

Department of Earth & Environmental Sciences Graduate Student Regulations and Procedures Handbook

The Department of Earth and Environmental Sciences (E&ES) at Boston College (BC) offers graduate courses and research programs leading to both a Ph.D. in Earth and Environmental Science and a M.S. in Geology or Geophysics. This handbook describes the regulations that govern these programs and provides important information for enrolled and prospective graduate students. As described below, the regulations concerning course requirements, qualifying and comprehensive exams, and thesis submission are specific to the Ph.D. and M.S. tracks. All other regulations apply to all graduate students within the E&ES Graduate Program.

These regulations and this handbook have been prepared by the E&ES Graduate Program Committee and approved by the full faculty. Questions concerning the contents of this document should be addressed to the Graduate Program Committee.

Philosophy of the Graduate Program in the Department of Earth and Environmental Sciences

The philosophy of the E&ES graduate program is to offer students a research-oriented graduate degree that provides a solid foundation and broad background in the Earth sciences. To do this we emphasize two primary components of graduate training: (1) depth and breadth of knowledge across the Earth sciences, and (2) the foundations to perform independent research. The former is accomplished through a variety of courses within our department and the other sciences. The research component for both a Ph.D. and M.S. degree is a thesis-based program that emphasizes problem solving, data gathering, quantitative analysis, and data synthesis. The practical result of our graduate program is to prepare students for any one of many different career paths in the Earth sciences, including academic research, work in the private sector, teaching at K-12 schools or higher degree-granting institutions, and future training at other institutions. Our graduate program is designed to ensure that students are qualified and competitive in whatever career path they choose.

Learning outcomes: Upon completion of a degree from the E&ES graduate program, our students should be able to:

1. Conduct original, publishable research in the field.
2. Demonstrate a broad knowledge of earth processes.
3. Demonstrate in-depth knowledge of a sub-discipline in the earth sciences.
4. Demonstrate acquired skill in field or laboratory methods and application of appropriate quantitative methods.
5. Write and speak effectively to professional and lay audiences about issues in the field.
6. Teach effectively at the K-12, undergraduate, and graduate levels.

Graduate Admissions in the Department of Earth and Environmental Sciences

The graduate admissions process is designed to attract qualified students who wish to have flexibility in setting their graduate study curriculum. The following considerations are used by the Department during the graduate admissions process:

- For maximum consideration for financial aid, graduate applications must be submitted by January 2 for admission in September of the same year.
- Applications for the graduate program should include the application form, an abstract of the courses taken, official transcripts of all academic work to date, three letters of recommendation, and a statement of purpose written by the applicant. General and subject GRE scores are accepted but not required. The Department does not have minimum required grades or test scores, but rather the entire graduate application package is evaluated and rated by the Graduate Program Committee.
- Students are typically admitted to work under the guidance of a specific faculty advisor. Prospective students are thus encouraged to contact department faculty members during the application process to explore opportunities for thesis research projects. Upon entering the program students will determine a specific thesis topic in consultation with their advisor. Under certain circumstances students will be admitted to the graduate program without assignment to a thesis advisor. In this case, the student will pick their thesis topic and thesis advisor, with his or her approval, when they start the graduate program.
- The Department currently aims to enroll between 2–5 new M.S. and 2–4 new Ph.D. students each academic year.
- Active E&ES M.S. students may apply to the Ph.D. program and have their application fee waived. This is usually done during a student's 2nd year in the M.S. program.

Some students who apply to the E&ES graduate program do not have the proper undergraduate background to undertake graduate-level studies. These students can apply for “special student” status. If accepted as a special student, the student can then take courses in the Department to fill out his/her background. Special students usually do not receive any financial aid from the Department. A student who has special-student status must fill out a full application to and be accepted into the M.S. program before his/her status can be changed to that of a full-time regular graduate student. Special students who convert to regular graduate student status may count up to 12 credits of graduate-level courses (EESC or other science courses numbered 3000 or higher) that they took as a special student toward the 30 credits that are needed for the M.S. degree.

Graduate Financial Aid

The Department of Earth and Environmental Sciences offers five years of funding to all qualified Ph.D. students contingent upon satisfactory academic performance and progress toward completion of their degree. The department also offers some financial assistance to M.S. students, generally spanning two years. Three forms of financial aid are typically available. Tuition Remission (TR) is a form of financial aid that defrays the tuition costs of taking graduate courses at Boston College. Most graduate courses are 3-credit courses. Thus, three TRs are needed for a graduate student to take most graduate courses at no cost to himself/herself. A Teaching Assistantship (TA) is a form of financial aid where a student is paid a regular stipend to help a professor teach a course in the Department. Depending on the course, a TA may teach one or more lab sections, assist a professor with course lectures, help grade quizzes and exams, and/or help lead field trips. A Research Assistantship (RA) is a form of financial aid where a student is paid a regular stipend to help a professor conduct research. RAs are available in the summer, as well as during the academic year. The stipend paid for a TA or RA is normally enough to pay routine living expenses.

Each year the Department has available some financial aid in the form of TRs and TAs. As a rule, students who receive TA or RA support also receive enough TR support to cover their course tuition fees for the semester or academic year for which they are supported.

Graduate Student Academic Advising

Upon entering the E&ES graduate program, all Ph.D. and M.S. graduate students will be assigned a two-member faculty advisory committee. The purpose of this committee is to advise the graduate student regarding course selection, academic regulation, and other questions regarding academics at Boston College. During the second semester of the student's first academic year, this committee is dissolved, and the student is required to select a new faculty advisory committee that will preside over the student's oral qualifying examination in the second year of the program. This new committee, termed the qualifying examination committee, shall consist of three faculty members, at least two of whom must be full-time tenured or tenure-track faculty members. A professor of the practice, or a visiting or part-time faculty member can serve as one of the members of the qualifying examination committee. The chair of the qualifying examination committee must be a full-time tenured or tenure-track faculty member and shall act as the primary thesis advisor for the student. This committee shall act as the voting members for the student's oral qualifying exam. One research collaborator from outside of the Department or BC can be a non-voting participant in the oral exam, as long as this is arranged ahead of time with the members of the qualifying exam committee. The form for approval of this committee can be found in the Appendix A of this Handbook and must be completed by the end of the student's second semester in the program.

M.S. Students: Two committee signatures are required for the M.S. thesis. Typically, one of these signatures comes from the student's primary advisor and the other from a member of the qualifying examination committee.

Ph.D. Students: Following completion of the qualifying examination, Ph.D. students must form a thesis committee. This committee shall consist of three faculty members from E&ES (at least two of whom must be full-time tenured or tenure-track faculty members), plus one faculty member from outside the department. A professor of the practice, or a visiting or part-time faculty member can serve as one of the members of the thesis committee. The outside faculty member can come from another department at BC or from an outside institution. This committee shall act as the voting members for the student's comprehensive exam and their Ph.D. thesis defense. Students are encouraged to meet with their thesis committee between their qualifying and comprehensive exams to discuss research directions and help them formulate plans for their thesis proposal. After completing the comprehensive exam, the student should hold full committee meetings at least once per year until the defense of their thesis. Documentation of these meetings should be sent to the Graduate Program Director.

