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INTRODUCTION

This handbook describes the graduate program (doctoral and master’s) in the Department of Earth, Atmospheric, and Planetary Sciences (EAPS). It supplements the Graduate Policies and Procedures which outline the general Institute requirements and is available on the web at https://oge.mit.edu/gpp/, as well as the Registrar’s Policies found on the web at: https://registrar.mit.edu/

Students should use this handbook to help guide themselves through the program in consultation with their advisor. Students should also feel free to contact the EAPS Education Office, on the 9th floor of building 54, for further inquiries and assistance.

BASIC INFORMATION ABOUT ACADEMICS IN EAPS

ACADEMIC TERMS

MIT has four terms in the year: Fall Term, Independent Activities Period (IAP), Spring Term, and Summer Term. IAP and Summer Terms are not considered academic terms that count toward degree progress but are periods of time when a student is able to conduct research to continue progress towards a degree.

REGISTRATION FOR CLASSES

Graduate students need to be registered for both the fall and the spring terms. Doctoral students must be registered for fall, spring and summer terms, unless they will be enrolled in an internship or other non-thesis related absence or a medical leave. Doctoral research appointments are directly tied to enrollment. Any student who does not register for a given term are in danger of having their appointment cancelled by the registrar as they are perceived to be not in attendance for that given term.

Pre-registration and registration are accomplished online at https://registrar.mit.edu/registration-academics. A student’s registration needs to be approved by the advisor. After approval, the student needs to submit the registration to the Registrar. The advisor does not need to approve pre-registration.

For the fall and spring terms, registering for 36 units is considered a full-time load. For summer, 24 units is considered a full-time load. A student must be registered in the summer term if they will be receiving a stipend. EAPS only offers pre-thesis research (Current Research 12.970 or 12.971) and thesis research (12.THG) courses in the summer.

EAPS DISCIPLINARY PROGRAMS

There are four education programs in EAPS organized according to disciplinary areas:

- Program in Atmospheres, Oceans, and Climate (PAOC)
- Program in Geology, Geobiology, and Geochemistry (G3)
- Program in Geophysics (PG)
- Program in Planetary Science (PPS)
RESEARCH AND ACADEMIC ADVISORS

Students admitted to the doctoral and master’s programs are assigned a faculty advisor based on the convergence of the research interests of both the advisor and the student. The advisor’s primary responsibility is to guide the academic program of the student and serve as research supervisor, often supporting the student as a Research Assistant. Usually, but not always, the faculty advisor assigned to a student at the beginning of the graduate program becomes the thesis supervisor. In the majority of instances, PhD and SM theses completed in the Department will be supervised and signed by current EAPS faculty and retired EAPS faculty who have remained active in the Department.

In some instances, the appropriate research advisor for a graduate student is a Principal or Senior Research Scientist in EAPS. When a Senior Research Scientist is the research advisor, a current member of the EAPS faculty will be assigned by the Specialty Committee [see below] as the student’s academic advisor. The Senior Research Scientist, as research advisor, will be responsible for signing the completed thesis. When a Principal Research Scientist is the research advisor, a current member of the EAPS faculty will be assigned by the Specialty Committee as the student’s academic advisor and co-Research advisor. The faculty co-research advisor will be responsible for signing the completed thesis.

CHANGE OF ADVISOR

A student-advisor relationship is a professional commitment that typically remains in place for the duration of the graduate degree. However, in some circumstances—for example, a major change in research direction or an advising situation that stands in the way of progress—a student may need to change research advisors. The student should contact the Transition Support Coordinators for EAPS. Further steps in consultation with the Support Coordinators may include contacting the chair of the disciplinary program, the head of department, another faculty member in EAPS, or an Assistant Dean in the Office of Graduate Education (OGE). MIT has a policy of providing guaranteed transitional support for students in unhealthy advising situations.

PRE-THESIS MENTOR PROGRAM

Pre-thesis mentors are matched with EAPS graduate students and remain with those students until they have formed a thesis committee (first ~2.5 years). Students will be reassigned a mentor if their current mentor becomes a second-generals project advisor, but it should be noted that the mentor may be on the general-exam committee. The Pre-thesis mentor is intended to provide additional support and connections for the graduate student in their early years in the program. The goal is to facilitate deeper connections and stronger support for students. It is not intended to provide oversight on the student’s research advisor or to establish an accountability relationship between advisor and pre-thesis mentor. Once the thesis proposal and committee are approved by the CEP, students are no longer expected to meet with their faculty mentor but can do so if they find it to be useful. Students instead meet their thesis committees and fill out a short form on progress towards their thesis once a year.

Pre-thesis mentees meet with mentors individually once in Fall term and once in Spring term (or more if desired). Meeting length is typically 20-40 minutes. The student mentee is responsible for setting up each meeting. It is expected that these are private meetings, but mentors cannot guarantee confidentiality and are asked to communicate overall trends across group to education committee and departmental leadership. A list of confidential resources can be found here: https://idhr.mit.edu/reporting-options/confidential-resources Each time the student meets with their mentor, the student fills in short online form to confirm the meeting occurred and will also be given the opportunity to give optional feedback. This form can be found here: https://mit.co1.qualtrics.com/jfe/form/SV_bQvYYJQoHOhypPg
The main purpose of the first meeting is to get acquainted and establish goals and expectations for the mentoring relationship. Before the first meeting, students should identify their personal and professional goals for the mentoring relationship. In the first meeting, they should share their academic background, discuss any goals they would like to work towards together, and when the next meeting will occur.

