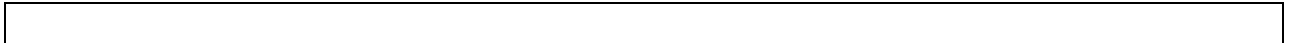


Department of Geology and Geophysics

Yale University

GRADUATE PROGRAM HANDBOOK FOR FACULTY AND STUDENTS
2002-03

Office of the Director of Graduate Studies
David Bercovici, Director of Graduate Studies
Roberta Dulong, Graduate Registrar



INTRODUCTION

This handbook provides a summary of the graduate program in the Department of Geology and Geophysics (G&G) with information for both faculty and graduate students.

CALENDARS AND EVENTS FOR THE 2002-03 ACADEMIC YEAR

Calendar

Appendix A provides a calendar for the 2002-03 academic year. Included are the dates of all regularly scheduled Faculty and Departmental meetings, general Departmental events, graduate deadlines, and information pertaining to major annual science meetings.

G&G Undergraduate and Graduate Courses

The preliminary 2002-03 listing for G&G undergraduate and graduate courses is included in Appendix B. Graduate courses generally follow the same semester schedule as undergraduate courses. Fall semester usually starts in the first week of September and ends in the middle of December. Spring semester starts in the middle of January and ends in May. Semesters include 13 weeks of classes, a 1-week reading period, and 1.5-week examination period. Note that some courses have class meetings during reading period and are designated "Meets RP" in the Yale College Program of Study Bulletin.

Graduate Student Residence during the Academic Year

Graduate students enrolled for the academic year are expected to be in residence for 9 months, from registration in September until a week before commencement in May. Students are expected to continue working on their research during the summer months in order to ensure timely completion of the degree. Students engaged in summer fieldwork may leave the campus after their spring final examinations are completed.

Summer Registration

There is no summer registration process; however, if you intend to use the Yale facilities over the summer you should go to the FAS Registrar Office (246 Church St., 3rd Floor) to update your ID. You are eligible to do this if you were registered during the previous academic year or spring term.

Afternoon Coffee Break

The Department has an afternoon coffee break in the Departmental Common Room (101 KGL), every weekday between 3:30 and 4:00 PM. All students, faculty, staff, and visitors are welcome to attend.

"Sacred Wednesday" and the Weekly Departmental Colloquium

By Departmental custom, no Departmental courses, laboratories, or seminars are held on Wednesday afternoons. This arrangement is intended to provide a time for faculty meetings, committee meetings, and other Departmental business.

The Departmental Colloquium is scheduled at 4:00 to 5:00 p.m. every Wednesday of the semester, and is followed by questions, refreshments, and informal discussion. The Colloquium lecture is held in the Departmental lecture hall on the first floor (123 KGL). All graduate students, undergraduate majors, and faculty are expected to attend. The Colloquium Committee will typically organize a small group for dinner with the Colloquium speaker after the talk. The Department subsidizes the dinner expenses for up to \$40.00 per person or \$200.00, whichever is less. The receipt and the names of those attending must be submitted to the Business Office for reimbursement.

Scheduling Seminars or Special Talks

Classroom space in the Department is overseen by the Chair's Senior Administrative

Assistant, Ernestine Jones (301 KGL). Rooms 119, 123, 226, or the Department Common Room (101) are available for special talks or informal seminars, but the space must be reserved in advance. Please allow two weeks advance notice so that the event can be announced in the weekly Departmental Schedule. Also, please plan enough time to arrange for any unusual requests, such as for special audio-visual equipment or an AV assistant.

OFFICES RELEVANT TO THE G&G GRADUATE PROGRAM

The G&G Department has a number of offices relevant to the graduate program: the Chairman's Office, the Business Offices, Departmental Secretary's Office and the Office of Graduate and Undergraduate Studies. This section provides a brief overview of the function of each office, together with a list of who is in charge and where you can contact them.

Department Chair, 301 KGL, 432-3161

Prof. Danny Rye, Chair, 432-3174, 302 KGL, danny.rye@yale.edu
Ernestine Jones, Senior Administrative Assistant, 301 KGL, 432-3161,
ernestine.jones@yale.edu

Business Office, 303 KGL, 432-3164

Diane Dickinson, Business Manager, 303 KGL, 432-3164, diane.dickinson@yale.edu
Pam Buonocore, Financial Assistant, 304 KGL, 432-3165, pamela.buonocore@yale.edu

Department Secretary's Office, 202 KGL, 432-3114

Aida Rodriguez, Department Secretary, 202 KGL, 432-3114, aida.rodriquez@yale.edu

Graduate and Undergraduate Studies Office, 203 KGL, 432-3124

David Bercovici, Director of Graduate Studies, 305 KGL, 2-3150, dgs@geology.yale.edu
Ronald Smith, Director of Undergraduate Studies, 320 KGL, 432-3175,
dus@geology.yale.edu
Bobbie Dulong, Registrar, 203 KGL, 432-3124, roberta.dulong@yale.edu

The Chairman's Office oversees the Department as a whole. It is also responsible for scheduling the use of classroom space in KGL by outside departments and organizations, and for publishing a weekly Departmental Calendar. The Business Office handles financial matters. The disbursement of stipends and wages for graduate students is handled by the Department Registrar. The Department Secretary has responsibility for general clerical tasks in the Department, including preparation of teaching materials, maintaining office supplies, copying, shipping, mail, and phone reception.

The Director of Graduate Studies (DGS) is the principal liaison between the graduate student, the Department, and the Graduate School. G&G students are encouraged to contact the DGS Office on any matters relating to the graduate program. This office also maintains files of posted information from the University, the government, and other educational institutions and external agencies about teaching, research, funding, and employment opportunities.

There are offices elsewhere in the University that can be of assistance to G&G graduate students:

Yale Graduate School

Richard Sleight, Associate Dean for the Sciences, 2677 Hall of Graduate Studies, 432-2744, richard.sleight@yale.edu

Thomas Burns, Assistant Dean for the Sciences, 2675 Hall of Graduate Studies, 432-1884, thomas.burns@yale.edu.

Barry Kane, Registrar, Faculty of Arts and Sciences, 11 Strathcona Hall, 432-2342, barry.kane@yale.edu

Jennifer Brinley, Associate Director, Financial Aid, 127 Hall of Graduate Studies, 432-7980, jennifer.brinley@yale.edu

Lisa Brandes, Director, McDougal Graduate Student Center, HGS, 432-2583, lisa.brandes@yale.edu

Office of Foreign Students and Scholars, www.oiss.yale.edu

Ann Kuhlman, Director, 246 Church Street, 432-2305, ann.kuhlman@yale.edu

Yale Graduate Housing Office, Helen Hadley Hall, 420 Temple Street

www.yale.edu/hronline/gho/html/GHOcore.html

Graduate Apartment Office, 432-8270

Graduate Dormitory Office, 432-2167

COMMITTEES RELEVANT TO THE G&G GRADUATE PROGRAM

Listed below are those committees that oversee various aspects and activities of the G&G graduate program. Faculty members of these committees are appointed during the summer by the Department Chair for a three-year assignment.

Admissions Committee(Adcomm)

Bercovici (Chair, DGS) Gauthier, Wettlaufer, Reiners, Brandon

Adcomm is responsible for processing and evaluating applications for the G&G graduate program. This committee meets as often as necessary, usually during January and February, to evaluate graduate applications and to prepare a recommended list for admission, which is presented at a Faculty Admissions meeting in February.

Program Review and Examination Committee (PREcomm)

Bercovici (Chair, DGS), Evans, Hickey (f), Karato, Sherwood, Turekian, Vrba (s)

PREcomm oversees the functioning of the pre-candidacy portion of the G&G graduate program, which includes course work, research, and examinations for graduate students in their first two years. PREcomm meets in the second week of each semester to review the schedules approved by each student's Advisory Committee to ensure that they are consistent with the requirements and guidelines of the G&G graduate program. PREcomm is also responsible for reviewing and critiquing the written portion of the General Examination; for attending and participating in the oral portion of the General Examination; and for monitoring the quality and effectiveness of the General Examination process.

Committee on Teaching Fellows (TFcomm)

Rye (Chair), Bercovici (DGS), Smith (DUS), with graduate students Mike Breeding, Walter Joyce.

