

GUIDELINES FOR THE GRADUATE PROGRAM
MASTER OF SCIENCE IN GEOLOGY
EAST CAROLINA UNIVERSITY

INTRODUCTION

This document will serve as a guide to department policies governing graduate study. In keeping with its purpose, the guide deals largely with mechanical requirements: who, what, where, when, how, etc. However, this should not be taken as evidence that graduate study consists solely of meeting a series of deadlines, the last of which is recognized by the award of a degree. Although attainment of specific goals at appropriate times is an important element in the development of a productive scientist, it does not define the educational process.

In the evolution of a scholar, there is a transition from the stage of building a foundation to that of extending knowledge through research. The transition, a function more of development than of time, should be accomplished as early as possible in the scholar's career. It is marked, in part, by a change in attitude from acceptance to questioning of scholarly authority, and from a dependent to an independent approach to the educational process. Ultimately, this change requires development of an individual's intellectual curiosity. The degree to which one possesses and exercises intellectual curiosity determines success as a scholar. In the transition to scholar, a student develops independence, intellectual curiosity, and self-discipline. The Faculty of this department hopes this is the experience you find here.

The present trend in the Graduate School is toward the establishment of a framework within which individual departments of the University can build their programs -- a framework sufficiently rigid to ensure uniformly high standards throughout the University, but flexible enough to provide departments the freedom to adjust programs to provide students with the best possible education. Because of this Graduate School policy, the Graduate School catalog cannot stand alone as a guide for graduate students, and it becomes necessary for individual departments to introduce students to the ground rules by which their department operates. Inasmuch as the needs of our science are ever changing, so will be the Department's requirements and regulations. When changes are made, new requirements will be passed on to you as soon as approved by the Faculty of this department.

Graduate students are expected to be active participants in the activities of the Geology Department. This includes, but is not limited to, attending all departmental seminars and thesis

defenses, participating in departmental field trips, helping with departmental fund-raising and out-reach activities, such as the mineral sale and presentations to public school children, etc. Lack of participation in these activities will be viewed unfavorably by the faculty.

In addition to those outlined in the section below, the responsibilities of the graduate student include:

1. keeping the degree progress checklist updated,
2. attending training sessions held for new GEOL 1501 Teaching Assistants and checking at least weekly with faculty to whom they are assigned as research or teaching assistants,
3. providing the Graduate Director with written documentation of the completion of make-up work assigned due to inadequate performance on the comprehensive examination,
4. actively pursuing steps necessary to ensure granting of in-state residence status after the first year (this applies to out-of-state students only), and
5. seeing that all requirements of the Department are met in the correct sequence.

Graduate students encountering problems with their instructors or thesis committees are encouraged to first attempt to work out these issues directly with the faculty member(s) in question. If the problem is not resolved to their satisfaction, they can discuss it with the Graduate Director and ultimately with the Department Chair.

BACKGROUND IN GEOLOGY

Normally, a student entering graduate school with an undergraduate degree in Geology would have formal course work in physical geology, historical geology, mineralogy, petrology, field methods, structure, paleontology, sedimentology, and stratigraphy, as well as a traditional field course.

While the Geology Department encourages students with diverse backgrounds to enter our graduate program, we realize that a Master's degree in Geology must signify a certain depth of geological knowledge. For this reason, graduate students should be able to demonstrate capability in much of the program listed above. Such demonstration may be evidenced by: 1) taking formal courses; 2) passing a test in one or more of the above subjects; or 3) petitioning the faculty for substitution based on experience, other education, or a specific plan of education that the student believes is a worthy alternative to the above formal background.

COURSES IN MATHEMATICS AND SCIENCES OTHER THAN GEOLOGY

Courses in disciplines other than geology are usually important to a professional geologist. For that reason, study for a master's degree will likely necessitate course work in mathematics and other sciences. Selection of such courses depends on the student's chosen area of specialization. For example, a student who wishes to emphasize paleoecology should certainly expect course work in biology and perhaps statistics.

Until the student has arranged for a major professor, the Director of Graduate Studies will oversee courses in the cognate mathematics and sciences based upon the student's interests and background, and upon the opinions of the individual faculty member most likely to be in the student's area of future specialization.

After the student has obtained a major professor, courses in the cognate sciences and mathematics may be assigned by the major professor following consultation with the student.