The form required for approval of the thesis committee can be found in Appendix B of this Handbook and must be completed within 3 months of completing the qualifying examination. For Ph.D. students entering the program with a M.S. degree in an Earth or Environmental Sciences (EESC)-related field and who have the thesis proposal and qualifying examination waived, they must form their thesis committee within the first semester of entering the program.

Should a graduate student wish to make a later change to either their qualifying examination committee or their thesis committee, a request for the change should be submitted to the E&ES Graduate Program Committee. Questions about membership on a student's advisory committees should be addressed to the E&ES Graduate Program Committee.

Graduate Student Course Requirements

Course Requirements Specific to E&ES M.S. Students:

Number of Credits/Courses: Each M.S. student is required to pass at least 30 credits of course work at the graduate level. Graduate-level course work is defined as any Boston College science or mathematics course numbered 3000 or above. Courses taken at BU, Tufts, or Brandeis may be counted toward graduate credit with approval from the E&ES Graduate Program Committee. A typical course track for M.S. students is shown in Figure 1.

Thesis Seminar (EESC8801): Each M.S. student may take up to 6 credits of Thesis Seminar (EESC8801) as part of their graduate curriculum. All six credits of Thesis Seminar may be taken in one semester, if approved by the student's thesis advisor and their qualifying examination committee.

Interim Study (EESC8888): Once a M.S. student has completed the required course work, they must register for 0-credit Interim Study (EESC8888) to officially remain enrolled in the program. Registration is routinely done by the department office, but students should verify their status with the department administrator. Failure to register for Interim Study may result in ineligibility for department fellowships and full-time student status.

Course Requirements Specific to E&ES Ph.D. Students:

Number of Credits/Courses (Ph.D. Students): Each Ph.D. student is required to pass at least 24 credits of graduate level course work beyond their bachelor's degree. Students admitted to the Ph.D. program who have earned a M.S. degree in EESC-related field may have up to 12 course credits approved from their prior graduate course work. Graduate level course work is defined as any Boston College science or mathematics course numbered 3000 or above. Courses taken at BU, Tufts, or Brandeis may be counted toward graduate credit with approval from the E&ES Graduate Program Committee. Note that credits for Doctoral Continuation (EESC9XXX) do not count toward the total course credit requirement. A typical course track for Ph.D. students entering with and without an EESC-related M.S. degree is shown in Figure 1.

Broader Impacts and Integrated Research (EESC6XXX): All Ph.D. students will be required to take Broader Impacts and Integrated Research (EESC6XXX). This course explores the criteria for broader impacts and the ways in which student research outcomes contribute to society and the achievement of desired societal outcomes. The timing at which a student will be required to take this course will depend upon their individual circumstances and academic preparation, but ideally this will occur during the first semester of their 3rd year of graduate study post-bachelors.

Doctoral Continuation (EESC9XXX): Once a Ph.D. student has completed the required course work, but is continuing to work on his/her dissertation, they must register for 1-credit Doctoral Continuation (EESC9XXX) to officially remain enrolled in the program. Registration is routinely done by the department office, but students should verify their status with the department administrator. Failure to register for Doctoral Continuation may result in ineligibility for department fellowships and full-time student status. Note that if a student is enrolled in a graduate class (even once their required coursework is complete) they do not need to enroll in EESC9XXX in that semester.

Course Requirements Applying to all E&ES students:

Undergraduate Science Requirement: Each graduate student is expected to have a two-semester, college-level physics or chemistry course before beginning the graduate program. If deficient in this requirement, a student may still be admitted to the program, but must work with his/her advisory committee to plan how the deficiency will be made up by then end of the student's first academic year in the graduate program. Tuition Remission credits (TRs) generally cannot be used for courses numbered 3000 or below,

but will occasionally be considered on a case-by-case basis. To use TRs for these courses, students must obtain approval from the Graduate School of Arts & Sciences well in advance of the end of the drop/add period. Requests must be submitted to the E&ES Graduate Program Committee.

Undergraduate Mathematics Requirement: Each graduate student is required to have a two-semester, college-level calculus course before completing their graduate degree. If deficient in this requirement, a student may still be admitted to the program, but must work with his/her advisory committee to plan how the deficiency will be made up by then end of the student's first academic year in the graduate program. Tuition Remission credits (TRs) generally cannot be used for courses numbered 3000 or below, but will occasionally be considered on a case-by-case basis. To use TRs for these courses, students must obtain approval from the Graduate School of Arts & Sciences well in advance of the end of the drop/add period. Requests must be submitted to the E&ES Graduate Program Committee.

Pass/Fail Courses: The Boston College Graduate School of Arts and Sciences does not allow graduate students to count courses taken pass/fail toward their graduate degree. The E&ES Department also prohibits graduate students from taking courses numbered less than 3000 on a pass/fail basis if those courses are being taken to make up undergraduate deficiencies. All courses taken by graduate students in the E&ES Department must be taken for a grade.

Readings & Research (R&R) Courses: Each graduate student may take no more than one R&R course as part of their graduate curriculum. During the second semester of a graduate student's first year, the student may take a three credit R&R with their primary advisor. The course will require two 10-page papers, including a literature review of the student's thesis topic, and the student will be required to make a presentation at the student colloquium in the spring. The student and advisor should agree to a course plan/contract during the first week of the semester and share this document with the Graduate Program Director. Exceptions to the second-semester requirement can be made on a case-by-case basis in consultation with the Graduate Program Committee.

GPA Requirement: All graduate students are required to maintain a cumulative GPA of 3.0 or better to remain in good academic standing in the graduate program. R&R courses and thesis seminars are not counted in this GPA requirement, but courses numbered less than 3000 taken to make up undergraduate deficiencies are counted in computing the student's GPA. If a student does not achieve a 3.0 GPA at any point during their graduate career, the E&ES Graduate Program Committee shall meet to consider the appropriate course of action, including placing the student on academic probation or dropping the student from the program. The final decision about academic probation or termination in the graduate program shall be made by the full department faculty.

Earth Systems Seminar (EESC669X): All graduate students who enter the program without an M.S. degree in an EESC-related field are required to take the graduate Earth Systems Seminar (GE669X) during their first fall semester in the graduate program.

Graduate Course Distribution Requirement. The philosophy of the graduate program in E&ES is to emphasize depth and breadth of knowledge across the Earth sciences and to train students in research. To reinforce this philosophy, the graduate course offerings in the Department have been classified into the broad themes of (1) Disciplinary Breadth and (2) Scientific Methods (see Appendix C). Taking courses across these themes helps students build their skills in observation, critical thinking, quantification, and presentation, while at the same time creating a deep understanding of a sub-discipline and promoting a broad understanding of basic issues in the geosciences.