TFcomm is responsible for: (1) estimating the number of teaching fellows (TF) needed for each course, (2) determining an appropriate appointment level (e.g., TF1, TF2, etc.) relative to the work involved, and (3) selecting specific students to fill the available positions. Most of TFcomm's business is done in the spring term when it prepares the recommended list of TF assignments for the next academic year. The number of available positions is ultimately

controlled by the Graduate School, which bases its decision on available funds, prior course enrollments, and the amount and type of assistance needed. For selecting students, TFcomm is guided by the written preferences of the instructor and of any interested students, and by the requirement that students holding University Fellowships must teach once during each academic year. Instructors must be careful that the work required of a TF does not exceed the rank of the position (see section on Student Teaching Appointments for further details). The DGS is authorized to make a limited number of changes in teaching assignments to account for changes in enrollment or the revised plans of the instructor or student involved. Please try to make any requests for changes as soon as possible in order to avoid problems with the teaching assistant's wages.

The Dana Club

Officers of the Dana Club: Jason Downs, (President), Walton Green, (Treasurer)

The Dana Club, named after J.D. Dana, Yale Professor of Natural History from 1850 to 1895, is the official organization representing G&G graduate students. Officers are elected annually, and meetings and events are organized as needed. By tradition, the Dana Club roasts the faculty in an annual skit usually held in the Spring.

Advisory Committees

Each graduate student has an Advisor and Advisory Committee. The function and responsibilities of the Advisory Committee are explained in a subsequent section. The current list of students and their committees is given in Appendix C.

REQUIREMENTS FOR THE PH.D. DEGREE

Students are admitted into the G&G graduate program with the expectation that they will pursue a Ph.D. degree. Some students may finish with a Master's degree, either by recommendation of the faculty or by their own decision.

The G&G Ph.D. program usually requires about 5 to 6 years to complete. The first two years are focused on preparing a foundation in areas of specialization and the remaining years towards completing a major body of independent research. A successful transition at the end of two years is marked by the advance of the student into candidacy. A Ph.D. candidate is considered to have the breadth, talent, discipline, and scholarship needed to conduct independent research, and to prepare and successfully defend a dissertation. The following list provides a general time line for the Ph.D. program. Most students start in Fall term, but some choose to begin in Spring term. Thus, progress is marked here by terms in residence, with two terms per year.

Terms 1 through 3: Course work and research projects

Term 4: Completion of formal course work; General Examination at beginning of term;
Dissertation Proposal at end of term

End of Term 4: Faculty decision to advance student into candidacy

Terms 5 and beyond: Ph.D. research and preparation of the dissertation

Residence Requirement

A student must be in residence in the Department for at least three years to fulfill the Ph.D. residence requirement. The student is expected to have all degree requirements finished by the end of the sixth year. To stay in residence beyond the sixth year requires special approval

from the Graduate School. When submitting a dissertation, students "in absentia" do not need to apply for an extension as long as they have met all other requirements for the Ph.D.

A maximum of one year of transfer credit will be accepted toward the three-year residence requirement, but the transfer credit is also counted as part of the six-year residency limit. Thus, the transfer credit will reduce by one year the number of years of support provided by a University Fellowship. As a result, transfer credit is not recommended unless a student expects to finish the Ph.D. degree one year earlier than normal. Request for transfer credit should be made to the DGS no later than the sixth week of the third term of study. Transfer credit is only granted to students who have earned Honors in at least two courses during their first two terms at Yale.

Advisory Committees

A tentative Advisor and Advisory Committee are appointed for each student upon entry into the G&G graduate program. The members are selected to match the student's stated research interests. The Advisory Committee is charged with guiding the student in the selection of courses and initial research projects, and ensuring that the student develops the depth and breadth of background needed for the General Examination and for Ph.D. research. As the student advances in the graduate program, the committee members may also become involved, either directly or indirectly, in the student's research. The make up of the Advisory Committees, including the Advisor, can be changed at any time to meet the needs or best interests of the student. Such changes are initiated by the student in consultation with the Advisor or the DGS, and are generally accepted without faculty discussion. Students are encouraged to become acquainted with the various research programs in the Department before making any extensive modifications of their initial Advisory Committee.

The Advisory Committees for first- and second year students should meet at the beginning of each term to advise and approve the student's course schedule and research activities. The following calendar outlines the specific responsibilities of each Advisory Committee as the advisee student moves through the graduate program.

EACH TERM FOR THE FIRST TWO TERMS

First week of term: Meeting between student and members of the Advisory Committee

Assist in selection of a course and research schedule

In first term of Year 1, determine the student's areas of concentration

In subsequent terms, assess progress to date with courses and research

Second week of term: Meeting between student and Advisor

Advisor approves course and research schedule

The rest of the Advisory Committee approves and signs the final schedule

Advisor forwards schedule to the DGS who will present it to PREcomm for review. If revisions are necessary the DGS will contact the student.

End of term: Faculty Evaluation meeting

THIRD TERM

First week of Term: Meeting between student and Advisory Committee

Assist in selection of a course and research schedule

Second week of term: Meeting between student and Advisor

Advisor approves course and research schedule

The rest of the Advisory Committee approves and signs the final schedule

Advisor forwards schedule to the DGS who will present it to PREcomm for review. If revisions are necessary the DGS will contact the student.

Midterm: Preparation for the General Examination

Student submits an abstract for a research proposal

Advisor collects, assembles, and proofreads questions for written examinations

Written questions are forwarded to the DGS who presents them to PREcomm

End of Term: Faculty Evaluation Meeting

FOURTH TERM

First week of Term: General Examination

Four-hour written examination administered by the DGS

Written examination is distributed to the Advisory Committee for grading

Two-hour oral examination by the Advisory Committee, PREcomm, and other interested faculty. Both written and oral examinations are evaluated by the assembled faculty, but the final result is not announced until final determination by the general faculty.

Report at a faculty meeting on the results of the General Examinations. Faculty votes on final determination.

First week of Term: Meeting between student and Advisory Committee

Assist in selection of a course and research schedule

Second week of term: Meeting between student and Advisor

Advisor approves course and research schedule

The rest of the Advisory Committee approves and signs the final schedule

Advisor forwards schedule to the DGS who will present it to PREcomm for review. If revisions are necessary the DGS will contact the student.

Before end of term: presentation of dissertation proposal by successful students

One-hour meeting that includes a presentation by the student of a dissertation topic followed by questions from the faculty. Attended by the Advisory Committee, DGS, and other interested faculty.

Evaluation Faculty Meeting:

Evaluation of student progress and results of the dissertation proposal presentation.

Faculty votes on advance of the student into candidacy for the Ph.D. degree.

Student progress is evaluated at the end of each term.

Before end of Year 3: Third Year Review

One-hour meeting in which the student presents a progress report on research activities to date and outlines a plan for completing his/her dissertation to the Advisory Committee, DGS, and other interested faculty.

Years 4 and beyond

Meetings with Advisor and Advisory Committee:

Meetings are scheduled as needed. The Advisor and Advisory Committee should watch for timely progress with the dissertation research, and encourage publication of research results as appropriate.

Evaluation Faculty Meeting:

Student progress is evaluated at the end of each term.

Designing a Program of Study

During the first week of the first term, each student should meet with his/her Advisory Committee to choose four areas of concentration, and to plan a tentative program of courses and

research for the first year. Examples of some concentration areas are: atmospheric dynamics, geochemistry, geodynamics, inverse theory, isotope geochemistry, oceanography, paleontology, petrology, sedimentology, seismology, structural geology, tectonics, etc. The choice of the concentration areas ultimately rests with the student and the Advisory Committee, and can be changed at any time during the first year, subject to approval by the Advisory Committee. The first three terms of study help prepare the student for the Ph.D. General Examination through a combination of courses, seminars, and independent reading. The student's courses should be planned to build expertise in the chosen concentration areas and to address any relevant weaknesses in his/her general academic background.

In the second week of the term, all first- and second-year students must submit a final course schedule to their Advisor. This final course schedule was approved and signed by the students's advisory committee. The Advisor signs the schedule and then forwards it to the DGS Office.

PREcomm meets during the second week of each term to review and approve the courses and research activities for first- and second-year students, and the areas of concentration selected by the first-year students. After approval by PREcomm, any subsequent changes must be reviewed and signed by the Advisor, and then submitted to the DGS. The DGS may solicit the recommendation of PREcomm before approval, especially if the changes are substantial.