COMPREHENSIVE EVALUATIONS

Many types of evaluation go into a decision by the Department to award a Master's degree signifying an advanced level of professionalism. Some evaluations are straightforward (e.g., course work and other examinations). Other evaluations, such as attitude, scholarly growth, or accepting responsibility to the science, are more subjective. All types of evaluations are important and should be continuous throughout the student's tenure within the Department.

The Geology Department is required by the Graduate School to give a comprehensive examination. A written examination will be administered to new students in their first semester to determine if there are significant weaknesses in the students' geological background. This will be a common examination and all eligible students will take it at the same time. The examination will cover basic material from the courses listed above in the section entitled Background in Geology. Should a student demonstrate a serious weakness in any area, three options are available: 1) completion of a specific assignment to strengthen the student's background in that area, 2) taking a course in that subject, or 3) auditing a course in the subject.

CHOOSING A MAJOR PROFESSOR AND THESIS TOPIC

By the end of the first semester or the beginning of the second semester, the student should select a major professor and thesis topic. The topic should be selected based on advice of

the major professor and should be: 1) original, 2) of interest to the student, 3) of sufficient scope, 4) feasible, and 5) within the specialty of one or more faculty members.

CHOOSING A THESIS COMMITTEE

The thesis committee is selected by the major professor based upon consultation with the student and consideration of the topic. The committee will consist of the major professor and two other faculty members of the Geology Department who have agreed to serve. The major professor shall also select one additional member of the committee from qualified faculty of another department, institute, or school from either within or outside ECU.

When the committee has been selected and its members have agreed to serve, the student should notify the Graduate Director. Should any member of the committee disagree with the student's program, he/she may resign from the committee.

THESIS PROPOSAL

When a topic has been chosen, an important responsibility of the student is to prepare a proposal. This must be done before completing a significant portion of the data collection. The length of the proposal is up to the major professor in consultation with the student. There is no rigid format, but certain items should be included in all proposals:

- 1) Tentative title. This should state clearly the nature of the proposed research, but should be as brief as possible.
- 2) Objectives. Make a clear, concise statement of the main goals of the proposed research.
- 3) Significance. The proposal should state clearly but briefly why the research is to be done and how it is to be done, and should indicate that an attempt will be made to explain results in terms of fundamentals. If the proposed research is only a part of a larger project being sponsored and directed by others, the student should clearly state his/her responsibilities in planning and carrying out the research proposed.
- 4) Previous Work (or Background). Present the status of the question. Clearly and specifically review the nature of the problem. The proposal should be sufficiently well documented with citations from pertinent literature to assure the faculty that the student is aware of the work of other investigators in the proposed area and related fields. The references

should be cited in a form consistent with that in a respected journal in the student's area of interest. The review should provide sufficient data to be used in evaluating the proposed research.

- 5) Methodology. State the nature of the contribution and the sequence of steps to be taken. The statement should indicate that the broad nature of the procedure has been thought out carefully. State the nature of the data sought and the procedure to be employed, whether field, experimental, statistical, or calculative.
- 6) Research Schedule. Briefly estimate, in list form, the time frame for each of the major steps in the project (include all field and lab work, as well as writing of the final document).
- 7) References Cited. Document all references cited in the text. Use a form consistent with that in a respected journal in the student's area of interest.

The Faculty recognizes that some potential projects must be evaluated after a certain amount of investigation. This may be required because of the nature of the problem or the funding situation. In such cases, it is the responsibility of both the major professor and the student to see that the proposal is submitted as early as possible in the student's program. Under no circumstances should the proposal be prepared after significant data collection and analysis. This would thwart the purpose of the proposal.

Once the thesis proposal is completed, the student defends it before the committee. This defense is an informal meeting. It does not require more than overheads for figures or extensive preparation by the student (except, of course, that already done to complete the written proposal). The student should, however, be familiar with the background research related to the thesis topic and the methods they propose to employ for data collection and data analysis.

PROCEDURES FOR REVIEW AND DEFENSE OF THE THESIS

All students are required to present their thesis research in an oral public defense. The major professor administers the procedures for review and defense of a thesis. When the major professor determines that the document is ready to be defended a time is selected. The procedures used by the committee to review a draft document and to conduct the oral defense are to be set by the major professor after consultation with the committee and the student.