DOCTORAL PROGRAM

The doctoral degrees conferred by the department are the Sc.D. (Doctor of Science) and the Ph.D. (Doctor of Philosophy). The Ph.D. and the Sc.D. degrees are awarded interchangeably in the department and the student can choose which degree they receive. There is no difference in academic program for the Ph.D. or the Sc.D. Both doctoral degrees take approximately five years to complete. The first two years concentrate on course work and preparing for the General Exam, and the final three years are centered on the doctoral thesis.

**Figure 1. Timeline of major milestones in the doctoral degree. An overview of the typical activities in each year is given in Appendix B.**

THE FIRST TWO YEARS

CLASSES, RESEARCH AND REGISTRATION

**Class Load:** During Fall and Spring terms, students must maintain a load of 36 units. Students register for a mix of classes and Current Research (see below) to prepare for the General Examination. During Summer term students must maintain a load of 24 units of Current Research to work on General Exam Projects.

**Choosing Classes:** Students will discuss with their advisor what classes to register for each term. The most up-to-date class schedule for EAPS-specific classes will always be found on the EAPS website here: [https://eapsweb.mit.edu/classes/overview](https://eapsweb.mit.edu/classes/overview), but all department schedules may be accessed here: [http://student.mit.edu/catalog/index.cgi](http://student.mit.edu/catalog/index.cgi).

**Current Research:** Students may register for Current Research as either letter graded (12.970) or P/D/F (12.971). Registering for Current Research gives students credit for their pre-thesis research conducted while preparing for the General Examination. Students should discuss with their advisor how many units of Current Research to register for.

**First-Year Seminar:** Students are encouraged to take 12.900 in their first term if enrolling in the fall, or in their second term if enrolling in the spring. This class is designed for first-year students to learn
about the breadth of research in the department and to introduce them to resources that they may use throughout their graduate education.

**Grades:** In order to maintain satisfactory standing in the department students are expected to receive a grade of “B” or better in all subjects that are letter graded and a “P” in subjects that are graded P/D/F. Information on grade definitions and grading policies may be found here: [https://registrar.mit.edu/classes-grades-evaluations/grades/](https://registrar.mit.edu/classes-grades-evaluations/grades/).

### GENERAL EXAMINATION

The General Examination serves the dual purpose of assessing a student’s readiness to proceed with research that will lead to a PhD and ensuring that a student has a grasp of the foundational knowledge in the chosen field. All students are expected to take the General Examination before the start of the fifth academic term, or before the fourth academic term if they already have an EAPS master’s degree. (Summer and IAP are not, for these purposes, considered academic terms.)

### GENERAL EXAM PROPOSALS

Students submit their General Examination Proposal to the Education Office by the Add Date on the Registrar’s Academic Calendar in the term prior to the one in which they take the exam. For most students this will be the Add Date in the fall term with the exam occurring in the spring term. The General Examination Proposal includes the proposal form and two project abstracts. The proposal is reviewed and approved by the Committee on the Education Program (CEP). The CEP will add ad-hoc members to ensure it has sufficient expertise to evaluate all proposals.

### EXAM COMMITTEE MEMBERSHIP

The exam committee consists of at least four members from the EAPS faculty, lecturers, and senior research staff (Principal and Senior Research Scientists). Additional members from outside EAPS holding positions of similar rank may sometimes be included. Members should include:

- Student’s research advisor
- Second paper advisor
- One member must be from a specialty different from that of the student
- A predominant number of faculty from EAPS

The chairperson for the examination committee will be named by the CEP and will be someone other than the primary research advisor. The committee should represent a sufficiently broad spectrum of research specialties to ensure a “general” rather than “topical” examination.

### SCHEDULING OF THE GENERAL EXAMINATION

The exams are scheduled by the EAPS Education Office and typically occur in the second half of May. The composition of the exam committee for each student and the location, time and date of the examination are communicated to the student in February. In some cases, it may make sense based on research progress or the availability of committee members (depending on, for example, fieldwork or other travel) to have an earlier examination and this must be scheduled by the student in
consultation with the CEP. In exceptional circumstances, the CEP may approve a later date, but the examination should still occur before the start of the fifth academic term or the fourth academic term for those with an EAPS’ Master’s degree (see “Delay of exam” section below for exams that occur after this deadline). If a student has had a delayed start date to their PhD program at MIT, the schedule for the proposal and exam are adjusted accordingly.

**STRUCTURE OF THE GENERAL EXAMINATION**

The General Examination consists of written and oral parts. The written part requires the student to prepare two formal research reports. The written material should describe a significant new problem, outline the present state of knowledge in the appropriate field, propose an approach for addressing the problem, and discuss progress made towards reaching a solution. Usually, the first paper, which is advised by the student’s academic advisor, is on the topic the student intends to use for the doctoral thesis. The second paper is advised by an EAPS faculty member or senior research staff member (Senior Researcher or Principal Research Scientist). Exceptions in which the second-paper advisor is from outside EAPS must be petitioned for to the CEP prior to submitting the General Examination Proposal.