Course Work and Grades

Students are expected to carry a full course load during the first three terms of study. A typical load is four courses per term, but this may vary with the level and requirements of the courses chosen and with other commitments, such as teaching fellowships. Courses may be attended on an informal basis with the permission of the instructor, but "audits" have no formal bearing on the progress towards completion of the Ph.D.

Graduate grades in courses up to and through the 600 level are recorded as Honors, High Pass, Pass or Fail. Higher level courses, such as seminars (700 level), tutorials (800, 810, 820, 830), and dissertation research (900, 910, 920, 930) are graded Satisfactory or Unsatisfactory. The Graduate School requires Honors in at least two courses by the end of the second year. The Department expects at least one Honors in the first year to remain in good standing. Grades in any 500- or 600- level G&G course will count toward the Honors requirement. Honors in courses outside the Department can also be credited towards the Honors requirement as long as the course is a 500- or 600-level course or an appropriate advanced level undergraduate course. The DGS can provide further information about undergraduate courses acceptable for the Honors requirement.

The schedule of academic dates and deadlines (Appendix A) indicates the dates on which grades are due for the current year. The Graduate School has revised the policy regarding grades of incomplete. If a student and instructor have agreed that an extension is appropriate, the student must submit a request for the Temporary Incomplete (TI) with the intended completion date, signed by the instructor and the director of graduate studies. The instructor will indicate the mark of TI on the grade sheet, which is to be submitted to the Office of the Registrar by the appropriate grade submission deadline. Only one TI for courses taken in a single term is permitted. Temporary Incompletes received in an academic year must be converted to final grades by October 1 of the following academic year. If a grade is not received by the Registrar by this date, a TI will be converted to a permanent Incomplete (I) on the student's record.

Quality of performance is a major factor in the evaluation of first- and second-year students. The Department expects students to attain a High Pass or better in their areas of concentration and to demonstrate a high level of competence in any term papers, research

projects, or tutorials.

Foreign Language Competence

The Department has no requirement for foreign languages. All students are responsible, however, for the assimilation of the foreign-language literature needed for competence in their concentration areas.

Reading and Research

Entering students should note that graduate study involves an increased focus on primary scientific sources. Thus, graduate students are expected to do self-directed reading in their areas of concentration. This reading is above and beyond reading assigned for courses. Students should consult their Advisor and Advisory Committee in assembling an appropriate reading list. Students are also encouraged to start some type of independent research in their first-year of study. A two-term course series focused on independent research (G&G 690) is available for this purpose. A typical plan is to start the independent research in Spring term of the first year and to finish at the end of Fall term in the second year.

Attendance and Presentation at Scientific Meetings

The Department places great emphasis on having all graduate students regularly attend and present research results at major scientific conferences. Each entering student is allocated a budget of \$2000 for conference-related expenses in his/her first and second year. Post-second-year students should ask their Advisor for support of conference-related expenses, and the DGS strongly encourages faculty to honor those requests. Students are also encouraged to solicit funds from other sources. For instance, most conferences have some type of student subsidy available on request. In exceptional cases, the Department Chair will consider specific requests for conference support from post-second year students, but availability of other external funds will be a major factor in any decision made.

Students should consult the Business Office early in their planning of any conference-related travel. The Business Office can pay for conference fees and airline tickets in advance of the meeting, which will save the student the burden of having to file for a reimbursement of expenses. Students should also keep a careful record, including receipts, for any expenses to be reimbursed. A small cash advance can be obtained for some expenses; check with the Business Office for further details.

Field Experience

The Department strongly encourages all G&G students to acquire some field experience. Some students may find it important to get a formal introduction to geologic field research by attending a summer field course. The DGS Office maintains an extensive file of field course opportunities available through other universities and colleges.

The Department has a tradition of sponsoring a biannual two-week field trip. Previous trips have been to California, the Swiss Alps, the Apennines and the Aegean. The trip is open to all G&G undergraduate majors and graduate students. Students are expected to play a major role in the selection, planning, and execution of the trip. Field trips provide an excellent opportunity for all students to get a broad introduction to the geologic side of earth sciences.

Fund for Graduate Student-Organized Symposia and Fund for Seminars and Colloquia

Symposia organized by graduate students provide extraordinary opportunities for intellectual interaction. The Graduate School will offer Graduate Student Symposium Awards, which will provide up to \$1,000 to support graduate student-organized symposia. The Graduate School will accept applications for these awards in the early fall, the applications will be judged competitively, and several awards will be made. Funding to support Departmental or program-based seminars and colloquia, where students and faculty could regularly discuss graduate

student work, is also available through the Graduate School.

Standing

The faculty evaluate each student's standing at Faculty Evaluation Meetings held in January and May of each year. Good standing requires satisfactory progress. A student whose performance is judged unsatisfactory will fall into poor standing, and may be asked to finish with a Master's degree or to leave the program.

The evaluation meetings consider all aspects of a student's record, including grades, independent study, research, the General Exam, the Dissertation Proposal, and the Third-Year Review. Other factors include progress to date, future plans, performance in courses, and comments by the Advisor and other faculty familiar with the student's work. The DGS informs all students in writing about their standing after each evaluation meeting.

General Examination

The Graduate School requirements for the Ph.D. degree state that each student must pass a general oral or written examination. In G&G, this general examination takes the form of a four-hour open-book written examination, followed by a two-hour oral examination. These examinations provide a critical opportunity for the Faculty to assess the student's suitability, talent, and preparation for Ph.D. research. The General Exam is administered at the beginning of the fourth term of study. Students who enter the Department with a Master's Degree or equivalent background may petition the faculty to take the General Exam as early as the end of the second term of study. This petition must be submitted to the DGS no later than the fourth week of the second term.

The written portion of the General Exam is prepared by the student's Advisory committee and consists of four questions or problems drawn from the student's concentration areas. The Dana Club contains a file of previous written exams, which students are encouraged to consult.

The oral portion of the General Exam involves the defense of a proposal of sufficient scope to become a dissertation topic, but the proposal need not be related to the final dissertation topic. The proposal is presented in the form of a written abstract, no more than two pages in length, with additional illustrations, tables, and references as needed. The abstract must be approved by the student's Advisor and then submitted to the DGS Office no later than the tenth week of the third term.

The oral examination is open to all G&G faculty but is conducted primarily by the Advisory Committee and PREcomm. Members of other departments may also be invited to attend where appropriate, but the student should be informed of any external participants prior to the examination. There is no oral presentation of the abstract. Instead, the student is questioned on a range of topics with the goal to determine the student's preparedness for Ph.D. research. *Questions may focus on topics addressed in the proposal abstract, on the student's specific concentration areas, or on broader topics in the earth sciences relevant to the student's research area.*

Students should be prepared to deliver concise answers and to illustrate their answers at the board using relevant equations, schematic plots, or diagrams. Students should not shy away from providing partial answers, but they should also be careful to indicate those parts of a question that they do not know or fully understand. The faculty is particularly interested in seeing evidence of good preparation, confident delivery, and a high level of scholarship.

The exam committee makes a report at the next Faculty meeting about the results of the General Exam. The faculty, as a whole, decides by a vote whether a student has passed or failed. In exceptional cases, some students will be given the opportunity to retake part or all of the General Exam. After the evaluation meeting, second-year students will be promptly notified in

person by the DGS of General Exam results.

Students usually spend time during the third term reviewing and consolidating their knowledge of topics that might be covered in the General Exam. This integration of course work, independent research, and reading marks the culmination of formal instruction in the Ph.D. program.

Dissertation Proposal

At some time during the fourth term, before the last Faculty Evaluation meeting of the term, students who have passed the General Exam must present a Dissertation Proposal to the faculty. The goal is to have the student outline and defend a plan for his/her dissertation research. A two-page abstract, with additional figures, tables, and references as needed, must be submitted to the DGS Office no later than one week prior to the scheduled presentation. The abstract should outline the research questions to be addressed, the methods to be used, and a tentative year-by-year schedule for completion of the work. The student is encouraged to identify potential papers that could be submitted for publication in advance of completing the dissertation.

For the presentation, the student should present in 40 minutes a brief, well-organized summary of the major features of the proposed research problem, including work completed and future plans. Slides, maps, specimens, etc. may be used as needed for a clear presentation. The presentation is followed by an extended question period. The presentation is attended by the Advisor, who moderates the presentation and questioning; the Advisory Committee; and the DGS. Other Departmental faculty are encouraged to attend, and faculty from other departments or external to Yale may also attend, given advanced agreement of the Advisor, Advisory Committee, and the DGS, and advance notification to the student.