The following graduate course distribution requirement shall apply to all Ph.D. and M.S. students. A graduate student is required to take at least two (2) courses from each Disciplinary Breadth area and at least one (1) course from each Scientific Methods area. If listed in both areas, a single course can fulfill both a Disciplinary Breadth requirement and a Scientific Methods requirement. If a graduate course offering is not listed under either thematic classification, an inquiry should be made of the Graduate Program Committee about the thematic classification for the course. Graduate students must complete the Graduate Course Distribution Requirement Form in Appendix C before their qualifying examination. Ph.D. students entering the program with an EESC-related degree must complete the form in Appendix C before their comprehensive examination. Classes from their M.S. degree may be counted, but a syllabus for any courses taken outside BC must be included with the form.

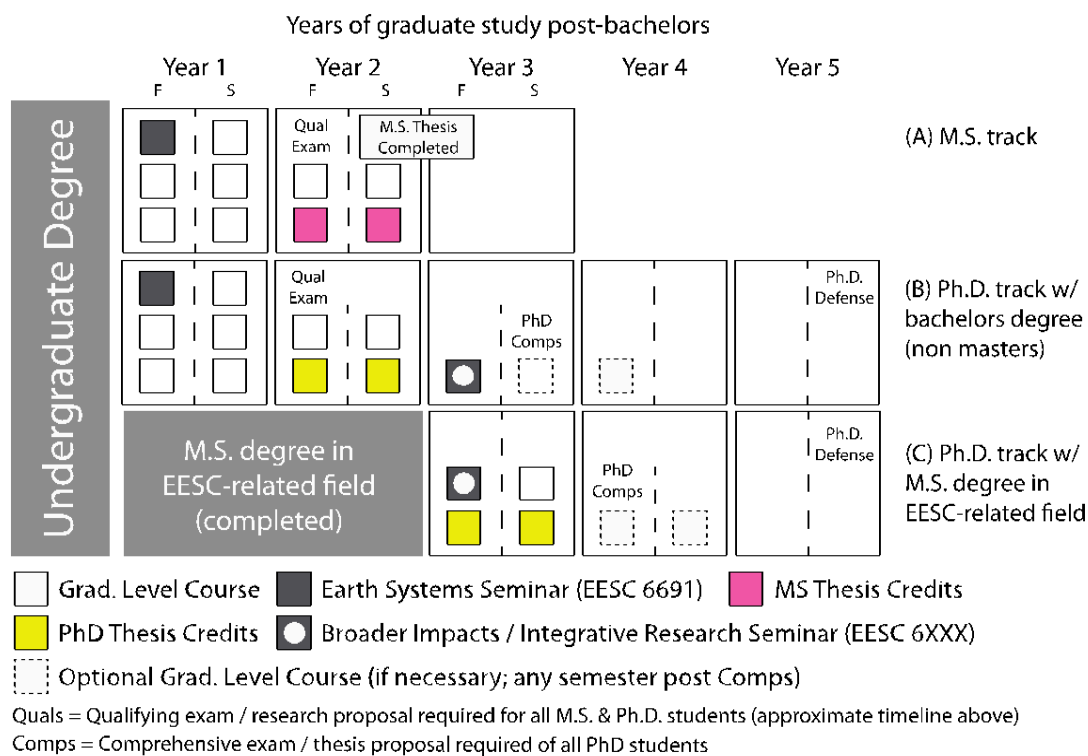


Figure 1: Typical track for (A) M.S. degree, (B) Ph.D. assuming no prior M.S. degree in the geosciences, and (C) Ph.D. with a prior M.S. degree in an EESC-related field.

Oral Qualifying Examination and Research Proposal Requirements (M.S. & Ph.D. students)

Research Proposal: All graduate students are required to submit a written research proposal during their third academic semester in the program. The research proposal shall be prepared under the supervision of the student's primary advisor, with input from the other two members of the student's qualifying examination committee, and it shall contain a summary of the student's research project. For M.S. students, this project will describe the research that forms the basis of their Masters thesis. For Ph.D. students, this proposal will describe the research that forms the basis for their first Ph.D. thesis chapter.

The format of the research proposal should follow standard practices for scientific writing. A good guide for writing scientific journal articles can be found at: <http://abacus.bates.edu/~ganderso/biology/resources/writing/HTWtoc.html>). Clearly sections would be altered for a proposal format (rather than a journal article) and should include the following sections:

- (1) A cover sheet that gives the title of the thesis (M.S. students) or first thesis chapter (Ph.D. students), the name of the student who is submitting the research proposal, the date of submission of the research proposal, and the names of the three qualifying examination committee members. The chair of the committee should be indicated. The research proposal must be signed by the primary advisor before it is submitted to the Graduate Program Committee.
- (2) A technical section that describes the research project. This section should explain the scientific question or questions that are being addressed by the student, give background about the research project, explain the analysis methods and data to be used in the research, give an indication of what kinds of results are expected, and propose an expected timeline for completion of the project. The technical section should be about 8-10 double-spaced pages, not including figures, tables or references. All figures should have figure captions that explain the figures, similar in style and content to captions for papers in scientific journals (see writing guidelines above). References to published scientific work or to web pages should be included in the technical section of the research proposal.
- (3) A section at the end of the proposal giving the full citations for all references in the research proposal text and figure captions. The references section should be formatted in a style similar to that of scientific earth science publications (see writing guidelines above).

The research proposal is to be completed by the student's third semester in the graduate program. The research proposal is to be submitted to the chair of the Graduate Program Committee of the Department. The proposal must be signed off by the primary advisor no later than 3 weeks in advance of the student's oral comprehensive exam and

distributed to the other two qualifying examination committee members. If a student has not completed and submitted a signed research proposal by the appropriate due date, that student will be considered to be making unsatisfactory progress toward his/her graduate degree.

Incoming Ph.D. students with a M.S. degree in an EESC-related field may be allowed to waive the research proposal and qualifying examination requirement and proceed directly to the comprehensive examination. This should be discussed by the incoming student with their two-person faculty advisory committee (including the student's Ph.D. advisor) immediately upon entering the program. Waiver forms can be found in Appendix D and must be submitted to the Ph.D. advisor and Graduate Program Committee for final approval within 3 months of entering the program.

Oral Qualifying Examination: All M.S. and Ph.D. student are expected to take an oral qualifying examination by the end of their third semester in the program. If a student is unprepared to take the oral qualifying examination during their third semester, the faculty advisory committee for that student may petition the E&ES Graduate Program Committee for permission to allow the student to take the oral qualifying examination during their fourth semester in the M.S. program. If the student has not taken the oral qualifying examination by the end of their fourth academic semester in the program, that student will be considered as making unsatisfactory progress and can be dismissed from the degree program.

During the oral exam, the student will be examined largely in the area of their research proposal. The student is also expected to have a general knowledge of basic Earth science, geology and/or geophysics. The student will make a presentation regarding their proposed research at the beginning of the oral examination. This presentation may be up to fifteen minutes in length and can contain visual aids. The committee will then ask questions that pertain to the student's research proposal and general knowledge.