The two papers must address problems in significantly different specialties. Students are advised to consult as early as possible with their advisor(s) and the CEP if they are unsure as to whether their papers are sufficiently distinct. Differences in approach (field/lab/modeling/theory) may help to distinguish the papers, but such differences in approach are generally not sufficient to distinguish the papers if the papers are in the same research specialty. For example, it is generally not acceptable to submit two papers in the same research specialty with one paper being a field study (or other data collection and analysis) and the other paper a modeling study. Applying the same specific technique to two different research problems also reduces the extent to which the papers are considered to be distinct. In deciding whether two papers are in the same research specialty, it is helpful to consider whether the papers would have overlap in their citation lists.

The total length of the two papers combined should not exceed 40 pages double-spaced or 20 pages single-spaced, including figures and references. Example general exam papers from previous years are available here.

The oral part of the exam consists of short (20 minutes maximum) presentations by the student on the research papers. Each presentation is followed by an oral questioning period in which committee members question the candidate in depth about the paper. In addition to material directly relevant to the two research papers, some questions in the exam will cover material that is foundational to the student’s chosen discipline and research topics. The exam committee chair will offer the committee an opportunity during the exam to ask foundational knowledge questions, preferably near the end of the exam since foundational concepts are often covered in the process of questioning students about their research projects. The scope of the foundational questions is partly guided by the classes the student has taken, and the exam committee will review the classes taken by the student prior to the start of the exam.

The exam typically takes two hours, but three hours should be scheduled to allow for a longer exam if necessary and to give time for committee discussion.

**GENERAL EXAMINATION OUTCOMES**

Substantial weight is given to both papers in deciding the outcome of the examination, and students are expected to devote substantial effort to both papers. However, the examination committee will take into account that one of the papers will often align with the student’s main expertise and
anticipated thesis topic, whereas the second paper may place more emphasis on exploration and intellectual breadth.

There are four possible outcomes of the exam: Pass, Conditional Pass, Deferred Decision, or Fail. Each outcome is detailed below.

- **PASS:** In this case, the student will enter into the final phase of the doctoral program upon submission of an approved thesis proposal.

- **CONDITIONAL PASS:** In this case, the examination committee gives limited conditions to the student that must be met before the student passes the examination. Conditions may include but are not limited to completions of incompletes in coursework, taking additional classes to increase knowledge in a particular area, etc. The student must complete any requirements involving coursework as soon as possible. For any conditional pass requirements other than coursework, the committee will meet with the student no later than 6 months after the examination to determine if the student has met the Conditional Pass requirements. If conditions have successfully been met, then the conditional pass will be replaced with a Pass. If conditions have not been met, the Conditional Pass will be changed to a Fail.

- **DEFERRED DECISION (RETAKE PART OF EXAM):** In this case, the committee recommends retaking part or all of the exam. The re-examination is to be scheduled with the approval of the CEP and is usually expected to take place within three months of the original exam.

- **FAIL:** In this case, the committee is not satisfied with the student’s progress toward the doctoral degree or their performance in the examination. Receiving this grade officially terminates the student’s participation in the doctoral program. The committee has the option of recommending a student for a Masters degree. If a Masters degree is recommended the student will still need to meet all the requirements for the Master’s degree including a thesis to receive the degree. Master’s degree requirements are found here.

A “pass”, “conditional pass” or “deferred decision” is official -- and communicated to the student -- immediately after the exam. A “fail” is provisional and will be reviewed by disciplinary faculty before communicating the official decision to the student. Regardless of the exam outcome, the chair of the exam committee will write a letter to the student, with a copy to the Education Office, explaining the final decision and any specific conditions (in the case of a conditional pass or deferred decision), and/or offering feedback and any recommendations (for any outcome).

### DELAY OF THE EXAM

If a student finds it impossible to complete the exam on schedule, the student must petition the CEP for an extension at least one month prior to the deadline (start of the fifth academic term, or the fourth academic term for those with an EAPS’ Master’s degree). The petition must include a detailed statement of the reasons for failure to take the exam on time, a supporting letter from the faculty advisor, and a firm timetable for completing the exam. No extensions will be given unless there are compelling reasons (e.g., unplanned absence of the faculty advisor, personal tragedy), and all extensions will include a time limit for taking a rescheduled exam. If a student does not take the examination on time and has not received an extension, CEP may recommend to the Institute Committee on Graduate Programs that the student be denied further registration. If this occurs, the student must apply formally to the Admissions Committee for re-entry into the doctoral program.
THIRD YEAR AND BEYOND

THESIS

The final steps for obtaining a Ph.D. or Sc.D. degree are the completion of a written thesis and its successful defense. Defense of the thesis occurs in a public presentation followed by a private defense with the student’s committee. The thesis must demonstrate a new and original contribution to the student’s discipline area and show that the student can carry out independent research at the highest levels. The thesis must be judged to be satisfactory by the thesis advisor and the thesis committee.