Satisfactory performance in the Dissertation Proposal is required for the Ph.D. degree. The results of the presentation will be reported to the faculty at the next Faculty Evaluation meeting who then decide by a vote if the student passes or not. Successful completion of the Dissertation Proposal marks the final step needed for admission into candidacy in the Ph.D. program. Students who are admitted into candidacy will be recommended to the Degree Committee at the Graduate School for a Master of Philosophy (M. Phil.) degree. This degree is considered a formal acknowledgment of advance into Ph.D. candidacy. The Graduate Registrar will provide the student with the necessary paperwork to obtain an M. Phil. diploma.

Third-Year Dissertation Review

Ph.D. students must present a summary of their dissertation progress at the end of their third year. The Third-Year Dissertation Review must be completed before the Faculty Evaluation meeting in the student's sixth term, otherwise the student will be considered in poor standing. A student may petition in writing to the DGS for a postponement if scheduling conflicts make it impossible to complete the review on time. The petition must include a revised deadline for completion of the Dissertation Review. In all cases, the Dissertation Review must be completed by the end of the seventh term.

At least one week prior to the Dissertation Review, the student will submit to the DGS office a two-page summary, plus additional figures, tables, and references as needed. The summary, together with an announcement of the time and place for the Dissertation Review, are circulated to the faculty by the DGS Office. The primary audience at the Dissertation Review is the student's Advisory Committee and the DGS, although other G&G faculty are welcome to attend and participate. The Advisor serves as the moderator. The review starts with a presentation by the student, no longer than about 40 minutes, followed by a question period, after which the student is asked to leave. The faculty remains behind and discusses the student's progress and

standing. The results of that discussion are then reported to the student by the Advisor and the DGS, and reviewed at the next Faculty Evaluation meeting.

Submission and Defense of the Ph.D. Dissertation

The final step in completing the Ph.D. degree requires the submission and defense of a dissertation. The Dissertation Defense involves a formal oral presentation to the Department summarizing the major results of the dissertation research. The dissertation is formally reviewed by a Reading Committee, usually composed of four members. The Reading Committee typically includes the members of the student's Advisory Committee, but this arrangement is not required. The Department encourages the appointment of an external reader who was not involved in the design of the dissertation.

The following checklist outlines the various steps involved in preparation, submission, defense, and completion of the dissertation.

1. The Department strongly encourages students to publish their research before submission of the dissertation. In this regard, the dissertation can be viewed as a summary of all published and unpublished work related to the dissertation topic. Papers that are in review, in press, or published can be included verbatim, and in fact, may make up the bulk of the dissertation. Note, however, that it is not acceptable to just staple together a series of papers. Regardless of the source of the materials, the dissertation itself must read as a coherent document. The student must provide an Introduction, Discussion, and Conclusion so that separate pieces of work are clearly integrated. A footnote should be included indicating the source of published papers, the status of submitted manuscripts, and the authorship of each paper as published or submitted. The student's Reading Committee will be responsible for interpreting and implementing these guidelines and for judging the scope and suitability of the dissertation manuscript.
2. In preparing the initial dissertation manuscript, the student should rely primarily on his/her advisor to iterate towards a well-written manuscript. The student may call on other members of the Advisory Committee for help, but this interaction is distinct from the work of the Reading Committee.
3. The Reader's copies of the dissertation manuscript are submitted to the DGS Office, along with a written note from the Advisor indicating that the manuscript is in good enough shape, both in terms of intellectual content and language, to merit review by the Reading Committee. The Advisor should also indicate who is to serve on the Reading Committee, as decided by the student and Advisor. The student should check with prospective members of the Reading Committee to ensure that they can perform their duties within the allotted amount of time. The DGS, not the student, will distribute the manuscript to the Reading Committee, including any External Readers. The Reading Committee will be asked to complete their review within four weeks after the submission date.
4. The Dissertation Defense can be scheduled after submission of the initial dissertation manuscript, but the date should be no sooner than 4 weeks after the submission date. Defenses can only be held while classes are in session and no later than the May Faculty Evaluation Meeting. All internal readers must attend. External readers are encouraged, but not required, to attend. Departmental funds are available to cover travel expenses for External Readers.
5. All students who expect to defend during spring term, should notify the DGS Office in writing by the end of January. This request is intended to avoid scheduling conflicts during the very busy months at the end of the academic year.
6. The student must provide the DGS Office with a short dissertation abstract at least one week

before the Defense date. The abstract, together with a general announcement, will be circulated and posted in the Department. The Defense is open to all who wish to attend. The Defense itself consists of a presentation, not to exceed 40 minutes, followed by a question session with the general audience. The Reading Committee, DGS, and other interested faculty will continue with further questioning and discussion of the student in a subsequent private meeting, about 1 hour long. The status of the Dissertation manuscript is discussed, with a focus on revisions needed for final acceptance. The results of the Defense are discussed at the next Faculty meeting and a determination is made then if the Defense was satisfactory or not. Note that successful completion of the Defense is separate from acceptance of the Dissertation manuscript by the Reading Committee.

7. The student will take the Reading Committee's comments and suggestions, and prepare a revised Dissertation manuscript. The student must consult the Readers to ensure that changes are suitable.
8. Upon completion of a final Dissertation manuscript, the student submits to the Registrar of the Graduate School one unbound original copy, plus a sufficient number of softbound copies for each member of the Reading Committee. The Department requires an additional unbound copy be deposited in the Kline Geology Library. The Graduate School has specific requirements about the format and organization of a Dissertation. A list of those requirements can be obtained from the Graduate School or the DGS Office. Note that conflicts with the requirements may delay acceptance of the dissertation. The Graduate School Registrar should be consulted about specific questions or any request for variance from the regulations.
9. An archived collection of specimens is an integral part of some Dissertations. Such collections must be properly curated before the Department will vote on recommendation of the degree. Students should consult their Advisor about specific requirements for any archived collection. It is the student's responsibility to ensure that the collection is approved by his/her Advisor and that a written statement of acceptance is provided to the DGS.
10. After submission, the Graduate School sends out a request for Reader's Reports. Each Reader submits an independent assessment of the quality and suitability of the final dissertation manuscript, together with a final evaluation: Distinguished, Very Good, Good, or Fair. The Reader's Reports are reviewed in a Faculty meeting. If the Dissertation is voted as acceptable by the Faculty, a recommendation is then forwarded to the Graduate School Degree Committee for award of the Ph.D. degree.
11. The Graduate School makes an official award of degrees twice a year, in December and May. Students need to be mindful of relevant deadlines if they want their degree to be awarded by a specific date. The final dissertation manuscript must be submitted to the Graduate School by October 1 for a December degree or by March 15 for a May degree. Registered students who submit dissertations will remain registered until the end of the term and will retain all relevant privileges (e.g., use of the library privileges, health care coverage, etc.).
12. In planning for relevant deadlines, students should allow enough time for the Advisor and Reading Committee to do their work. A dissertation is like any other manuscript, in that it usually requires a number of iterations before it is ready for final submission. The Advisor is responsible for feedback on initial rough drafts. The Reading Committee will commonly request modifications as well, which in some cases may take one or two months to implement.

ACADEMIC REQUIREMENTS FOR THE MASTER OF SCIENCE DEGREE

The Department has no official Master's program, but students are allowed to complete a

Master of Science (M.Sc.) degree under special circumstances. Sometimes this option is offered when the faculty has determined that the student should not continue in the Ph.D. program. Other times, this option may be selected by a student, but only when he/she is otherwise in good standing in the Ph.D. program. Note that the transition from the Ph.D. to the M.Sc. program usually results in loss of any University Fellowship award.

Residence Requirements

The M.Sc. in G&G normally requires two years of residence. If a student has unusual training or professional experience, the faculty may, upon petition by the student, reduce the residency requirement to a minimum of two terms, with a corresponding reduction in the course requirements. Students should consult the DGS about their eligibility for one-year residence.

Course Requirements and Grades

Two-year residency for the M.Sc. degree requires successful completion of 12 term courses (8 for one-year residency) in G&G or other departments, as appropriate. At least 8 courses (5 for one-year residency) must be at the graduate level. Seminars are not included and only one tutorial may be counted toward the course requirement. A typical load is 4 courses per term, but this may vary depending on the level of each course and other commitments, such as teaching fellowships. Courses may be attended on an informal basis with the permission of the instructor but "audits" are not viewed as part of the student's course load, nor do they contribute to the M.Sc. course requirement.