A student's combined performance on the written research proposal and oral qualifying examination as evaluated by the qualifying examination committee will determine the outcome of the exam. The rubric for the assessing the qualifying exam will be based on the following criteria:

1. Propose original, publishable research in the field.
2. Demonstrate a broad knowledge of earth processes.
3. Progress toward gaining an in-depth knowledge of a sub-discipline in the earth sciences.
4. Demonstrate ability to acquire skills in appropriate field, laboratory, and/or quantitative methods.
5. Write and speak effectively to professional and lay audiences about issues in the field.
6. Teach effectively at the undergraduate level.

The following grades may be earned on the oral qualifying examination: pass or no pass. If a student earns a "no pass" grade, the student is allowed one chance to retake the oral

qualifying exam at a later date. The qualifying examination committee will issue a recommendation to the student in writing about what conditions apply to the reexamination when a student does not pass the first taking of the oral qualifying exam. A copy of these recommendations should be provided to the Graduate Program Director and placed in the student's academic file.

Students may take their oral exam no less than 3 weeks after a research proposal has been signed by the primary advisor and submitted to the other two members of the qualifying examination committee and the Graduate Program Director. Students are strongly encouraged to meet individually with their committee members during the 3-week period prior to the exam. Oral qualifying exams are commonly scheduled during the months of November in the fall semester. It is the responsibility of the graduate student who will take the exam to arrange a date and time of the exam (a two-hour time slot is required) that is acceptable to all three examination committee members. An oral qualifying examination request form (see Appendix E) must be filled out and submitted to the Graduate Program Director along with the research proposal at least 30 days prior to the date when the oral qualifying examination is to take place.

Comprehensive Examination and Ph.D. Thesis Proposal Requirements (Ph.D. students only)

The comprehensive exam will include a written Ph.D. thesis proposal followed by an oral presentation of this proposal to the department and the student's Ph.D. thesis committee.

Thesis Proposal: The Ph.D. thesis proposal is to be completed within 18 months of passing the qualifying exam. For students entering the program with a M.S. degree in an EESC-related field and who have waived the qualifying exam requirement, the thesis proposal should be completed in their third academic semester. The thesis proposal shall be prepared under the supervision of the student's primary advisor, with input from the other members of the student's Ph.D. thesis advisory committee. Similar to the student's research proposal for the qualifying exam, the written Ph.D. thesis proposal should follow standard practices for scientific writing. The thesis proposal will consist of 3 parts:

- (1) A cover sheet that gives the proposed title of the Ph.D. thesis, the name of the student who is submitting the thesis proposal, the date of submission of the research proposal, and the names of the four thesis committee members. The research proposal must be signed by the primary advisor before it is submitted to the Graduate Program Committee.
- (2) A technical section that contains a complete draft of the first chapter of the student's Ph.D. thesis. This section will be similar to the research proposal, but in addition to background, motivation, and methodology, this section will also include a summary of the results, a discussion of the results and their implications, and statement of conclusions. This section can either be written in chapter format or in journal format. If this research has already been submitted or

published in a scientific journal a pre-print or re-print shall be deemed an acceptable format for the technical section of the thesis proposal.

- (3) A section outlining the research proposed for the remaining thesis chapters (1-2 pages each) and a time-line for the completion of the thesis. Typically, the student will be expected to complete 2-3 additional chapters (each equivalent to a scientific journal article) beyond the first chapter of their thesis.

The thesis proposal is to be submitted to the chair of the Graduate Program Committee. The proposal must be signed off by the primary advisor 3 weeks in advance of the student's comprehensive exam and distributed to the student's entire thesis advisory committee. If a student has not completed and submitted a signed thesis proposal by the appropriate due date, that student will be considered to be making unsatisfactory progress toward his/her graduate degree.

Comprehensive Examination: Ph.D. students are expected to complete an oral comprehensive exam within 18 months of passing their qualifying exam. For Ph.D. students entering the program with a M.S. degree in an EESC-related field and who have waived the qualifying exam requirement, the comprehensive exam should be taken no later than the end of the student's third semester in the program. Students must have completed all courses for their distribution requirements before taking their comprehensive exam. If a student is unprepared to take the comprehensive examination within 18 months of passing their qualifying exam (or the third semester for students waiving the qualifying exam), the thesis committee for that student may petition the E&ES Graduate Program Committee for permission to allow the student to take the comprehensive examination during his/her fourth semester after the qualifying exam. If the student has not taken the comprehensive examination by the end of his/her fourth semester post-qualifying exam, that student will be considered to be making unsatisfactory progress and can be dismissed from the degree program.

The comprehensive exam will consist of an oral presentation of the student's first thesis chapter and a summary of the proposed research that will make up the remainder of the thesis. This presentation will be made to the entire department and should last approximately 40 minutes. The presentation will be followed by ~20 minutes of questions from the general audience, after which there will be a closed session of questioning from the thesis advisory committee.

A student's combined performance on the written thesis proposal and oral presentation as evaluated by the thesis advisory committee will determine the outcome of the exam. The committee will assess both the quality of the completed research in Chapter 1 and the feasibility of the research proposed for the remainder of the thesis. The rubric for the assessing the comprehensive exam will be based on the following criteria:

1. Conduct original, publishable research in the field.
2. Demonstrate ability to place research results into a broader context of the existing literature.
3. Demonstrate in-depth knowledge of a sub-discipline in the earth sciences.

4. Demonstrate acquired skills in appropriate field, laboratory, and/or quantitative methods.
5. Write and speak effectively to professional and lay audiences about issues in the field.
6. Teach effectively at the undergraduate level.

The following grades may be earned on the oral qualifying examination: pass or no pass. If a student earns a “no pass” grade, the student is allowed one chance to retake the comprehensive exam at a later date. The thesis advisory committee will issue a recommendation to the student in writing about what conditions apply to the reexamination when a student does not pass the first taking of the comprehensive exam. A copy of these recommendations should be provided to the Graduate Program Director and placed in the student’s academic file.

Students may take their comprehensive exam no fewer than 3 weeks after the thesis proposal has been signed by the primary advisor and submitted to the other members of the thesis advisory committee and the Graduate Program Director. It is the responsibility of the graduate student who will take the exam to arrange a date and time of the exam (a two-hour time slot is required) that is acceptable to all committee members and the Department Chair. A comprehensive examination request form (see Appendix F) must be filled out and submitted to the Graduate Program Director along with the thesis proposal at least one month prior to the date when the comprehensive examination is to take place.

M.S. Thesis Requirements

Each M.S. student is required to submit a written thesis in order to complete the M.S. program. The M.S. thesis shall consist of a written document that describes a substantial body of scientific investigation, roughly the equivalent of one published paper in the geoscience literature. Students will be required to write their thesis in one of two formats based on discussions with their advisor and examination committee; these formats are the **traditional format** or the **manuscript format**.

The **traditional format** organizes chapters around a central problem and is normally used when no part of the thesis has been published or submitted for publication. The thesis should explain the scientific problem that was addressed, give appropriate background information about the problem, explain the analysis methods, laboratory or field measurements, and data that were used in the scientific investigations, describe the results of the scientific investigations, and explain the significance of the research results. The thesis shall contain appropriate references, figures, tables, and other material that helps explain the investigation and its results. Helpful guidelines for scientific writing can be found at: <http://abacus.bates.edu/~ganderso/biology/resources/writing/HTWtoc.html>.