The doctoral thesis for all EAPS students should be completed and defended within ten academic terms (five years) after entrance into the program, and it is the role of the advisor to ensure that the student adheres to a research schedule that will lead to fulfillment of this requirement. If a student is unable to finish within ten terms, both the student and advisor must submit a written petition to the CEP requesting a time extension. Extensions will be granted only under special circumstances and will seldom be longer than one year. If a student does not receive an extension from CEP or does not meet the extended deadline, then they are no longer eligible to receive financial support regardless of the source.

REGISTERING FOR THESIS RESEARCH (12.THG)

Once a student has successfully passed the General Exam, they no longer register for Current Research in EAPS (12.970/12.971), and instead register for Thesis (12.THG) for 36 units each for fall and spring terms and 24 units for summer term. The student registers for 12.THG for every term (Fall, Spring, Summer) for the rest of the program.

The grades for 12.THG are as follows:

- Satisfactory progress on thesis research is noted by a “J” grade, and unsatisfactory progress is noted by a “U” grade.
- In the final term after a student submits the final thesis to the EAPS Education Office, they will receive an “SA” grade indicating successful completion of the thesis. The grade will be submitted the day that you turn in your thesis to the EAPS Education Office.
- More info on grades and grading policies maybe found here: https://registrar.mit.edu/classes-grades-evaluations/grades/

ESTABLISHING A THESIS COMMITTEE

Following the successful completion of the General Examination, the student must notify the CEP of the members of their initial Thesis Exam Committee (TC) within six months via the Thesis Proposal Form. The CEP has the final authority on the composition of the TC. The TC is comprised of at least four members, including:

- The student’s thesis advisor.
- One EAPS faculty member in the program area.
- One EAPS faculty member outside the program area. For PAOC students, this member may be in PAOC, but they should be chosen to provide a different expertise than the other members; and
• One member, approved by the CEP, from outside the department (preferably from outside MIT). The thesis proposal presentation can proceed even if the outside thesis committee member has not yet been identified. However, it is desirable to identify the outside thesis committee member as early as possible, as the participation in the thesis proposal presentation by an outside committee member is encouraged.

The role of a committee member is to provide support and guidance to a student’s research, and members should be chosen with that in mind. The student will work with their faculty advisor to determine who to ask to serve on the TC. The choice of an external member should include due consideration of the travel costs involved to attend the defense in person and/or whether this individual can only attend virtually.

Principal and Senior Research Scientists may serve as committee members and members may be added beyond the above requirement. However, the majority of the committee members must be EAPS faculty.

If for some reason you believe it may be difficult for all committee members to attend the defense either in person or via video conference, then you should add a fifth member to the committee to ensure that you are able to have a quorum of four members present for the defense. Only members present for the defense can vote on whether the thesis was successfully defended.

**THESIS PROPOSAL**

Within six months of passing the General Examination the student will submit a thesis proposal and present it to the TC for approval. The proposal should outline what will constitute the thesis, the key questions for each topic, the background of the problem, and the goals of the research. Example thesis proposals from previous years are available here. The TC will consider the worthiness and feasibility of the proposed research, whether the proposal has the potential to demonstrate the candidate’s ability to contribute to the field, and whether there are resources available for appropriate supervision and execution. Once the proposal is approved by the TC the proposal must be filed in the Education Office. The thesis proposal that is submitted to the Education Office should include this form as well as an abstract for the thesis.

Failure to submit a thesis proposal to the Education Office at the six-month mark will result in a warning from the Department. Continued failure to submit a thesis proposal one year after passing the General Examination will result in a warning of poor progress from the Vice Chancellor. Further delay in submitting a thesis proposal will result in denial of registration.

**COMMITTEE MEETINGS**

It is highly recommended that the student meet with their TC at a minimum of once per year. In committee meetings the student should update the committee on the progress made on the thesis research and receive feedback from the committee. While the thesis advisor will monitor the student’s progress, the committee meetings serve as another level of oversight of the thesis and help to provide feedback to the student. Students can also meet individually with TC members between committee meetings.

**PREPARING FOR AND SCHEDULING A THESIS DEFENSE**

• Pre-defense seminar requirement for PAOC students: In the semester prior to the thesis defense, PAOC students should give a pre-defense seminar.

• Getting on the degree list: MIT awards degrees in June, February, and September. During the first week of the fall, spring, and summer terms, students who wish to
graduate submit a petition to be included on the current degree list. Petitions submitted after the deadline require the payment of a Late Fee. It is always easier for a student to leave the degree list at the last minute (no penalty involved), than to be added after the deadline.

- Selecting a Thesis Chair: Prior to the thesis defense, the student and the advisor will select a Thesis Chair. The chair may not be the advisor or the external member of the TC.

- Scheduling the Defense: Two months before defense—work with your committee members to finalize a date and time the committee is available for the defense.

- One month before defense—meet with committee members to discuss your thesis draft and receive feedback.