The advising schedule for an M.Sc. student is the same as outlined above for Ph.D. students. An Advisor and Advisory Committee are responsible for assisting the student in selecting an appropriate course and research schedule, and approving that schedule. The schedule is sent to PREcomm for final approval, in the same fashion as done for first- and second-year Ph.D. students.

Performance in course work is evaluated as Honors, High Pass, Pass or Fail, except in seminar courses and tutorials, which are graded as Satisfactory or Unsatisfactory. A minimum of one Honors grade must be achieved in a graduate-level course or an approved advanced-level undergraduate course by the end of the third term (second term for one-year residency).

Quality performance is a major factor in student evaluation. The Faculty expects students to achieve a High Pass or better in their area of specialization and to demonstrate a high level of competence in related fields.

Research Essay or Thesis

All M.Sc. candidates must complete either a research essay (one course credit) or a research thesis (two course credits) prior to the end of the final term of residency. The results of the essay or thesis must be presented to the Department at an M.Sc. Defense (analogous to a Ph.D. Defense). The Advisory Committee will review and evaluate the essay or thesis and the Defense, and determine if the student has successfully completed the M.Sc. requirements. The result is reported to the Faculty, who vote on completion of the degree. If approved, a recommendation is then forwarded to the Degree Committee at the Graduate School for award of the M.Sc. degree. A successful M.Sc. candidate must submit an unbound copy of the thesis or essay to the Kline Geology Library.

FINANCIAL SUPPORT OF RESEARCH

Graduate research is funded from a variety of sources, with an emphasis on external grants. The Department strongly encourages students to take a significant, if not primary, role in the preparation of grant proposals to fund their Ph.D. research. Grant proposals represent an important first step in the initiation of a research project. A proposal outlines the scientific

question to be addressed, the research plan, the feasibility of the project, and the broader impact of the work. The goal is to convince one's colleagues that the research is important and deserves high priority for funding.

In many cases, a student and Advisor will work together in preparing a proposal to be submitted to external agencies or foundations, such as the National Science Foundation, Department of Energy, American Chemical Society, NASA, NOAA, etc. In some cases, private companies will contribute research funds. Some groups welcome research proposals from students themselves. The funds from those sources are usually smaller (\$1000 to \$2000 per year), but this may be enough to support some critical fieldwork or travel. For instance, the Sigma Xi Society has an annual proposal deadline of October 15 and March 15 with awards announced 12 weeks from the deadline dates. The Geological Society of America has an annual deadline of February with awards announced in April. Students are encouraged to consult the Graduate School Fellowship Library in the McDougal Center in the Hall of Graduate Studies.

FINANCIAL AID

The Graduate School Bulletin contains a detailed statement on the kinds of financial aid available to graduate students and the university policies governing their distribution. Additional aid may come from external grants, but students should be aware that the availability of grant funds can change from year to year. The following is a general description of the current financial aid policies as applicable to G&G. The Graduate School Programs and Policies manual is the authoritative source for all financial-aid policies.

University Fellowships

University Fellowships are granted for a twelve-month period and assume that the summer months will be devoted to full-time research or other appropriate academic activities. The University Fellowship includes tuition as well as a stipend. Recipients of University Fellowships are required to teach one semester at the TF I level for each year of fellowship support (see below for further details).

Starting with the incoming class of Fall 2002, students must successfully complete two TFI equivalents in two separate years during the first four years of graduate education. Teaching completed while a student is receiving fellowship aid will simultaneously fulfil the academic requirement for teaching.

Students who hold a University Fellowship are allowed to receive additional income from an outside non-service award. All external fellowships must be reported to the DGS, who will inform the Associate Dean and the DGS Office. During the academic year, students may supplement their University Fellowship through appropriate university employment, up to 10 hours per week.

Students holding external fellowships should be aware of the granting agency's policy on supplementation, as well as the Graduate School policy on combined awards stated in the Graduate School Programs and Policies manual.

Some fellowships are funded by gifts to the Department or the University. A student may be asked to provide a brief annual report to the Department Chair or the University Reporting Secretary, to be used in preparing a report to the donor.

Outside Fellowships

Students are strongly encouraged to apply for outside fellowships. The Graduate School maintains a library of fellowship information in the McDougal Center. The DGS Office is also available for additional advice on fellowship opportunities.

Students are particularly encouraged to apply for the NSF Fellowship Program, which usually has an application deadline in November. This program accepts applications from U.S. citizens and nationals and permanent resident aliens who apply in the year prior to starting graduate school or in their first year of graduate school. The award of an NSF Fellowship bring three years of stipend support and considerable visibility to the student as well. The DGS Office can provide further information about application requirements and procedures.

Research Assistantships

Unlike other forms of financial aid, the funds for Research Assistantships (or Assistants in Research - "AR") come entirely from external research grants awarded to individual faculty. The work performed not only is part of the faculty member's research project, but also is the student's dissertation research and therefore in satisfaction of a degree requirement. AR's tend to be project-oriented and are awarded to students who will contribute to the funded research endeavor. The principal investigators for the grant will determine how an AR is awarded.

A graduate student must be in good standing to hold an AR. Most awards are for a one-year period, but can be renewed assuming that the necessary grant funds are available.

Project Assistantships

Project Assistants (PA) are also paid by a research project, but do not exceed 10 hours of work per week. Wages are determined by the Department in consultation with the Department's representative in Personnel, and must be equivalent to the salary university staff would receive for performing similar services. The appointment is for work on a research project that is not part of the student's degree program.

PAYCHECKS AND INCOME TAXES

All students must have a Social Security number within a few weeks of Graduate School registration. Instructions for securing a social security number are provided at registration. As soon as the number is assigned, the student must provide it to the University Registrar's Office and the DGS Office.

Paychecks are issued semi-monthly, on the 15th of the month (or the proceeding Friday when the 15th falls on a weekend) and on the last weekday of the month. Note that Fellowship checks are not released by the Financial Aid Office until the student is fully registered.

Checks can be deposited directly to a bank account, mailed to a specific address, or picked up in the DGS Office after 9:30A.M. on payday. All students must provide written instructions to the DGS Office in KGL, indicating how their paycheck should be handled.

Students are responsible for determining their income tax status and for filing annual tax returns. Relevant tax information is provided at registration.

STUDENT TEACHING APPOINTMENTS

In April, the DGS Office asks all G&G instructors to submit requests for teaching assistants for the next academic year. At the same time, all graduate students are asked about their preferences for teaching. Students who apply for a teaching assistantship must have their application signed by their Advisor. Students supported on a University Fellowship are obligated to teach one semester at the TF 1 level or to hold a curatorial assistantship (CA) for one semester for every year of fellowship support (the CA appointment is described below).

TFcomm (see listing of committees above) is responsible for placing students in specific TF positions. Students and instructors will receive notice at the end of spring term about the TF assignments for the next academic year. The DGS is authorized to make a limited number of changes to account for changes in enrollment or the revised plans of an instructor or student. Please try to make any requests for changes as soon as possible in order to avoid delays or problems with TF wages for the student.

Types of Appointments

TF appointments are assigned at different levels depending on the amount and type of work involved. Instructors must be careful not to subject students to a workload that exceeds that specified for their appointment (see estimated hours below). A student can claim additional wages in exceptional cases where the work done significantly exceeds the amount of time specified for their appointment. Such requests should be made to the DGS by the instructor before the student exceeds the specified limit. The actual claim for additional wages needs to be documented by a report from the student of hours worked and tasks performed during the term. This arrangement is strongly discouraged because it places an unnecessary burden on the student and delays payment for their work. The DGS encourages instructors to upgrade the TF appointment, request an additional TF appointment, or reduce the workload. Instructors must also keep in mind that excessive teaching duties can seriously interfere with a student's progress with their degree.

	<u>Total Hours</u>	<u>Compensation for 2001-02</u>
Teaching Fellow 1	75	\$1,745
Teaching Fellow 2	150	\$3,490
Teaching Fellow 3	225	\$5,235

The job descriptions below were prepared by the Graduate School and provide a guide for determining the level of appointment.

Teaching Fellow 1: The responsibilities of a TF1 are primarily (a) grading or (b) a combination of the following: attending class, reading, advising undergraduates, offering an occasional discussion section, helping to set up a lab, or assisting in the administrative details of a course. A TF1 does not engage in regular classroom instruction. Approximate weekly effort, 5 hours. The 2002-2003 stipend is \$1,745.