Many, if not all, of the elements that comprise a traditional thesis should also be present in the **manuscript format thesis**, with the distinction that the research findings

are explicitly written in the form of a paper/manuscript that has been, or will be, submitted for publication in a peer-reviewed scientific journal. In order to demonstrate the breadth and depth of the students graduate student research efforts and depending on the scope of the manuscript to be written (e.g., short form vs. long form papers), the final thesis submitted to the Graduate School may require more than the manuscript text alone, as additional materials such as introductory chapters, acknowledgments, figures and tables, or additional details on specific methodologies may be appropriate as analytical appendices.

A graduate student must have successfully passed the oral qualifying examination before the M.S. thesis is accepted by the Department. A M.S. thesis is considered completed only after it has been reviewed by the student's faculty advisory committee and two faculty members have signed the thesis cover sheet. No thesis will be considered completed until it has been formatted according to university standards and has been submitted to the university. Information on format specifications and submission can be found at the Boston College Graduate School of Arts and Sciences web page (<https://www.bc.edu/bc-web/schools/mcas/graduate/current-students/thesis-checklist.html>). The thesis is the final requirement that is completed by a graduate student before the M.S. degree is granted. In addition to the thesis copy required by the university, please also send a PDF copy of your thesis to the Graduate Program Director.

Ph.D. Thesis Requirements

Each Ph.D. student is required to submit a written thesis to complete the graduate program. The Ph.D. thesis shall consist of a written document that describes a substantial body of original scientific investigation. In general, a Ph.D. thesis will consist of five parts:

1. Abstract (1-2 pages)
2. Introduction including a brief historical review and background of the topics covered in the thesis
3. Three or four chapters that develop the original contribution toward the solution of the problem
4. Final summary of the student's work and its significance
5. Bibliography

Students are encouraged to incorporate, as part of item 3, published manuscripts or manuscripts that either have been prepared or submitted for publication, provided that they are partly or entirely their original contribution. If the paper has been published and copyrighted, a waiver of the copyright must be submitted with the thesis. If multiple authored paper(s) are included in a thesis, the student must obtain statements from all co-authors detailing their specific contribution to the paper(s) in question and submit these to Graduate Program Committee. No doctoral thesis that contains such multiple-authored papers will be accepted for final approval without these statements or without the explicit written permission of Graduate Program Committee.

Thesis Defense: Ph.D. students will schedule their thesis defense in coordination with

their advisor and thesis advisory committee. Students must submit a defensible draft of the entire thesis to their thesis advisory committee and the Graduate Program Director one month prior to their defense. The defensible draft will be made available to all interested EESC faculty members in the department office. In conjunction with the submission of the defensible draft and scheduling of the defense, the student should recommend a chair of the thesis defense to the Graduate Program Director. The chair of the thesis defense is an EESC faculty member who is not a member of the thesis committee, but who is cognizant of the student's research field. The Chair reads the thesis, oversees the defense, and acts as a full committee participant in the thesis defense. Before submitting the defensible draft, a student must have successfully passed the comprehensive examination and completed all coursework required for the Ph.D. degree. A Thesis Defense Date and Chair Request Form (see Appendix G) must be filled out and signed by the advisor and Graduate Program Director along with submission of the defensible draft of the thesis.

The Ph.D. thesis defense consists of two parts: (1) a public presentation (normally about 45-50 minutes long) describing the results of part or all of the thesis research, followed by a brief public question and answer period (10-15 minutes long) presided over by the thesis defense chair, and (2) a private defense of the research results, also presided over by the thesis defense chair (normally 1-2 hours long). Interested faculty who have read the thesis may attend the private defense and ask questions of the student and participate in discussions following the examination. However, these individuals have no voting rights at the time that the thesis advisory committee finalizes its decision.

Following the period of questioning in the private defense, the student will retire from the room and the thesis committee and chair will discuss its recommendation. Following this discussion, each committee member will give the chair his/her final vote. The chair will record the final vote, together with comments, qualifications, and committee recommendations on thesis defense form. Successful defense of the thesis requires unanimous approval of the thesis committee. Following a successful defense, the chair of the thesis defense will transmit the committee's approval to the student, the Graduate Program Director, and the Graduate School of Arts and Sciences.

If the student does not defend his/her thesis successfully, the thesis defense chair will transmit this result in writing to the student and the Graduate Program Director. If the thesis defense results in a conditional pass, the student will be required to correct deficiencies in his/her dissertation research and/or thesis and then obtain final approval from the thesis committee. The method and schedule whereby the deficiencies are to be corrected will be specified by the thesis defense chair in writing to the student and to the Graduate Program Director. When the deficiencies are corrected to the satisfaction of the entire thesis committee, that committee will so specify in a written memorandum from the chair of the committee to student, Graduate Program Director and Graduate School of Arts and Sciences recommending the candidate for conferral of the doctoral degree. The memorandum of final approval must be signed by all members of the thesis committee.

In some rare instances, it may not be possible for all members of a student's thesis

committee to be present for the thesis defense. These individuals should be provided with a copy of the final thesis at the same time as other committee members (i.e., at one month before the thesis defense), and they should submit written comments on the thesis for consideration by the full committee at the time of the thesis defense. The student's primary thesis advisor must be present at the thesis defense.

No thesis will be considered completed until it has been formatted according to university standards and has been submitted to the university. Information on format specifications and submission can be found at the Boston College Graduate School of Arts and Sciences web page (<https://www.bc.edu/content/bc-web/schools/mcas/graduate/academics.html>). The thesis is the final requirement that is completed by a graduate student before the Ph.D. degree is granted. In addition to the thesis copy required by the university, please also send a PDF copy of your thesis to the Graduate Program Director.

M.S. Program Timeframe

The M.S. graduate program in the E&ES Department is designed so that all course requirements and the oral qualifying exam can be completed in four academic semesters. The expectation is that a M.S. student will complete their degree in 2 years; however, the time for completing the M.S. thesis can vary widely from student to student depending on the capabilities of the student, the complexity of the research project, the logistics of the research, and other unpredictable factors that can crop up when scientific research is carried out. Consult Boston College Graduate School of Arts and Sciences (GSAS) for [policies](#) on the timeframe for completion of the M.S. degree.

Ph.D. Program Timeframe

The Ph.D. graduate program in the E&ES Department is designed so that all course requirements, and the qualifying and comprehensive exams can be completed in six academic semesters. The expectation is that a Ph.D. student will complete their degree in 5 years; however, the time for completing the Ph.D. thesis can vary widely from student to student depending on the capabilities of the student, the complexity of the research project, the logistics of the research, and other unpredictable factors that can crop up when scientific research is carried out. Consult Boston College Graduate School of Arts and Sciences (GSAS) for [policies](#) on the timeframe for completion of the Ph.D. degree.