- Two weeks before defense—get copies of the thesis to all members of the committee. The student will also submit a copy of the thesis to the EAPS Education Office along with the Defense Notice form. The Education Office will then publicize the defense on department calendars and in Building 54. To help guide you through the process a Thesis Defense. The Checklist is found here.

### THESIS DEFENSE

All members of the TC must be present at the defense, either in person or via teleconferencing (in person is encouraged). The defense consists of a public oral presentation of results followed by one or two rounds of questioning, as determined by the Chair of the TC. After the thesis defense, the advisor will submit the signed sheet stating the TC’s acceptance or rejection of the thesis to the Education Office.

The doctoral thesis is presented to and defended before the TC and the greater academic community. The defense is intended to demonstrate that the student has carried out a program of independent research of a creditable standard and that they can present the results coherently.

Defenses should be conducted on the MIT campus during normal working hours. Permission to give a defense completely virtually must be requested from the CEP. The student makes a 45-to-60-minute presentation of the chief results and conclusions of the research. This presentation is open and may be attended by other students and staff members. General discussion and questions from the audience may follow this presentation. Examination by the TC is done in private after the public presentation, although the chair may invite interested staff or visiting faculty to remain as observers. All members of the TC shall vote on the acceptability of the thesis and its presentation.

Opinions and impressions of faculty and staff observers also present at the defense are welcome and encouraged. However, only members of the TC may vote and a majority vote is necessary to pass. A quorum for the meeting requires that the minimum membership of the TC, as defined earlier in this document, must be present. A member of the TC must be present at the defense (either in person or via teleconferencing) to register a vote. Any comments or opinions offered by a member of the TC prior to or immediately following the Defense are not equivalent to a vote on the acceptability of the thesis.

Dissatisfaction with the written thesis may result in required rewriting. In this case, a new defense may or may not be required but the TC must certify that the work has been done before the thesis is accepted and the degree awarded. Failure could result in termination from the program or a requirement that additional work be carried out by the student on the thesis project, in which case a new defense must be scheduled but with as many of the original TC members as is possible.
THESIS DEFENSE OUTCOMES

- **Pass:** the student has passed the thesis defense. The TC may have some edits for the written thesis that they will give to the student to update. The student will work with the advisor to complete any updates and then the student will submit the final thesis to the EAPS Education Office.

- **Dissatisfaction:** this requires major rewriting of the thesis. The TC will determine if the student is required to complete another thesis defense or not. In this case the TC must review the updated work and vote to determine if the rewritten work results in a pass for the thesis. The TC will inform the Education Office if the student passes or fails the thesis.

- **Failure:** there are two possible outcomes for failure. The first is termination from the Ph.D. program. The second is that the TC recommends the student carry out additional research to enhance the thesis project. In this case a new defense will be scheduled. The TC membership should remain the same as in the original defense. Only in extenuating circumstances approved by the CEP will substitutions be allowed to committee membership.

THESIS SUBMISSION

After successfully defending the thesis and making any required changes the student will submit two copies of the thesis to the EAPS Education Office. A checklist of thesis submission requirements is found here.

Students will follow the MIT Specifications for Thesis Preparation available on the MIT Libraries website here: http://libraries.mit.edu/archives/thesis-specs/. The only exception to these guidelines is on the signature page. An EAPS thesis will have the signature of the Department Head in place of the Graduate Officer as indicated in the MIT Guidelines.

The two copies of the thesis that the student submits to the EAPS Education Office must be unbound. You will also submit two additional copies of your title page to the EAPS Education Office when you turn in your thesis. When you submit your thesis bring the receipt indicating that you paid the thesis fee and the EAPS Education Office will reimburse you for the fee.

The EAPS Education Office announces via email at the beginning of each term the deadline to submit thesis to the EAPS Education Office in order to receive your degree for that term. Failure to submit thesis by this date will result in removal from the degree list.

LEAVING WITH A MASTER OF SCIENCE DEGREE

Occasionally students may decide to withdraw from the doctoral program and leave with a Masters Degree. All masters students are required to complete the degree requirements for the Master’s Degree including courses and thesis, which can be found here. If a student decides to leave with a Masters Degree the EAPS Education Office must be informed so that the appropriate changes may be made to the student’s record in the Registrar’s Office.

DOCTORAL FUNDING

Students are funded via a Graduate Student Appointment. Appointments are either Fellowships, Research Assistantships, or Teaching Assistantships. A full appointment covers tuition, health insurance and a stipend. Stipend rates are set each year by the Office of the Vice Chancellor in consultation with the Provost, the Chancellor, the School Deans, and upon the recommendation by the Graduate Student Council Stipends Committee. Stipend information may be found here: https://oge.mit.edu/graduate-admissions/costs-funding/stipend-rates/.
**FELLOWSHIPS (FE)**

- Fellowships are generally nine-month appointments (September—May) though some may be for only one term.
- It is important for US domestic students to know that tax is not withheld from fellowship stipend payments. Students will need to review their own tax situation to determine how much income to save for tax season.

**RESEARCH ASSISTANTSHIP (RA)**

- RA appointments are generally for the academic year plus the summer. All students are on RA appointments for the summer regardless of academic year appointment. Further information on RA appointments may be found here: https://oge.mit.edu/gpp/assistance/rata/research-assistants/.