Teaching Fellow 2: A TF2 typically leads and grades one discussion or laboratory section of up to twenty students or has a combination of the responsibilities described (a) and (b) in TF1. Approximate weekly effort, 10 hours. The 2002-2003 stipend is \$3,490.

Teaching Fellow 3: Depending on departmental policy, the responsibilities of a TF3 may include leading and grading one or two lab or discussion sections. Alternatively, a TF3's responsibilities might include attending lectures, office hours and consultations, and grading. Approximate weekly effort, 15 hours. The 2002-2003 stipend is \$5,235.

Curatorial Assistant: This appointment is for curatorial work on a Peabody museum collection under the general supervision of a Museum Curator. A CA appointment can be used to fulfill the University Fellowship teaching requirement. Note that CA appointments are only available to students specializing in a discipline that maintains a collection in the Peabody Museum. The

CA 1 and CA 2 appointments are equivalent in hours and compensation to TF2 and TF3 appointments, respectively.

Compensation During Fulfillment of Teaching Requirement: Effective With The Incoming Class Fall 2002:

Assignment of a TF1, For Teaching Requirement:

This assignment fulfils your departmental 2002-'03 academic year teaching obligation. You would not receive a teaching fellowship stipend for this teaching requirement.

Assignment of a TF2, One TF1 Required:

One TF unit of this assignment fulfils your departmental academic year 2002-'03 teaching obligation. In addition to the standard departmental stipend, you will receive a teaching fellowship stipend of \$1745 for the additional TF unit.

Assignment as a TF1 or TFII that is Beyond Teaching Requirement:

You will receive a teaching fellowship stipend (TF1 amount is \$1745; TF11 amount is \$3490) for participating in this optional teaching opportunity.

Note: Current students (those admitted prior to 2002-2003 academic year) will finish their graduate studies under the rules they agreed to at the time they were accepted into the Graduate School Program.

USE OF DEPARTMENTAL FACILITIES

Room Assignments

All entering graduate students are provided with office space, either in a single or double room in the graduate student area (west side of second floor in KGL) or in offices or laboratories near their Advisor's research area. In September the departmental Registrar posts the room assignments for the year. Incoming students can get their room assignments at the DGS Office on arrival.

Rooms vacated by departing students are reassigned by the DGS Office; students wishing to change rooms should consult the DGS Office and, if necessary, sign a waiting list. Those students who have sole occupancy of a double office must be prepared to accept another office mate if requested.

Keys

A KGL entrance key and sub-master are issued to each entering graduate student, in exchange for a \$10 refundable deposit. The submaster provides entry to all student offices, all classrooms, the Library, and most laboratories. Should the need arise for access to a room not on this key, written permission from the faculty member in charge is needed before the Business Manager can issue the key.

Pets

No dogs or other domestic pets are allowed in offices or in any part of KGL and Peabody Museum.

Security

There have been occasional thefts in KGL. Students are advised to close and lock their office doors when they leave (even for a few minutes), carry their keys at all times, and keep pocketbooks and calculators out of sight or secured. Desktop and laptop computers are

particularly attractive targets. They should be secured in some way to protect from theft. The University has no insurance coverage for loss or theft of personal belongings.

Report thefts immediately to the Business Office during working hours and to Campus Police (2-4400) during the evenings and weekends.

Building Maintenance

Heating and cooling problems, and other building maintenance issues (leaks, burnt-out light bulbs, smoke, noxious fumes, etc.) should be promptly reported to the Business Office during working hours and to 2-6888 after hours.

Laboratory Facilities

Laboratory facilities are available for student use but only with the approval of the appropriate supervisor. The University requires students to undergo a training course in Laboratory Health and Safety before they start work in a laboratory. The Office of Environmental Health and Safety sends out Safety Bulletins listing HS training sessions. Bulletins will be posted outside Room 302 and can also be found on the OEHS WWW homepage (www.yale.edu/oehs) under the heading Safety Publications. All the training seminars are held at the Office of Environmental Health and Safety Training Center in Room 15 at 135 College Street, unless otherwise noted.

Department Letterhead and other Office Supplies

Stationery, envelopes, mailers, paper tablets, pencils, transparencies, etc. are provided at no cost to graduate students for use in teaching and research activities. Graduate students are welcome to use Departmental stationery as long as the correspondence is related to the conduct of normal Departmental teaching and research activities.

Postage

The Department postal meter (202 KGL) can be used for mailing letters and packages relevant to official Departmental teaching and research activities. The meter is not to be used for personal mail, which includes requests for reprints, job inquiries, job applications.

Telephones

The Dana Club phone (257 KGL) and two student-wing phones are provided by the Department for the exclusive use of the graduate students. Outgoing long distance calls can be made using a personal calling card number or, if research-related, a phone authorization number (see the Business Office for details). The Departmental staff are happy to take important messages that arrive on the Department's general phone lines, but please do not abuse this service. Messages will be posted on the bulletin board outside KGL 201 or in the student's mailbox.

Mail

Each entering student is given a Departmental mailbox downstairs on the west side of the first-floor entrance area. Mail carried by the US Post Office should be addressed:

YourName
Yale University
Department of Geology and Geophysics
P O Box 208109
New Haven, CT 06520-8109

Courier deliveries should be addressed to the following street address:

YourName
Yale University

Kline Geology Laboratory
210 Whitney Avenue
New Haven, CT 06511

Fax

The Department has a general-use fax machine located in the Department Secretary's Office (202 KGL). Incoming faxes should be sent to +1-203-432-3134. Long-distance transmission of outgoing faxes requires a phone authorization number (see the Business Office for further details).

Computers and Email

The Dana Club maintains a Macintosh computer and two PCs in 221 KGL. These computers are available to all graduate students. Our Systems Programmer, Jay Emerson, maintains additional personal computers and workstations throughout the department. For more information about departmental computing resources and support, please visit the departmental web page, <http://www.geology.yale.edu>.

Information Technology Services (ITS) at Yale University provides email services for all faculty, staff, and students. The standardized email address is of the form "firstname.lastname@yale.edu." Please visit <http://www.yale.edu/acct> for more information.

Copiers

There are two copiers for student use: one is in the Copier room (222 KGL) and the other in the G&G Library on the third floor. Entering students are given their own password for use of these machines. The first 500 copies per year are free. Additional copies are billed three times a year, in January, June, and September (see the Business Office for the current rate).

Vehicles

The G&G Department maintains two vans for University business only. Mileage is charged using the prevailing government rate (see the Business Office). Students must hold a valid Yale University driver's license before operating a University vehicle. Contact Chair's Office to make the necessary arrangements for a license or to reserve a van. Reservations and charging instructions must be given before a van can be checked out. Mileage charges for official Departmental functions, such as a course-related field trip, are covered by the Department.

APPENDIX A – 2002-03 ACADEMIC CALENDARS

Department of Geology & Geophysics Department and Academic Calendar 2002-03

Aug. 26	Mon.	New student orientation week begins.
Aug. 27	Tues.	Orientation for new international students.
Aug. 28	Wed.	Matriculation ceremony.
Aug. 29	Thurs.	SPEAK test for new international Ph.D. students.
Aug. 30	Fri.	Registration and orientation in departments for all new students begins.
Sept. 3	Tues.	Registration for returning students begins.
Sept. 4	Wed.	Fall term undergraduate and graduate classes begin, 8:30 a.m. 4:00, Department Open House, 102 KGL.
Sept. 6	Fri.	Final day to pick up registration materials from academic department.
Sept. 11	Wed.	Faculty Luncheon. Program Review Committee meets after Faculty Meeting, 102 KGL.
Sept. 18	Wed.	Fall term course enrollment forms are due (\$25 <i>late fee</i>). Final date for registration. (\$25 <i>late fee</i>)

		Final date to apply for fall term <i>personal leave of absence</i> .
Sept. 19	Thurs.	CEO Open House.
Sept. 25	Wed.	Faculty Luncheon.
Oct. 1	Tues.	Final date for the faculty to submit grades to replace temporary incompletes (TIs) awarded during the 2001-02 academic year. Due date for dissertations to be considered by the Degree Committees for award of the Ph.D. in December. Final day to file petitions for degrees to be awarded in December.
Oct. 4	Fri.	Chair's Reception.
Oct. 9	Wed.	Departmental Luncheon.
Oct. 23	Wed.	Faculty Luncheon.
Oct. 25	Fri.	Midterm. Final day to add a fall term course. Final day to withdraw from a fall term course without a fee and without the course appearing on the transcript. <i>A fee of \$25 per course is assessed and a "W" is recorded on the transcript for courses dropped after this date.</i> <i>Please NOTE: Courses may be dropped with the \$25 per course fee through Friday, December 6.</i> Final day to change enrollment in a fall term course from Credit to Audit or from Audit to Credit without a fee. <i>A fee of \$25.00 per course is assessed for enrollment changes submitted after this date.</i> <i>Please NOTE: Courses may be changed from Credit to Audit or from Audit to Credit through Friday, Nov. 8.</i>
Oct. 27-Oct.30		GSA, Denver, CO
Nov. 1	Fri.	Reader's reports are due for dissertations to be considered by the Degree Committees for award of the Ph.D. in December.
Nov. 8	Fri.	Departmental recommendations are due for candidates for December degrees. Final day to change enrollment in a fall term course from Credit to Audit or from Audit to Credit.
Nov. 20	Wed.	Faculty Luncheon.
Nov. 21	Thurs.	SPEAK test for international students in Ph.D. programs.