I. Degree Requirements

A. Course Work

The M.S. degree in Geology requires 30 s.h. of course work. A maximum of 6 s.h. may be from outside the department, however, if the thesis advisor recommends it, a student may receive credit for additional work taken outside the department in the form of "Directed Studies" or "Readings". The student must submit a written summary of this work to the thesis advisor. At least 15 s.h. of the required 30 must be at or above the 6000 level. Completion of a 6 s.h. research skills option is required. The research skills option consists of GEOL 6900 and GEOL 7000. In consultation with the faculty adviser, the remainder of the 24 s.h. is chosen from various elective courses. Students are also encouraged to take relevant courses from other departments.

GEOL 5000/01 Geomorphology	GEOL 5150 Geol. Component of Env. Sci
GEOL 5300 Geology of Coastal Processes	GEOL 5350 Marine Geology
GEOL 5400/01 Optical Mineralogy	GEOL 5450 Intro. Aqueous Geochemistry
GEOL 5500/5510/5520 Directed Studies	GEOL 5600/01 Economic Geology
GEOL 5700/01 Geohydro./Drain.Basins	GEOL 5710/11 Groundwater Hydrology
GEOL 6020/21 Magmas & Igneous Rocks	GEOL 6040/41 Metamorphic Petrology
GEOL 6200/01 Sedimentary Petrology	GEOL 6220/21 Carbonate Petrology
GEOL 6250 Stratigraphic Analysis	GEOL 6300/01 Sedimentary Environments
GEOL 6310/11 Principles of Paleoecology	GEOL 6350 Environmental & Global Change
GEOL 6400/01 Geochemistry	GEOL 6500 Tectonics
GEOL 6522/23/32/33 Readings	GEOL 6550/51 Principles of Geophysics
GEOL 6703/04/13/14 Seminar	GEOL 6900 Prep. of Geol. Manuscripts
GEOL 6950 Geological Data Analysis	GEOL 7000 Thesis
GEOL 7830 Biogeochemistry	GEOL 7910 Sed. Trans. and Dep. Proc.
GEOL 7920/21 Advanced Hydrology	GEOL 7930 Biogeochemical Processes

B. Structuring of degree path

Obviously, the schedule outlined below may have to be modified for students who enter in the spring semester, get involved in a research project early, or change projects. Circumstances may arise under which students cannot complete requirements as scheduled; however, they are strongly encouraged to follow these steps. **It is the responsibility of the student to keep copies of all paperwork related to completion of the degree requirements outlined below.**

1. Students accepted for fall enrollment, but planning to work on a research project as a research assistant during the summer before they begin, need to check with the Graduate Director to ensure their enrollment and residence status for First and Second Summer Sessions. Such students must be registered for every Summer Session in which they will be receiving a check. The 1-credit Thesis (GEOL 7001) course is a likely choice.
2. New students should obtain a copy of the "Graduate Student Handbook" from the Graduate School.
3. Prior to the beginning of classes during the first semester in residence, students will meet with the Graduate Director to select courses for their first term and discuss the removal of undergraduate deficiencies. If students already have a clear idea of the subdiscipline of geology in which they wish to concentrate, they should also meet with department faculty members concentrating in that subdiscipline.
4. **It is the responsibility of the student** to officially notify the Graduate Director **in writing** when deficiencies in their undergraduate program have been successfully eliminated. Ensure that this is recorded by the Graduate Director on the permanent record, along with a notation as to what those deficiencies were.
5. Prior to the beginning of classes all students attend a general meeting to become familiar with department/university regulations and receive Graduate Assistant (GA) assignments. GA assignments include teaching, research, and departmental duties and can be granted as full-time (20 hrs/wk), three-quarter-time (15 hrs/wk), half-time (10 hrs/wk), or quarter-time (5 hrs/wk). Students assigned to assist a faculty member for 5 hours/week as part of their GA duties are required to check with this faculty member **immediately** following this meeting to discuss specific schedules and duties. [During the course of the semester if a student discovers that they are having to spend more than 5 hours/week on the duties assigned by their faculty member, they should alert both the faculty member and the Graduate Director to this fact.] Students making good progress towards completion of their M.S. degree, and adequately fulfilling other department responsibilities, have always been granted 4 semesters of GA support. **GA funding beyond that point has never been guaranteed.**
6. At the meeting described above out-of-state students will be given a list of steps they need to begin taking immediately to be granted in-state residence status before the beginning of their second year of graduate school. All **mandatory** steps to obtain residency should be completed within the first few weeks of residence in Greenville. The residency committee looks favorably on students who are active in Greenville's

community (volunteering and membership in local nonprofit organizations is beneficial). New students should talk to former out-of-state students immediately to learn about the process. Out-of-state-tuition-waivers (OSTW) are only granted for one year.