**TEACHING ASSISTANTSHIP (TA)**

- Some TA appointments are available during the academic year (September—May). The Associate Department Head and Education Office review class offerings to determine the eligibility of a class to receive TA support and inform the faculty teaching the class of the level of TA support the class will receive. Faculty then solicit students to TA their classes.
- The duties of a TA include but are not limited to: assisting faculty with grading, providing instruction in class, lab or recitation, preparing lab apparatus and materials, assisting with course web-based materials, etc. TA appointments are expected to require no more than 20 hours of work per week. For more information on TA appointments please see: https://oge.mit.edu/gpp/assistance/rata/instructor-and-teaching-assistants/.
- Students serve as TAs for either pay or for credit. If for credit, then students should register for 12.446 (Teaching Experience in EAPS) for the number of units appropriate for the class they are teaching in (e.g., serving as TA for 12.306, a 12-unit class, would mean registering for 12 units of 12.446 but serving as TA for 12.12, a 6-unit class, would mean registering for 6 units of 12.446). Students can register for fewer units if they are part-time. Those students serving as TAs for pay should register for 1 unit of credit in 12.446.
- Further information about Graduate Student Appointments may be found here: https://policies.mit.edu/policies-procedures/80-graduate-student-appointments.

**STUDENT RESEARCH FUND (SRF) AND HOUGHTON FUND**

The Student Research Fund is available to help students in Geology, Geobiology and Geochemistry, Geophysics, and Planetary Science conduct research on special projects in cases when other means of department or faculty support are not available. Requests to help support travel to disciplinary meeting for the purpose of presenting research results are also funded. A request for proposals is sent out twice a year, at the beginnings of the Fall and Spring terms. The funds are awarded by the CEP on the basis of need and merit of the project and are usually in the range of $200-$1000, but higher amounts will be considered. The SRF has a fixed amount of money that can be distributed over the academic year. Applications for the SRF funds must indicate advisor approval of the project and their ability to contribute funds. The Houghton Fund serves a similar purpose for PAOC students.
MASTERS PROGRAM

FIFTH-YEAR MASTER OF SCIENCE DEGREE

MIT undergraduates in EAPS and closely allied disciplines of study at MIT are eligible to apply to the EAPS Fifth-Year Master of Science Program. The Fifth-Year Masters may be completed simultaneously with the SB or after the SB has been completed. These students are expected to finish all degree requirements of a Traditional Masters degree (see Traditional Master of Science Degree below) within two academic terms, but continuation into a final summer term to complete thesis is acceptable. Any further extension beyond an additional summer term requires the permission of the Committee on the Education Program (CEP). Permission may be obtained by submitting a petition to the CEP that details why an extension is needed, when completion of the program is expected, and the signature of the student’s faculty advisor indicating support for the petition. Petitions should be submitted to the Academic Administrator in the EAPS Education Office.

If you receive your Bachelor and Masters degrees sequentially, you will write two theses. The two theses differ in depth and independence, but your undergraduate thesis or independent research project can serve as the nucleus for your master thesis. If you receive your Bachelor and Master’s degrees simultaneously, EAPS and MIT will accept your master’s thesis as fulfillment of the undergraduate requirement, but you will still have to register and receive credit for 12.TIP and 12.THU. For simultaneous award of Bachelor and Masters Degrees, the student must (1) be an undergraduate MIT student who is enrolled as a candidate for the bachelor’s degree, (2) must apply for graduate admission in the traditional way, and (3) must register as a full-time regular graduate student for a minimum of one regular academic term.

Note that students can take graduate classes while still an undergraduate. You will initially receive undergraduate credit, but after your admission to the SM, you can petition to have the credit converted to graduate credit. The courses chosen must not have been counted for your undergraduate degree audit.

TRADITIONAL MASTER OF SCIENCE DEGREE

OBJECTIVES

- To equip the student with a solid background in earth, atmospheric and planetary sciences.
- To train the student to have strong quantitative problem-solving abilities.
- To allow the student to pursue deeper study of a specialized area of earth, atmospheric, or planetary sciences by completion of original research via the thesis.

PROGRAM AND GRADES

- Completion of at least 66 units of subjects (excluding thesis units). Students are permitted to take subjects offered in other departments to supplement the EAPS offerings. Satisfactory performance is defined as a grade point average of 3.5 or higher, and a grade of “A” or “B” in subjects related to the student’s program of study. Information on grade definitions and grading policies may be found here: https://registrar.mit.edu/classes-grades-evaluations/grades. Students will register for a minimum of 36 units per academic term (24 units if enrolled for summer term).
- Completion of a master’s level thesis and thesis defense. Students have the option for a private or a public thesis defense.
MASTERS THESIS TIMELINE

- Before the Add Date (see the Institute academic calendar) in the first term of study, the student should form a Thesis Committee (TC) that is composed of the student’s advisor and at least two members of the EAPS faculty. Senior and Principal Research Scientists in EAPS may also serve on the TC. A Thesis Committee Form should be submitted to the EAPS Education Office by Add Date in the first term for approval by the CEP. Along with the committee form, students should include a title and abstract for their thesis topic.