Review of Graduate Student Academic Progress

As soon as possible after the end of each semester, the E&ES Graduate Program Committee shall review the academic progress of each graduate student in the program. For each graduate student, the Graduate Program Committee shall review how many and what courses the student has taken, what cumulative GPA the student has achieved, whether or not a completed thesis proposal has been submitted, whether or not the oral

comprehensive examination has been taken and passed, and if the student is making progress toward completion of an acceptable M.S. or Ph.D. thesis. If a student is found to have a GPA that is below 3.0, has not taken the required courses or course load, or has not met one of the other deadlines specified in this document for the thesis proposal, oral qualifying or comprehensive exam, or completion of the M.S. or Ph.D. thesis, the Graduate Program Committee will inform the full department faculty of the academic deficiencies of the student. The full department faculty will then consider whether the student should be allowed to remain in the graduate program or should be dismissed immediately from the graduate program. If the student is allowed to remain in the program, the full department faculty may recommend that the graduate student be placed on academic probation along with conditions that the student must fulfill in order to regain satisfactory academic standing. If the student does not fulfill those conditions, the student is subject to being dismissed from the graduate program by vote of the department faculty. If the faculty vote to place a student on academic probation, the Graduate Program Committee shall inform the student in writing of this decision as soon as possible after the decision has been made. At the same time, the Graduate Program Committee shall inform the student in writing of the conditions that must be fulfilled to achieve satisfactory academic standing and be removed from academic probation. Graduate students who are placed on academic probation may lose financial aid (tuition remission credits and/or teaching assistantship or research assistantship) that had been previously offered to them. Changes in financial aid offered to the student will be specified in writing in the academic probation letter.

For graduate students who are on academic probation during a given semester, the E&ES Graduate Program Committee shall specifically review the progress of those students toward fulfilling the academic probation condition during the review of that student as soon as possible at the end of the semester. If a student on academic probation has fulfilled the conditions set by the department faculty when the student was placed on academic probation, the E&ES Graduate Program Committee shall remove the graduate student from academic probation, and the Committee shall inform the student in writing of this action. If the Graduate Program Committee finds that a student has made progress toward fulfilling the conditions of academic probation but has not completed fulfilling those conditions, the Committee may decide to keep the student on academic probation for another semester. In this case, the student will be informed in writing of the continuation of academic probation along with the conditions that need to be fulfilled to achieve satisfactory academic standing. If the Committee finds that the student has not made satisfactory progress toward achieving the academic probation conditions, it will inform the full department faculty of the performance of this student. The full department faculty shall then vote on whether to allow the student to remain on academic probation in the program or to dismiss the student from the graduate program.

Boston College and Graduate School of Arts and Sciences Rules and Regulations

All graduate students in the graduate program in the Department of Earth and Environmental Sciences at Boston College are expected to follow all of the rules and regulations of Boston College and of the Graduate School of Arts and Sciences. Graduate students are urged to pay particular attention to the following policies of the Graduate School of Arts and Sciences.

Academic Integrity: Graduate students in the graduate program of the Department of Earth and Environmental Sciences are expected to carry out all of their graduate work following the highest standards of academic integrity. Acts of plagiarism, cheating on assignments or exams, knowingly falsifying data, or not properly crediting the work of others violate the accepted standards of academic scholarship and will not be tolerated. Violations of academic integrity standards shall be reported to the Graduate School of Arts and Sciences, whose procedures for dealing with such violations are given at <http://www.bc.edu/content/bc/schools/gsas/policies.html#integrity>.

Academic Standing and Grading: The Graduate School of Arts and Sciences requires each graduate student to maintain a GPA of 3.0 or better. This policy is given at <http://www.bc.edu/content/bc/schools/gsas/policies.html#academic%20standing>. The policy for grading graduate students in the Graduate School of Arts and Sciences is specified at <http://www.bc.edu/publications/gcatalog/policy.shtml#grading>. The policy of the Graduate School of Arts and Sciences regarding grades in courses that are not completed by the end of the academic semester is given at <http://www.bc.edu/content/bc/schools/gsas/policies.html#Incomplete>. The policy of the Graduate School of Arts and Sciences regarding pass/fail grades is specified at <http://www.bc.edu/content/bc/schools/gsas/policies.html#Pass/Fail%20Options>.

Academic Grievances: Graduate students who have a grievance against a faculty member are urged to consult the Graduate School of Arts and Sciences grievance procedures for the recommended course of action that they should follow. These procedures can be found at <http://www.bc.edu/content/bc/schools/gsas/policies.html#academic%20grievances>.

Time to Degree and Leaves of Absence: The Graduate School of Arts and Sciences specifies that graduate students are normally expected to complete their M.S. and Ph.D. degrees within five and eight years, respectively. This policy is specified at <http://www.bc.edu/content/bc/schools/gsas/policies.html#Time%20to%20Degree>. The Graduate School of Arts and Sciences policy regarding leaves of absence is given at http://www.bc.edu/offices/stserv/academic/univcat/grad_catalog/grad_policies_procedures.html#leaveofabsence

Transfer of Credits: Graduate students who have completed some graduate-level coursework at another university may wish to have graduate credits transferred to Boston College from their previous institution and counted toward their degree requirements in the E&ES Department at Boston College. Requests for the transfer of such credits must be approved by the E&ES Graduate Program Committee. The E&ES Department

follows the Graduate School of Arts and Sciences rules regarding the transfer of graduate credits from another university, as given at

<https://www.bc.edu/bc-web/schools/mcas/graduate/current-students/policies-and-procedures.html>

Non-Academic Graduate Student Issues

Each graduate student upon entering the program shall be assigned a desk in one of the graduate student offices on the third floor of Devlin Hall. These desks can be used for studying, thesis research, and TA duties. Graduate students with TA assignments shall be available in their offices during their office hours for their courses, and the office hours shall be clearly posted outside their office door. M.S. students in their third year and beyond and Ph.D. students in their sixth year and beyond who require office space should arrange that office space in the lab of their primary faculty advisor, or if necessary, in the lab of some other faculty member.

Teaching and Research Assistantships for graduate students are half-time professional appointments. Faculty generally use much of the break period covering Christmas, Spring Break, and summer to make progress on their research and scholarship. As a professional, you should take advantage of these periods to work on similar goals. Whether you are a TA or an RA, the course instructor or your primary research advisor should be consulted before planning vacations. Students and faculty generally observe official holidays when BC is closed.

Graduate students who remain in good academic standing will normally receive no more than 4 semesters (M.S. students) or 10 semesters (Ph.D. students) of TA support during their graduate program. In accordance with BC's regulations, graduate students may be eligible to receive support for TAing classes after this time limit, but compensation will only be offered at the instructor rate. In addition, some faculty members with research grants may offer graduate students RA support beyond their fourth semester (M.S. students) or tenth semester (Ph.D. students). That decision is made by the individual faculty member with the research grant.