Nov. 22-Dec. 1		Thanksgiving recess.
Dec. 2	Mon.	Classes resume, 8:30 a.m.
Dec. 6	Fri.	Final day to withdraw from a fall term course. Classes End. Reading Period Begins.
Dec. 6-10		American Geophysical Union, Fall Meeting, San Francisco, CA
Dec. 21	Sat.	Fall term ends (Winter Recess begins).

SPRING TERM 2003

Jan. 13	Mon.	9 a.m. General Exam (written portion) for 2 nd Year Students. Registration and spring ID validation begins. Spring term undergraduate and graduate classes begin, 8:30 a.m.
Jan. 15	Wed.	Final grades for fall term courses due.
Jan. 17	Fri.	Friday classes do not meet. Monday classes meet instead.
Jan. 20.	Mon.	Martin Luther King Day. Administrative offices closed. Classes do not meet.
Jan. 22	Wed.	Faculty Luncheon.
Jan. 23	Thurs.	Registration and spring ID validation ends. Spring-term course enrollment forms are due. A fee of \$25 is assessed for forms submitted after this date. Final day to apply for a spring-term personal leave of absence.
Feb. 5	Wed.	Faculty Luncheon.
Feb. 19	Wed.	Faculty Luncheon.
Mar. 5	Wed.	Departmental Luncheon.
Mar. 7	Fri.	Midterm. Spring recess begins, 5:20 p.m. Final day to add a spring term course. Final day to withdraw from a spring term course without a fee and without the course appearing on the transcript. <i>A fee of \$25 per course is assessed and a "W" is recorded on the transcript for courses dropped after this date.</i> <i>Please NOTE: Courses may be dropped with the \$25 per course fee through Friday, April 25.</i> Final day to change enrollment in a spring term course from Credit to Audit or from Audit to Credit

without a fee.

A fee of \$25.00 per course is assessed for enrollment changes submitted after this date.

Please NOTE: Courses may be changed from Credit to Audit or from Audit to Credit through Monday, March 31.

One-quarter of the spring term full-tuition charge will be canceled for students who withdraw from the Graduate School on or before this date or who are granted a *medical leave of absence* effective on or before this date.

The CRF is not pro-rated.

March 17	Mon.	Due date for dissertations to be considered by the Degree Committees for award of the Ph.D. in May. Final day to file petitions for degrees to be awarded in May.
March 24	Mon.	Classes resume, 8:30 a.m.
March 26	Wed.	Faculty Luncheon.
March 31	Mon.	Final day to change enrollment in a spring term course from Credit to Audit or from Audit to Credit.
April 9	Wed.	Faculty Luncheon.
April 17	Thurs.	Reader's reports are due for dissertations to be considered by the Degree Committees for award of the Ph.D. in May.
April 18	Fr	Good Friday, classes meet.
April 23	Wed.	Faculty Luncheon
April 24	Thurs.	Departmental recommendations are due for candidates for May degrees. SPEAK test for new international students in the Ph.D. program.
April 28	Mon.	Final day to withdraw from a Spring term course. Monday classes do not meet. Friday classes meet instead. Classes end. Reading period begins.
May 5	Mon.	Reading Period ends.
May 7	Wed.	Faculty Luncheon.
May 13	Tues.	Spring term ends.
May 14.	Wed.	Awards luncheon.
May 16	Fri.	Final grades for spring term courses are due for candidates for M.A. and M. S. degrees to be awarded at Commencement (master's programs).
May 25	Sun.	Graduate School Convocation.

May 26	Mon.	University Commencement.
June 2	Mon.	Final grades for spring-term courses and full-year courses are due.

APPENDIX B G&G COURSE LISTINGS

Numbering System for Yale Courses

Numbers 100-499 designate undergraduate courses and 500-999 designate graduate courses. A course offered for both undergraduate and graduate students will differ only in the hundreds digit (for example, G&G440 and G&G540). The letters “a” and “b” are used to designate the term in which a course is given (“a” = fall, “b” = spring).

In the G&G Department, the hundred level numbers have the following meaning:

- 100 level - Introductory or survey undergraduate course without prerequisite;
- 200 level - Introductory undergraduate courses, primarily intended for G&G majors in the department;
- 400 level - Advanced undergraduate courses; which are also listed at the 500 level graduate number;
- 500 level - Graduate listing for advanced undergraduate course;
- 600 level - Graduate course;
- 700 level - Graduate seminar;
- 800 level - Graduate tutorial;
- 900 level - Graduate thesis research

Tentative G&G Course Listing

The following is the current listing of undergraduate and graduate course offerings in the Department for 2002-03. Information includes the course title, instructor, time and room number of class meetings, and ancillary comments, describing relationship to other courses or omission of the course in the academic year 2002-02.

Department of Geology and Geophysics 2002-03 Course Listings

G&G100a, Natural Hazards. Jay Ague, Mark Brandon
MWF 12:30-1:20 LC102

G&G120b, Global Environmental Change. Mark Pagani, Karl Turekian
MWF 9:30-10:20

[G&G125b, Crises in the History of Life]

G&G160b/E&EB160b, Diversity of Life. Michael Donoghue, Jacques Gauthier

*G&G201a,/EVST201a, Environmental Geoscience. Ronald Smith

For description see under Environmental Studies.
MWF 9:30-10:20 KGL123 3 HTBA

G&205a, Energy, Mineral, and Water Resources. Robert Gordon,
Brian Skinner
T TH 1-2:15 KGL306

G&G210a, Physical and Environmental Geology. Danny Rye, Brian Skinner
MWF 11:30-12:20 lab 3 HTBA KGL306

G&G250a/550a, Paleontology and Evolutionary Theory. Elizabeth Vrba,
TTh 11:30-12:45 KGL123

G&G255b Environmental Geomicrobiology. Ruth Blake
T TH 1-2:15 Lab 2 HTBA

G&G260/680a Plate Tectonics. David Evans
MWF 9:30-10:20 LC101

G&G300b/500b, Mineral Deposits. Brian Skinner
3 HTBA

G&G301b/502b Introduction to Geochemistry. Peter Reiners
MWF 9:30-10:20

G&G304a/504a/EVST404a, Minerals in the Biosphere: The Geochemistry of Human Health.
Catherine Skinner
T, TH 11:30-12:45

[G&G306b/506b, Chemical Cycles and the Global Environment.]