- A copy of the thesis must be given to all members of the TC two weeks prior to the thesis defense.

- The thesis defense must be scheduled at least two weeks prior to the date the final thesis is due to the EAPS Education Office.

- All members of the TC must attend the defense in person or by video conferencing. The defense will consist of an oral presentation by the student of at least 30 minutes detailing the results of the thesis. The presentation will be followed by two rounds of questioning by the TC. After the defense the Thesis Chair will submit a signed form indicating the TC’s acceptance or rejection of the thesis as well as a letter grade to the EAPS Education Office.

- The Education Office will announce, via email, at the start of each academic term the date that the final thesis (approved by your committee) must be submitted with signature of the student and the advisor to the EAPS Education Office.

TRANSITION FROM MASTERS TO DOCTORAL PROGRAM

After a student has started a Masters program in EAPS, the student and advisor might decide that a move into the doctoral program would be appropriate or desirable. This change in status requires the completion of all the requirements for the Masters program. The student should consult with the Education Office on how to submit an application for review by the CEP no earlier than one month prior to the student’s defense of the master’s thesis. In all cases the application must be submitted before the finished master’s thesis is given to the Education Office. New GRE scores are not required and scores from the previous application should be included on the application for reference. A total of two letters of support are required: one from the masters research advisor and one from the proposed advisor for the doctoral research. If the same person will be the advisor for both projects, a faculty member familiar with the student’s work should write the second letter. The Masters thesis can be used as one research project for the General Exam, but this option should be discussed among the student, advisor, and the members of the general exam committee.

MASTERS DEGREE FUNDING

Funding is not guaranteed to Masters students. If an advisor chooses to fund a student, please note that funding could change from term to term depending on availability of funds. An advisor may be able to fund a Masters student for the entire program, unable to fund them at all, or be able to fund a student for a term or two depending on resources. If financial support is available it will come in the form of either a Research Assistantship (RA) or a Teaching Assistantship (TA) that will cover tuition, stipend and health insurance. If a student has an external fellowship, that may be used to cover all or part of the educational expense.
## ADDITIONAL INFORMATION

### VACATION

Students receive two weeks of paid vacation per year. You should work directly with your supervisor for vacation approval. More information on vacation policies are found in section 8.3.2 here: https://policies.mit.edu/policies-procedures/80-graduate-student-appointments/83-appointment-procedures/.

### CHILDBIRTH ACCOMMODATION AND PARENTAL LEAVE

Students may take Childbirth Accommodation and/or Parental Leave per the guidelines established by the Office of Graduate Education here: https://oge.mit.edu/gpp/registration/changes/childbirth-accommodation-parental-leave/.

EAPS has lactation room located in building 54 on the 8th floor.

### MEDICAL LEAVE POLICY

Any registered student may request a Medical Leave. Medical Leave will be granted when a student is unable to, or chooses not to, participate in campus life for reasons of physical or mental health. More information can be found here. https://oge.mit.edu/gpp/admissions-and-registration/registration-changes/medical-leave-and-return-policy/

### INTERNSHIPS

Internships are an excellent opportunity for students to gain exposure to industry and research opportunities outside of MIT. In general Ph.D. students should only pursue internships after the completion of the General Examination. If an internship opportunity is pertinent to the student’s General Examination research, then a request to participate in an internship prior to the General Examination should be submitted to the CEP.

International students must meet with the International Students Office (ISO) for authorization to participate in an internship. You will be required to register for one unit of 12.44 (Practical Experience). Please note that in the summer term tuition will be charged per unit for 12.44. Discuss with your advisor if they will cover this tuition charge for the internship before you commit to the internship.

### VETERAN BENEFITS

For more information on being an enrolled veteran and veteran's benefits for graduate students, please visit: https://oge.mit.edu/community-diversity/communities-networks/veterans/ and https://oge.mit.edu/gpp/funding-compensation/veteran-benefits/
APPENDIX A: ACRONYMS

DEPARTMENT ACRONYMS

CEP: Committee on the Education Program
CGCS: Center for Global Change Science
EAPS: Department of Earth, Atmospheric, and Planetary Sciences
ERL: Earth Resources Laboratory
E-SAC: EAPS Student Advisory Council
ESI: Environmental Solutions Initiative
G3: Program in Geology, Geobiology and Geochemistry
JP: Joint Program in Oceanography
PG: Program in Geophysics
PAOC: Program in Atmospheres, Oceans, and Climate
PPS: Program in Planetary Science
RA: Research Assistantship
REFS: Resources for Easing Friction and Stress
SRF: Student Research Fund
TA: Teaching Assistantship
TC: Thesis Exam Committee
WHOI: Woods Hole Oceanographic Institute
WiXII: Women in Course 12

MIT ACRONYMS

A listing of MIT acronyms may be found at this site: https://wikis.mit.edu/confluence/display/ACRONYMS/Acronyms+Home/.
APPENDIX B: TIMELINE TO THE DOCTORAL DEGREE