7. Within the first few days of class, a training session for all teaching assistants (TA) will be held. Graduate Assistants assigned to teach introductory geology labs must attend the scheduled training sessions and follow all the GA and TA guidelines and procedures outlined by the faculty member overseeing the introductory labs, and the Graduate Director.
8. Near the end of the first two weeks of the fall and spring semesters the Graduate School has what they call CENSUS DAY. Students not officially enrolled on that date - REGISTERED AND PAID - will not count toward the formula funding for fall and the Geology Department will lose the credit hours for those classes. The Graduate School has become very strict about this of late and will not let you register for any class after Census Day.
9. Before Graduate Assistants can receive a paycheck they must sign the GA contract and complete other hiring paperwork drafted by the department's Executive Assistant and the Graduate Director.
10. A few days before the beginning of the first semester in residence graduate students will take the comprehensive exam. Poor performance on any part of this exam will result in the student having to retake that portion of the test.
11. After all comprehensive exams have been graded, written results, with the required remediation steps, will be sent to all students. A copy of this letter will be placed in each student's folder in the departmental office. It is the responsibility of the student to arrange with the Graduate Director to retake portions of the exam they failed within one month after notification of exam results. It is also the students' responsibility to ensure that official passage of the comprehensive exam has been recorded by the Graduate Director on their permanent record in the Geology Department and in the ECU RG312M data base. Students should keep copies of all important forms and letters.
12. During the first half of their first semester students are strongly encouraged by the department faculty to speak with 3-5 faculty members about potential thesis projects. By the time of the first "pre-registration" conference students should be able to assert that they have thoroughly researched potential thesis topics and advisors and are ready to settle on a thesis. The department wishes to emphasize that research advisor and mentor do not have to be the same person. It is an

established department policy that students should consult with whomever they wish when they have questions and problems. Students need not feel that their well-being and success is totally dependent on a single faculty member.

13. When deciding on a thesis advisor and project students should ask potential advisors: 1) how much time per week the student is expected to spend on their research, 2) what the student's research responsibilities are, 3) how often they should meet with their advisor, 4) how the progress of their research will be assessed (i.e., deadlines and measures), 5) at what point the advisor wants to be consulted if the student is having problems, 6) on what principle the advisor allocates credit on joint publications, 7) how much time the advisor has to spend with the student at various stages of their research, 8) whether or not the advisor should be contacted when not on campus, 9) how much time the student should expect to have to wait for feedback on proposals and thesis drafts, and other questions the student might have.
14. By the end of the first semester students should have chosen a thesis advisor and research project. The thesis advisor then becomes the primary advisor taking an active role to insure that his/her students take appropriate courses, fulfill all departmental requirements, and generally progress toward the degree in a timely manner. Thesis advisors have final say over which courses a student is required to take. If the student disagrees with their advisor on this or thesis-related issues, another advisor and project should be chosen.
15. Prior to pre-registration week near the end of each semester, **ALL** students are required to meet with the Graduate Director. At this meeting the following will be discussed: 1) choice of courses for the following semester, 2) grades earned in courses completed during previous semester, 3) progress towards completion of comps make-up assignments, 4) choice of thesis committee and project, 5) progress towards defending thesis proposal, 6) progress of student's research, etc. These pre-registration meetings are required each semester the student is in residence, regardless of whether or not the student is still taking courses. Students who have already chosen a thesis advisor will be required to document that they have spoken with their advisor, before registering for classes. Students who have not chosen a thesis advisor by the end of their first semester will be advised by the Graduate Director about which courses to take during their second term. **Students must bring their updated "MS Progress Checklist" to these meetings.**
16. Whenever a student receives a grade of "I" in a graduate course they must immediately put in writing what will be

required to remove the grade of incomplete, using the form supplied by the Graduate Director. The instructor must then sign the form and it must be placed in the student's file in the main office.