The Department maintains a fund, the Linehan Fund, to partially support graduate student research and meeting attendance. The fund is named after Fr. Daniel Linehan, S.J., the founder of the Department of Geophysics at Weston Observatory and a former director of Weston Observatory. During his/her time in the program, each graduate student is allowed to make one request from the Linehan Fund for funding in support of thesis research. In addition, each graduate student is allowed to make one request from the Linehan Fund for funding to support travel to make an oral or poster presentation at a scientific conference. Requests for research support from the Linehan Fund must be made before any money has been spent on the research expense for which support has been requested. Similarly, requests to the Linehan Fund for travel support to make a presentation at a scientific meeting must be submitted at least two weeks before the meeting takes place. Appendix H contains a full description of the rules for applying to the Linehan Fund. *Please note that a completed and fully signed thesis proposal must be*

on file with the Department before any Linehan Fund requests for research support will be approved.

The Graduate School of Arts and Sciences has a number of non-academic policies and procedures that affect graduate students. These include partial reimbursement of travel expenses to conferences, health insurance availability and premiums, harassment policies, and information about FERPA (Family Educational Rights and Privacy Act). More information on these topics can be found through links at <http://www.bc.edu/content/bc/schools/gsas/policies.html>.

Appendix A.

DEPARTMENT OF EARTH AND ENVIRONMENTAL SCIENCES

Qualifying Examination Committee Approval Form

NAME _____ DATE _____

B.C. ID# _____

YEARS IN PROGRAM _____

REQUESTED COMMITTEE MEMBERS:

1. Thesis Advisor _____
2. Committee Member (M.S. thesis reader) _____
3. Committee Member _____
4. Outside Collaborator (if applicable) _____

Approved by:

Graduate Program Director _____ Date _____

*Qualifying examination committees must consist of three faculty members with the chair being a tenured or tenure track faculty member in the department. A professor of the practice, or a visiting or part-time faculty member can serve as one of the members of the qualifying examination committee, but cannot act as the thesis advisor. One research collaborator from outside of the Department or BC can be a non-voting participant in the oral exam, as long as this is arranged ahead of time with the members of the qualifying exam committee. Qualifying examination committees must be approved by the department Graduate Program Committee by May of the student's first year in the program.

Please also fill out this form if requesting a committee change if you are not in your first year of the program. For changes please indicate the old and new committees.

Appendix B.

DEPARTMENT OF EARTH AND ENVIRONMENTAL SCIENCES

Ph.D. Thesis Advisory Committee Approval Form

NAME _____ DATE _____

B.C. ID# _____

YEARS IN PROGRAM _____

REQUESTED COMMITTEE MEMBERS:

5. Thesis Advisor _____

6. E&ES Committee Member _____

7. E&ES Committee Member _____

8. External Committee Member _____
(Institution/Department) _____

Approved by:

Graduate Program Director _____ Date _____

*Ph.D. thesis advisory committees must consist of three faculty members from E&ES and one faculty member from outside the EESC department. A professor of the practice, or a visiting or part-time faculty member can serve as one of the members of the thesis committee, but cannot act as the thesis advisor. Thesis committee members must be approved by the department Graduate Program Committee within 3 months of successfully passing the qualifying examination.

Please also fill out this form if requesting a committee change later in the program. For changes please indicate the old and new committees.

Appendix C. Course Categorization.

1. Disciplinary Breadth (2 courses from each)	
Surficial Processes	Lithospheric Evolution and Processes
EESC3380: Environmental Oceanography	EESC4485: Advanced Structural Geology
EESC4463: Paleoclimate II (Dynamics)	EESC5140: Isotope Geochemistry & Geochronology
EESC4667: Glacial & Pleistocene Geology	EESC5320: Intro to Geochemistry
EESC5230: Stable Isotope Biogeochemistry	EESC5543: Tectonics
EESC5396: The IPCC Scientific Assessment	EESC5578: Petrology
EESC5311: Advanced Earth System Science and Global Sustainability	EESC5591: Intro to Geophysics
EESC5531: Paleobiology	EESC6660: Intro to Seismology
EESC5535: Coastal Geomorphology & Processes	EESC6686: Tectonics Seminar
EESC5540: Marine Biogeochemistry	EESC6695: Microtectonics
EESC5549: Climate Change Debates	
EESC5563: Advanced Paleoceanography & Paleoclimatology	
EESC5565: Terrestrial Biosphere Modeling	
EESC6600: Geomorphology & Landscape Change	
EESC6690: Remote Sensing & Image Interpretation	
2. Scientific Methods (1 course from each/can double count with Breadth Req.)	
Data Gathering & Interpretation	Quantitative Analysis
EESC4485: Advanced Structural Geology	EESC5398: Statistical Analysis of Scientific Data
EESC5140: Isotope Geochemistry & Geochronology	EESC5311: Advanced Earth System Science and Global Sustainability
EESC5531: Paleobiology	EESC5578: Petrology
EESC5535: Coastal Geomorphology & Processes	EESC5591: Intro to Geophysics
EESC5540: Marine Biogeochemistry	EESC55XX: Geophysical Modeling
EESC5543: Tectonics	EESC6660: Intro to Seismology
EESC5563: Advanced Paleoceanography and Paleoclimatology	EESC5565: Terrestrial Biosphere Modeling
EESC6600: Geomorphology & Landscape Change	EESC 6664: Environmental Data Exploration and Analysis
EESC6680: Applications of GIS	
EESC6690: Remote Sensing & Image Interpretation	
EESC6695: Microtectonics	
3. Fundamental Methods	
EESC6691: Earth Systems Seminar	4. Broader Impacts (Ph.D. only)
	EESC6696: Broader Impacts and Integrated Research

Upcoming Course Offerings: Blue – Fall 2024; Green – Spring 2025

Guidelines for meeting these criteria:

1. A given course can fulfill a maximum of two categories. For example, if a student takes EESC4485 Adv Structural Geology, they will fulfill 1 of 2 requirements in Lithospheric Evolution and Processes and 1 of 1 in Data Gathering and Interpretation.
2. Substitutions of courses will be considered on a course-by-course basis by the EES Graduate Program Committee. Common substitutions may include upper-level science and math courses at BC, or upper-level geosciences courses at other universities in the area. However, in general substitutions will only be allowed that fulfill the spirit of the distribution requirement and with preference given for classes taught within the department.

Course offerings will vary year to year, check the course schedule on Agora each semester. Graduate courses not listed above may be considered for satisfying distribution requirements. Direct questions about specific courses to the Graduate Program Director.

Appendix C. (cont.)

DEPARTMENT OF EARTH AND ENVIRONMENTAL SCIENCES**Graduate Course Distribution Form**

Student Name: _____ Date: _____

<u>Disciplinary Breadth (2 courses for each)</u>	
<u>Surficial Processes</u>	<u>Lithospheric Evolution and Processes</u>
Course Name:	Course Name:
Semester/Year	Semester/Year
Course Name:	Course Name:
Semester/Year	Semester/Year
<u>Scientific Methods (1 course for each)</u>	
<u>Data Gathering & Interpretation</u>	<u>Quantitative Analysis</u>
Course Name:	Course Name:
Semester/Year	Semester/Year
<u>Fundamental Methods</u>	
<u>Fundamental Methods</u>	<u>Broader Impacts</u>
EESC669X: Earth Systems Seminar	EESC6XXX: Broader Impacts & Integrated Research
Semester/Year	Semester/Year

This form should be completed by the student prior to the student's oral qualifying examination and returned to the office with the committee report and pass/fail signature sheet.