All Years

- Meet regularly with advisor to discuss research and classes

First Year

- Meet with pre-thesis faculty mentor once in Fall Term and once in Spring Term
- Register for 36 units per term (24 units in summer), including Current Research (12.970 or 12.971)
- First year students are encouraged to take the EAPS First Year Graduate Seminar (12.900)
- Begin first and second research projects for the General Examination (usually the second project is started later than the first project)

Second Year

- Meet with pre-thesis faculty mentor once in Fall Term and once in Spring Term
- Register for 36 units, including Current Research (12.970 or 12.971)
- Submit General Examination Proposal with proposed Committee Membership to the Education Office by the fall semester “Add Date,” generally the first week of October (see Academic Calendar).
- Take General Exam in May at the end of the Spring Term
- Once pass general exam, register for 12.THG instead of 12.970/12.971

Third Year

- Register for 36 units per term (24 units in summer), including 12.ThG
- Prepare Thesis Proposal in consultation with your advisor
- Establish Thesis Committee and defend Thesis Proposal within 6 months of passing the General Exam
- While you can continue to meet with your pre-thesis mentor after your Thesis Proposal, mentoring from faculty other than your advisor will be provided by your Thesis Committee

Fourth Year

- Register for 36 units per term (24 units in summer), including 12.ThG
- Continue with thesis research

Fifth Year

- Register for 36 units per term (24 units in summer), including 12.ThG
- Continue with thesis research
• Apply to be on the degree list
• Prepare for thesis defense
• Schedule thesis defense
• Submit thesis document
GENERAL EXAMINATION PROPOSAL FORM

Student Name (please print)

Title Paper 1:

Advisor for Paper 1:

Title Paper 2:

Advisor for Paper 2:

Committee

The exam committee consists of at least four members from the EAPS faculty, lecturers, and senior research staff (Principal and Senior Research Scientists). Members should include the student’s research advisor, the second paper advisor, a member from a specialty different from that of the student, and a predominant number of faculty from EAPS. Members are chosen so that the committee represents a sufficiently broad spectrum of research specialties to ensure a ‘general’ rather than a ‘topical’ examination.

Nominate two members to be on your examining committee in addition to your advisor and second-paper advisor, giving their full names and titles:

Proposed first additional member: ______________________________

Proposed second additional member: ______________________________

Signatures

Signature of Applicant: ______________________________________ Date: __________

Signature of Advisor: ______________________________________ Date: __________

Signature of Advisor for second paper: __________________________ Date: __________

Attach brief abstracts for the research papers to this form. Each abstract should not exceed 250 words. You may also add a brief rationale for why the two paper topics should be considered to “address problems in significantly different specialties”. If you want to take the exam at a time other than the default General Exam period in May, please also add the requested date and an explanation for why a different date is needed.

Return the completed proposal and abstracts to the EAPS education office by the add date of the semester prior to the exam (usually this will be the add date of Fall semester).

Approval of Graduate Officer: __________________________ Date: __________
APPENDIX D: THESIS COMMITTEE PROPOSAL FORM

Student Name: ________________________________
Advisor Name: ________________________________
Date: ________________________________

This form may be submitted for notification related to either requirement below. Complete the appropriate section(s). Return the form to the Education Office.

COMPOSITION OF THESIS EXAMINATION COMMITTEE

This is a: _____ New _____ Amended _____ Previous composition for the committee. Submit this form at any time to change the membership of your thesis committee.

Committee Member * ________________________________ Thesis Advisor
Committee Member * ________________________________ EAPS faculty member within program area
Committee Member ________________________________ [optional]
Committee Member * ________________________________ EAPS faculty member, outside program area
Committee Member ** ________________________________ Committee member outside of EAPS

* required members of a committee for a masters thesis
** may be identified at any time prior to thesis defence

APPROVAL OF THESIS PROPOSAL

Before the start of your 6th term you should present a thesis proposal to your committee for approval. Their acceptance of your proposal is indicated by your advisor’s signature below. Please attach an abstract of your proposal. If there is no change in your committee membership, and all members were involved in approving the proposal you do not have to list them above. If not all were involved in the approval, please list those members who were present.

Committee Meeting Date:________________________

Advisor Signature ________________________________ Print Name ________________________________
This form must be submitted to the department Education Office, 54-912, at least 2 weeks prior to the defense.

NOTICE

Doctoral Dissertation Defense of Thesis Entitled:

by:

A public presentation of the thesis will be given by the candidate.

DATE: ______________________
TIME: ______________________
PLACE: ______________________

CHAIR OF THE DEFENSE: Prof. Name, MIT, EAPS

THESIS COMMITTEE: Prof. Name, MIT, EAPS, Advisor
Prof./Dr. Name, School/Company
Prof./Dr. Name, School/Company
Prof./Dr. Name, School/Company

Copies of the thesis may be obtained from the EAPS Education Office (54-912).

All interested faculty, staff and students are invited to attend.

We certify that each thesis committee member has received a draft of the complete thesis and has approved the scheduling of a formal defense.

Advisor Signature ______________________ Date ______________________ Advisor Signature ______________________ Date ______________________
APPENDIX F: DEPARTMENTAL CONTACTS

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