17. During the first spring semester in residence, students should take the course in Preparation of Geologic Manuscripts.
18. Returning students receiving assistantship funds during either first or second Summer Session must be pre-registered for the fall semester in order to be issued a check.
19. **Well before** the end of the spring semester out-of-state students must request the Graduate Director to apply for a summer out-of-state-tuition-waiver (OSTW) for them, if they intend to take courses during the summer.
20. At the end of each semester, graduate students requesting a GA for the following semester must submit a GA application to the Graduate Director. Before leaving for each semester break, graduate students should check with the Graduate Director to insure that information about their GA/OSTW status has been entered into the university system. This will help insure they receive a paycheck at the beginning of the next semester.
21. During the second semester in residence (or earlier), students should begin preparing a thesis proposal and choose a thesis committee so the thesis proposal can be completed **before** significant amounts of data have been collected. Early submission of a thesis proposal formalizes the work that will be required in order to complete the thesis project.
22. Upon completion of the **FIRST DRAFT** of the thesis proposal the student will submit a copy of this first draft to the Graduate Director, at the same time they submit it to their major advisor.
23. After the thesis advisor and committee have read the thesis proposal, the student will schedule a date to defend the proposal before the committee. This is an informal meeting, which does not require more than overheads for figures. However, the student should be familiar with the background research related to the topic and the methods to be employed for data collection and data analysis. Students should be prepared to answer questions about their research. The proposal defense will encourage the student, thesis advisor, and committee to consider carefully the manageability and scope of the project at an early date. After a successful defense of the proposal, the student is required to notify the Graduate Director of the date of that defense and to provide a copy of the final thesis proposal to be placed in their file in the departmental office. Students beginning graduate school in the fall semester must defend their thesis proposals during the following spring semester, before they can be eligible to

receive a summer research stipend. Students beginning in the spring semester must defend their thesis proposals before the end of their second spring semester, before they can be eligible to receive a second summer stipend.

24. The first two semesters should be devoted to completing the majority of graduate course work so students should expect to take at least 9 credits of courses each term.
25. During the spring semester, students may submit a written application for a summer research stipend to the Graduate Director. For students who entered during the previous fall semester, their application consists of their successfully-defended and signed thesis proposal. Students who enter during the spring semester must be demonstrating satisfactory progress towards completion of their degree and must have outlined a clear plan for deciding on and beginning a thesis project over the course of the summer. In order to apply for these stipends the student must submit a detailed work plan for summer research. The funds will be awarded competitively based upon course record and definition of a thesis advisor and topic. The student must also be pre-registered for the fall semester to be eligible for these funds. The deadline for applying for these funds will be determined by the Graduate Director.
26. No student will be granted a summer research stipend until they have completed all make-up assignments resulting from their comprehensive examination.
27. At the end of their second semester in residence, out-of-state students should apply for in-state residence with Asst. Dean Poole in the Graduate School. It is a good idea to speak with Dean Poole earlier in that semester to insure the right steps are being taking to qualify for in-state status.
28. By the end of their first summer in residence, students should complete the collection of most of their thesis data.
29. Following completion of all other course work students will register for Thesis (GEOL 7000) every semester they are in residence completing their thesis project. If they desire to take a leave of absence before completing their degree, they must withdraw from school for the time period during which they will not be using any university resources.
30. The appropriate length of a thesis document is determined by the thesis advisor, thesis committee, and student. A project that can be completed and defended by the end of the 4th, or at most 5th, semester is ideal.
31. Before writing any portion of the thesis students should acquire a copy of "Manual of Basic Requirements for Theses and Dissertations" and "Guidelines for Submitting and Distributing Dissertations and Theses" from the Graduate School.