Please fill out the table below with the course(s) taken to meet the requirements. Indicate the semester taken. If the distribution requirement has not been met yet, indicate the intended course and semester to meet the requirement.

Appendix D.

DEPARTMENT OF EARTH AND ENVIRONMENTAL SCIENCES

Research Proposal & Qualifying Examination Waiver Form

NAME _____ DATE _____

B.C. ID# _____

TITLE OF M.S. DEGREE _____

INSTITUTION GRANTING M.S. DEGREE _____

M.S. DEGREE DATE _____

Approved by:

Ph.D. Advisor _____ Date _____

Graduate Program Director _____ Date _____

*Only applicable to incoming Ph.D. students with a M.S. degree in an EESC-related field. Waiver must be approved by the student's Ph.D. advisor and the Graduate Program Committee. This form must be completed and on file within 3 months of a student entering the Ph.D. program; otherwise the student will proceed through the research proposal and qualifying examination.

Appendix E.

DEPARTMENT OF EARTH AND ENVIRONMENTAL SCIENCES

Preliminary Qualifying Examination Date Request Form

Name: _____

Date: _____

BC ID#: _____

I request my qualifying exam on: _____

(Please specify a date and time. The exam should last about 2 hours)

The following days I am not available (because of teaching, classes, etc.)

DAY/TIME	Reason

My Committee for the exam is:

Principal Advisor: _____

Committee Member (M.S. thesis reader) _____

Committee Member _____

Outside Collaborator (if applicable) _____

My Research Proposal is entitled: _____

My research proposal is signed and on file in the office as of this date: YES ___ No ___

NOTE: Qualifying examination committees must consist of three faculty members with the chair being a tenured or tenure track faculty member in the department. A professor of the practice, or a visiting or part-time faculty member can serve as one of the members of the qualifying examination committee, but cannot act as the thesis advisor. One research collaborator from outside of the Department or BC can be a non-voting participant in the oral exam, as long as this is arranged ahead of time with the members of the qualifying exam committee. All exam committee members are subject to approval by the Department Graduate Program Committee (see approval form in Appendix A).

Appendix F.

DEPARTMENT OF EARTH AND ENVIRONMENTAL SCIENCES

Comprehensive Examination Date Request Form

Name: _____

Date: _____

BC ID#: _____

I request my comprehensive exam on: _____

(Please specify a date and time. The exam should last about 2 hours)

The following days I am not available (because of teaching, classes, etc.)

DAY/TIME	Reason

My Ph.D. Thesis Advisory Committee is:

Thesis Advisor: _____

E&ES Committee member: _____

E&ES Committee member: _____

External Committee member: _____

(Institution/Department): _____

My Proposed Ph.D. Thesis title is: _____

My thesis proposal is signed and on file in the office as of this date: YES _____ No _____

* Ph.D. thesis advisory committees must consist of three faculty members from E&ES and one faculty member from outside the EESC department. A professor of the practice, or a visiting or part-time faculty member can serve as one of the members of the thesis committee, but cannot act as the thesis advisor. Thesis committee members must be approved by the department Graduate Program Committee (see approval form in Appendix B).

Appendix G.

DEPARTMENT OF EARTH AND ENVIRONMENTAL SCIENCES

Ph.D. Thesis Defense Date & Chair Request Form

Name: _____

Date: _____

BC ID#: _____

I request my thesis defense on: _____

(Please specify a date and time. The exam should last about 3 hours)

My Ph.D. Thesis Advisory Committee is:

Thesis Advisor: _____

E&ES Committee member: _____

E&ES Committee member: _____

External Committee member: _____

(Institution/Department): _____

My Proposed Thesis Defense Chair is: _____

My Ph.D. Thesis title is: _____

My defendable draft is signed and on file in the office as of this date: YES ___ No ___

Approved by:

Ph.D. Advisor _____ Date _____

Graduate Program Director _____ Date _____

Appendix H. Linehan Fund Information

LINEHAN FUND INFORMATION

The Linehan Fund, named after the late Fr. Daniel Linehan, S.J., former director of Weston Observatory and founder of our graduate program in geophysics, supports graduate student research in the Department of Earth and Environmental Sciences. Linehan funds may be used to pay for expenses associated with research conducted at Boston College and with attendance at a professional meeting to present a paper. All M.S. and Ph.D. degree candidates in geology and geophysics may submit proposals for the Linehan fund.

Guidelines for proposals:

1. As a rule, support will be given for field and laboratory research expenses. Such expenses may include, but are not limited to, purchase of research supplies or small equipment, rental of special equipment, sample preparation, and field expenses. Expenses for thesis or other manuscript preparation, routine living expenses in the Boston area, or major equipment purchase will not be granted. No funds will be provided for supplies or services normally available through the department.
2. Funds may also be used for attendance at meetings where the results of your Boston College thesis (or other) research have been accepted for presentation by yourself as sole author or co-author. These funds should be separately requested after the paper has been accepted and while you are still a student with no other means of support to attend the meeting.
3. Your request for research support must consist of the following information:
 - a.) A *brief* summary of your research objectives with special attention paid to aspects of the study that require funding. This summary is essentially an abstract of your thesis proposal but must include a listing of both the tasks and the materials required to meet the scientific objectives so that the reviewers can see the need for the money.
 - b.) An itemized budget that indicates precisely how the money from the Linehan Fund will be used.
 - c.) The signatures of the members of your graduate advisory committee on the cover of your application.
 - d.) Note: A copy of your approved and signed thesis proposal must be in your file in the office before money from the Linehan Fund for thesis research will be granted. Appending a photocopy of your thesis proposal is not

acceptable since it does not satisfy the need for a summary of your thesis work requested in part (a) above.

4. Applications for travel funds must contain a listing of expenses to be incurred (airfare, room, meals, etc.) together with a copy of the accepted abstract and the letter from the technical program chairman (or other official) informing you of the acceptance of the paper for presentation. The request should also show amounts requested from and approved by other sources, especially the BC Graduate Student Association, the BC Graduate School of Arts and Sciences, and the professional society hosting the meeting.
5. There is no limit on the amount an individual student may request, although awards are usually less than \$1,000. Proposals with budgets judged to be inappropriately large will be reduced or rejected. Requests for the purchase of major equipment must be made to your faculty research advisor through regular department channels. Any funds granted are to be used as described in the application. If uses other than those initially proposed become necessary, approval to use the funds in some different manner may be granted by the Department Graduate Program Committee.
6. No grants will be made from the Linehan fund to reimburse for funds already expended for thesis research or meeting attendance. Also, each student during his or her graduate career is eligible to receive Linehan funds only once for thesis research and once for meeting attendance.
7. Proposals for Linehan funds for thesis research will only be accepted during academic semesters, excluding exam periods. Requests for funding for meeting attendance may be made at any time; however, requests made during vacation periods (especially summer) may take a long time for approval.
8. Linehan fund proposals are to be submitted to Graduate Program Director. Copies of these guidelines may be picked up in the Department Office.