclusion of the pre-academic English training session, the Department will cover the cost of the TA English Program up to a maximum of two semesters during the first academic year. If the student has not achieved the minimum performance level required, he/she must enroll a third time without direct departmental assistance until the SPEAK Test has been successfully passed at the 2a level. If this level of English proficiency is not achieved by the end of the first academic year, the Graduate Studies Committee will re-evaluate the student's graduate status.

This requirement of passing the English training program stems from an interest in ensuring that all graduate students in the Department have the language skills necessary to benefit from departmental seminars and satisfactorily communicate during the various written and oral exams taken to fulfill Graduate School and departmental requirements. In addition, it is expected that graduate students should be proficient not only in writing about their academic work but also in presenting their research orally at national and international meetings.

3.9 Mandatory Safety Training

It is required of all personnel working with scientific equipment and chemicals to attend safety training. This year it is scheduled during the main department orientation on August 29, 2002. Student who will be driving a university and/or departmental van for any reason will be required to take driver safety training. This subject will be talked about in more detail at the main safety training.

3.10 Mandatory Seminar Attendance Requirements

All graduate students are expected to attend departmental seminars (Thursdays at 3:30 p.m.) on a regular basis as part of their graduate education. Please see Appendix IV, "Departmental Seminar Attendance Requirements for Graduate Students in Geology and Geophysics".

3.11 Mandatory Ethics Training

Training on responsible and ethical behavior when conducting scientific research will be presented in 2 phases: Fall and Spring. Both sessions are required by the Graduate School. This year's fall session will be part of the department orientation on August 29, 2002.

3.12 TA Training Program

Just before the beginning of each academic year, the University's Center for Teaching and Learning Services provides a Teaching Enrichment Series. Along with New TA orientation, this includes valuable workshops for returning TAs. Although none of these workshops is mandatory, it is recommended that you make use of this valuable resource of information and training.

3.13 University of Minnesota at Duluth

The U of M Duluth campus does not have a doctoral program. Therefore Ph.D. candidates who wish to study with an advisor at the Duluth Geosciences Department must apply to and be admitted through our Department and the Twin Cities Graduate School. It is assumed that any financial aid will come from the UMD department.

At least one member of the Twin Cities Department of Geology and Geophysics will be on the preliminary exam and thesis committees. His/her role on the thesis committee will be that of a reader.

The student's program will include 6 months to a year of study at the Twin Cities campus, with a TA appointment. Therefore, it is strongly recommended that UMD students reside in the Twin Cities while completing this portion of the requirement.

As these students are entered through the Twin Cities Graduate School, they are eligible for application for the Doctoral Dissertation Fellowship.

3.14 Exemptions and Appeals

All of the above guidelines should be considered to have a certain flexibility to accommodate special cases. It is the Department's desire to meet every student's particular situation insofar as possible and to provide guidance through a program best suited to individual needs. If any questions arise in regard to these matters, they should be addressed to the Director of Graduate Studies.

4. Check-out Procedures

Congratulations, you're done! Well, almost. Before you leave the department, please do the following:

- Hand in a bound copy of your thesis to Kathy Ohler.
- Return all keys.
- Thoroughly clean out your office area and desk.
- You are now an alumnus/alumna! Provide Kathy Ohler with your new contact information, and keep us up-to-date on what you're doing!