32. Students should apply for graduation at the beginning of the semester in which they expect to complete their degree requirements. Remember that on this application, the student's name should appear as desired on the diploma. The cost of this is included in the semester fees. If the student does not complete degree requirements during this semester, they must insure the Graduate Director submits their name to the Registrar for graduation when they do finish. **A student must be registered for a course during the semester in which they graduate.**
33. Early during the semester of graduation, the student, in consultation with their advisor, must clean-up all equipment, supplies, and samples used during pursuit of their research. The thesis advisor and Department Technician will then sign a form (Closeout of Research Space) acknowledging that this task has been completed. Submission of this to the Graduate Director will initiate completion of the "Graduate Student Graduation Summary", **without which a student cannot graduate.**
34. If the student has accumulated any courses above and beyond those required for graduation the Graduate Director should be informed that those "extra" courses should be designated as "not applying to the present degree (NA)" on the Graduate Student Graduation Summary. This will allow the student to use those "extra" courses towards another degree the student may want to pursue at some point. If the student already has another degree in mind, she/he should choose the courses to be designated as NA based on which are most likely to apply to the future degree.
35. Any student who took GEOL 7001 during the summer must check with the Graduate Director to ensure they have been assigned a grade for that course. A student cannot graduate with an "I" on their record.
36. Any student, who took courses in another graduate program or as a non-degree-seeking student at ECU, must ensure these courses are properly credited to them on the "Graduate Student Graduation Summary" and in the RG312 database.
37. During the semester of graduation, the student must retake the Multiple Choice portion of the Comprehensive Exam, because Geology uses this as part of our assessment process. Submission of this to the Graduate Director will initiate completion of the "Graduate Student Graduation Summary", **without which a student cannot graduate.**
38. During the semester of graduation, the student must complete the "Graduate Student Exit Survey" on ONESTOP. The Grad School will not sign off on your final graduation paperwork until you have completed this survey.

39. **It is the student's responsibility** to check with the Graduate Director to ensure that the Graduation Summary has been submitted and that the appropriate information has been entered in the RG312 database. The deadline for this is usually about 1½ months prior to the end of the semester.
40. Once a satisfactory first draft of the thesis has been approved by the thesis advisor, the student should take a copy to the Associate Dean of the Graduate School to determine if the document contains major problems that would cause the Graduate School to reject it.
41. When the thesis committee has read and approved a defensible draft of the thesis, a thesis defense date should be set. Allow at least two weeks prior to the agreed date for adequate publication of the defense date in order to insure good attendance by geology faculty, graduate students, and people from other campus departments.
42. Once the defense date is set, the student is required to give a copy of the posted advertisement of their thesis defense to the Graduate Director. On the day of the defense the student should have available a copy of the thesis signature page on 20 lb acid free cotton rag paper.
43. Following successful defense of the thesis, the thesis committee will discuss with the student what changes are required to complete the thesis document. The student will make these changes and present the major advisor with a completed document.
44. The entire thesis committee and the department chair must sign the final document.
45. At least ten days prior to the last day of classes of the student's final semester, a corrected copy of the thesis on regular paper and in the required format, must be submitted to the Graduate School office along with a properly signed signature page. The signature page should be on 20 lb, acid-free, cotton-rag paper. The student must leave a phone number where they can be reached. The thesis must be left in the Graduate School for five full days for complete review. If the Graduate School requires corrections, the student must submit the revised copy on regular paper (along with the signature page on rag paper) until final approval has been granted. Only one corrected copy is needed. It should be submitted along with the original showing the corrections to be made.
46. It is advisable to order the requisite amount of 20 lb acid free cotton rag paper from an office supply store a week or so in advance of the anticipated printing date.
47. After approval by the Graduate School, three copies (including the original - all on 20 lb, acid-free, cotton-rag paper) of the thesis must be prepared and submitted (along

with the "Thesis acknowledgment form") to Joyner Library for binding. Additional copies for the thesis advisor, thesis committee, and/or student may be bound if the student chooses. Additional copies of the thesis may be prepared by photocopy or printed by offset printing.

48. After the "Thesis acknowledgment form" has been signed by the library representative, the form must be taken to the Graduate School and then to the Registrar's Office.
49. Before graduating the student must supply the Graduate Advisor with the following from the thesis: copy of title page and abstract; number of pages, plates, and tables; type and scale of fold-out maps; and the number of references cited in the bibliography.
50. **Students are responsible for keeping all graduate school and department deadlines** for thesis submittal, obtaining approval from the major professor and thesis committee for the time and place of the proposal presentation and the defense, and working with the thesis committee in regards to timing of the editing process. All students should assume that the committee will want to read the thesis draft multiple times and that each reading may take several weeks. Don't wait until the last minute!