G&G312b/512b, Structural Geology and Tectonics. Mark Brandon,
TTH 11:30-12:45; lab 2 HTBA

G&G313a/513a Invertebrate Paleontology: A Treasure-House of Skeletal
Reconstructions.
Adolf Seilacher
MW 11:30-12:45, lab 2 HTBA KGL119

[G&G315a/515a Paleobotany]

G&G320b Petrology and Mineralogy. Jay Ague
TTH 9-10:15; lab 2 HTBA

G&G322a/522a, Introduction to Meteorology and Climatology. Steven Sherwood
TTh 9-10:15 KGL119

G&G326a/526a Introduction to Geophysics. Shun-Ichiro Karato
MWF 10:30-11:20 KGL226

G&G333b/533b Paleomagnetism. Evans
MWF 10:30-11:20

G&G335a/535a, Physical Oceanography. George Veronis
TTH 1-2:15 KGL119

G&G350a Stratigraphy. Leo Hickey
T TH 9-10:15; lab TH 2:30-4:30 KGL226

G&G362b/562b, FES 506b, Observing the Earth from Space.
Ronald Smith
MW 9-10:15; lab TH or F 1:30-3:20 or 3:30-5:20

[G&G401b/501b Climate Dynamics]

[G&G405a/505a Geochemistry of Planetary Evolution]

G&G421b/521b, Geophysical Fluid Dynamics. George Veronis
TTH 1-2:15

G&G425a/525a Geophysical Continuum Mechanics. David Bercovici
MWF 9:30-10:20 KGL226

G&G440a/540a Geomicrobiology: Microbial Processes in the Geologic Environment.
Ruth Blake
TTH 1-2:15 KGL226

G&G450b/650b Time-Dependent Deformation of Earth Materials. Shun-Ichiro Karato
MWF 10:30-11:20

G&G456a/556a, Introduction to Seismology. Jeffrey Park
MWF 11:30-12:20 KGL226

G&G460b/560b Theory of Viscous Flow. Bercovici
MWF 9:30-10:20 KGL306

G&G465a/Archaeo465b/ENAS 381a, Archaeometallurgy. Robert Gordon,
TTH 10:30-11:20, 1 HTBA KGL226

G&G467b/567b/Archaeo 467b, Geochemical Approaches to Archaeology.
Karl Turekian

T TH 9-10:15

G&G488a and 489b, Research in Geology and Geophysics.

G&G490, Research and Senior Thesis.

G&G492a or b, Senior Essay

G&G503a Geochronology and Tectonics, Mark Brandon, Pete Reiners
M,F 4-5:30, KGL226

G&G511a Applied Stratigraphy. Leo Hickey

G&G536a, Mesoscale Atmospheric Dynamics. Ronald Smith
T 3:30-5:00 and F 1:30-3:00, KGL119

[G&G557a Advanced Seismology]

G&G559b Data Analysis in the Earth Sciences. Jeffrey Park
MWF 11:30-12:20

G&G601b, Topics in Earth Science
Past and Present Climate: Observation and Theory
Steven Sherwood

G&G611a, Advanced Stratigraphy. Leo Hickey

[G&G615a , Advanced Petrology]

G&G618a, Petrology of Light Stable Isotopes, Danny Rye

[G&G621b, Geochemistry of Heavy and Radioactive Isotopes in Rock Systems]

[G&G624a, Invertebrate Paleontology]

G&G630b, Paleobiology of Lower Vertebrates. Gauthier

G&G631a, Vertebrate Paleontology: Phylogeny of the Reptilia. Jacques Gauthier
T, TH 1-2:30, VP Lab

[G&G635b, Multivariate Techniques in Paleontology]

G&G637a, Trace Fossils, Seilacher
226 KGL, 5:00

[G&G647b, Mathematical Methods]

[G&G648b, Mesozoic Stratigraphy]

[G&G655a, Extraordinary Glimpses of Past Life]

G&G657a, Marine and Surficial Geochemistry. Karl Turekian

G&G660a, Diagenesis, Weathering, and Geochemical Cycles. Robert Berner

[G&G661a, Advanced Topics in Viscous Flow]

[G&G665b, Geophysical Signal Processing]

G&G666 Geophysical Thermodynamics and Kinetics. Wettlaufer
T TH 2:30-3:45

[G&G670a, Tensors and Continuum Mechanics]

G&G675a, Advanced Structural Geology. Mark Brandon

[G&G678b, Chemistry of Ore Minerals]

G&G690a and b, Directed Research in Geology and Geophysics

[G&G702a, Seminar: The Phylogenetic System]

G&G703a,b, Seminar in Systematics. J. Gauthier

G&G705b, Advanced Seminar in Evolutionary Paleontology. Elisabeth Vrba

[G&G710a,b, Seminar in Invertebrate Paleontology]

[G&G715a, Seminar in Scientific Communication]

[G&G717a,b, Advanced Topics in Paleobiology]

G&G730a,b, Topics in Mineralogy

G&G740a, Sediment Seminar, Robert Berner, F 1:30-3:00

G&G742a or b, Seminar in Geophysical Fluid Dynamics, Ronald Smith

G&G744a&b, Seminar in Mantle and Core Processes, David Bercovici
Shun-ichiro Karato, Jeffrey Park
(Sp term: M 4:00 KGL306)

[G&G745b, Selected Topics in Geochemistry]

G&G746a, Seminar in Global Change, Karl Turekian, M 2:00-3:30, 102 KGL

[G&G747a, Seminar in Statistical Mechanics and Spectroscopy in Geochemistry]

[G&G750a, Seminar in Mineral Deposits]

[G&G752a,b, Seminar in Structural Geology and Tectonics]

G&G753a, Seminar in Petrology, Jay Ague
TH 12:00 KGL102

[G&G754b, Seminar in Conventional Techniques and Frontiers in Experimental
Petrology]

G&G758a, Seminar in Microprobe Analysis, Jim Eckert

G&G760b, Seminar in Solid-Earth Geophysics

[G&G761b, Topics in Volcanology]

G&G765a,b, Seminar in Physics of Oceans and Atmospheres

G&G767a Seminar in Ice Physics and Geophysics, John Wettlaufer
TH 2:30 KGL119

G&G770a,b, Seminar in Mechanical Processes

G&G800a, Tutorial in Paleobotany

G&G810a,b, Tutorial in Structural Geology or Solid Earth Geophysics

G&G820a,b, Tutorial in Meteorology, Oceanography or Fluid Dynamics

G&G830a,b, Tutorial in Geochemistry, Petrology or Mineralogy

G&G840a,b, Tutorial in Sedimentology

G&G900a,b, Research in Paleobiology

G&G910a,b, Research in Structural Geology or Solid Earth Geophysics

G&G920a,b, Research in Meteorology, Oceanography, or Fluid Mechanics

G&G930a,b, Research in Geochemistry, Petrology or Mineralogy

G&G940a,b, M.S. Research Essay

*Courses in brackets are not being offered

ADVISORS AND ADVISORY COMMITTEES FOR 2002-03
Graduate Students in Residence – Fall Term 2002

<u>Yr.</u>	<u>Graduate Student</u>	<u>Advisors and Committees</u>
_1	Robert Allen Brian Andres Megan Andrews Matthew Benoit Theresa Daniels William Landuyt Garrett Leahy Yanping Li Jerome Neufeld Timothy Raub Eben Rose	<u>Sherwood</u> , Smith, Wettlaufer, Park <u>Gauthier</u> , Vrba, Hickey, Briggs <u>Blake</u> , Turekian, Rye, Berner <u>Vrba</u> , Gauthier, Hickey, Briggs <u>Evans</u> , Brandon, Reiners, Park <u>Bercovici</u> , Karato, Park, Korenaga <u>Bercovici</u> , Park, Karato, Korenaga <u>Smith</u> , Sherwood, Wettlaufer, Veronis <u>Wettlaufer</u> , Bercovici, Korenaga, Smith <u>Evans</u> , Brandon, Turekian, Ague <u>Evans</u> , Brandon, Karato, Reiners
2	Jung Hyo Chae Alana Kawakami Ian Miller Philip Skemer James Stevenson John VandenBrooks Dru Wilbur Benjamin Zaitchik	<u>Sherwood</u> , Veronis, Smith, Wettlaufer, Lee <u>Vrba</u> , Gauthier, Hickey, Yoder (EEB) <u>Hickey</u> , Brandon, Evans, Vrba <u>Karato</u> , Brandon, Bercovici, Park <u>Brandon</u> , Ague, Reiners, Evans <u>Berner/Vrba</u> , Blake, Gauthier <u>Ague</u> , Rye, Wettlaufer, Skinner <u>Smith</u> , Hickey, Sherwood, X. Lee, J. Saiers
3	Jason Downs Walton Green Krister Smith	<u>Gauthier</u> , Vrba, Hickey, H.C. Skinner <u>Hickey</u> , Vrba, Berlyn, Seilacher <u>Gauthier</u> , Vrba, Hickey, Turekian
4	Walter Joyce Jeffrey Rahl	<u>Gauthier</u> , Vrba, Hickey, Turekian, Seilacher <u>Brandon</u> , Ague, Park, Gordon
4.5	Yuhong Liang	<u>Blake</u> , Turekian, Berner, Rye
5	Mike Breeding	<u>Ague</u> , Rye, Skinner, Brandon

Takanobu Tsuihiji

Gauthier, Vrba, Hickey, Seilacher