



**Graduate Student Handbook of
ACADEMIC POLICIES**

Department of Earth and
Planetary Sciences (EAPS)

Dartmouth College
Hanover
NH 03755

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Introduction

This document is intended to clarify how the Department of Earth and Planetary Sciences (hereinafter “EAPS” or “the Department”) implements the degree requirements defined in the Dartmouth College Bulletin of [Organization, Regulations, and Courses \(ORC\)](#). **The ORC is the authoritative document that defines the degree requirements. If the ORC and this document are in conflict, the ORC supersedes this document.**

In addition, the [policies](#) implemented by the Guarini School of Graduate and Advanced Studies (hereinafter the Guarini School) apply to all the graduate students in the Earth and Planetary Sciences graduate program.

The EAPS Department Graduate Coordinator and Department Chair update this document each year based on faculty discussions and voting throughout the year.

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Key Dates

Important dates for MS Students

Year 1	April 1st Submit names of committee members to the Graduate Coordinator	Last day of Spring classes Submit full draft of thesis proposal to committee and EAPS 203 Instructor(s)	June 30th Submit thesis proposal signed by committee to the Graduate Coordinator
Year 2	Fall or Winter term Meet with the thesis committee and review progress; a signed summary of this meeting should be sent to the Graduate Coordinator	Late April/Early May Get thesis committee approved by the Guarini School	Prior to Scheduling Defense Meet with Graduate Coordinator to ensure all requirements satisfied

Important dates for PhD Students

Year 1	April 1st Submit names of summer research committee members to the Graduate Coordinator	Last day of Spring classes Submit full draft of summer research proposal to committee and EAPS 203 Instructor(s)	June 30th Submit summer research proposal signed by committee to the Graduate Coordinator
Year 2	End of Fall term Meet with the summer research committee and review progress; a signed summary of this meeting should be sent to the Graduate Coordinator; student receives literature papers from committee (max 6 papers) for oral qualifying exam		Prior to May. 1st Present and defend results of summer research project, complete oral qualifying exam
Year 3			Prior to May. 1st Get thesis committee approved by the Guarini School; write and

			present thesis proposal to committee; submit copy of thesis proposal signed by committee to the Graduate Coordinator
Year 4/5/6	Prior to June 1st Yearly committee meeting-20 min. Presentation; submit summary paragraph signed by advisor to the Graduate Coordinator		Prior to Scheduling Defense Meet with Graduate Coordinator to ensure all requirements satisfied

Guarini School Deadlines

Term	Signed thesis to Guarini by:	To graduate on:
Summer	15 August	15 September
Fall	1 October	3 November
Winter	1 February	2 March
Spring	15 May	9 June

1) Advanced Degrees in Earth and Planetary Sciences

- a) **Degrees offered:** The EAPS Department awards both M.S. and Ph.D. degrees in Earth and Planetary Sciences. The M.S. and Ph.D. degrees alike require a solid background in the Earth and Planetary Sciences. Accordingly, many aspects of the curriculum and committee selection, as well as academic requirements and regulations given below, apply to both degrees. The main differences between the degrees are the scope and depth of the thesis investigation, depth of knowledge in the disciplines that most closely relate to the thesis, and level of independence in carrying out the research.
- b) **Expectations of publication:** Both the M.S. and Ph.D. degrees at Dartmouth require a written thesis. The M.S. degree is a professional degree, and the M.S. thesis is expected to report on research that is ultimately worthy of peer-reviewed publication. A Ph.D. thesis is expected to report on research worthy of three or more peer-reviewed publications, the majority of which should be published or in review/revision by the time of completion of the Ph.D.
- c) **Grading in graduate courses:** The following grades are used in graduate-level courses: HP (high pass), P (pass), LP (low pass), and CT/NC (Credit/No Credit). Credit/No Credit is assigned for EAPS 181-183 (thesis

research), EAPS 185 (field instruction), and EAPS 189 (undergraduate teaching). [Consult the ORC for explanations of these grades](#). When graduate students take undergraduate courses, grades of C+ and lower will be considered a low pass. If a student receives two low passes, their status in the program will be reconsidered, and dismissal from the graduate program is an option, [as explained in detail on the Guarini webpage](#).

- d) **Program deadlines and reasonable progress:** If a graduate student fails to meet key program deadlines or fails consistently to make reasonable progress toward completion of assigned research and coursework, they may also be subject to dismissal from the graduate program, [as explained here](#).

2) Advisory Committee, Course Registration/Enrollment, and Courses Outside of Dartmouth

- a) **Initial advising:** At the beginning of fall term, first-year graduate students meet individually with their academic advisor to discuss their individual course of study for the year and beyond. The graduate school requires that a student always have a thesis committee. Until a graduate student's regular thesis (or summer research) committee is named during the spring term of the first year of residency, the Graduate Coordinator and Department Chair will serve as default members of the committee and will be available to the graduate student for academic advising. In the case that the advisor also serves as either the Graduate Coordinator or Department Chair, the Graduate Liaison will serve as a member of the committee.

In preparation for the initial meeting with one's advisor to identify a tentative course schedule, each student is encouraged to fill out the Departmental curriculum form attached at the end of this document, listing college-level science courses one has completed and the courses one proposes to take during the next two academic years. The student should consider what courses previously taken may be used to fulfill program prerequisites and requirements.

Whether a course taken elsewhere can be used to fulfill program prerequisites and requirements is determined by the Prerequisite Committee, which consists of three EAPS faculty members, during the first term a graduate student is in residence. No course taken elsewhere may count toward program prerequisites or requirements unless approved by the Committee. For determination, a student may be required to provide a copy of the course syllabus.

- b) **Change in academic advisors:** A student may request a change of academic advisors at any time. The request should be made in writing to the Graduate

Coordinator or Department Chair. This change is dependent on advisor availability, current advising load, and funding, and is granted only if all parties involved agree to the proposed changes.

- c) **Registration/enrollment requirements:** *Graduate students must enroll for three academic credits each term.* These credits may include EAPS 181-183 (Thesis Research), EAPS 185 (Teaching Field Methods), EAPS 189 (Supervised Teaching), , and any other graduate-level course. Students must enroll in EAPS 189 (or EAPS 185 for STRETCH TA) for every term during which they are working as a Teaching Assistant (TA). Note that EAPS 181 is equivalent to one course credit, EAPS 182 is equivalent to two course credits, and EAPS 183 is equivalent to three course credits. When enrolling in thesis research, students should choose only **one** of EAPS 181-183. Thus, a student taking a graduate seminar (e.g., EAPS 201), TA-ing for an undergraduate EAPS course (perhaps EAPS 1), and spending the rest of their time doing thesis research would enroll in EAPS 201, EAPS 189 and EAPS 181. A student enrolled in EAPS 178 and doing thesis research would enroll in EAPS 178 and EAPS 182. A student doing full time thesis research need only enroll in EAPS 183.

Specific coursework requirements are outlined in [Section 3](#). Otherwise, there is significant flexibility and available time for students, in consultation with their advisor and thesis committee, to customize their own graduate training. In addition to departmental offerings, the EAPS faculty recommends that students consider relevant courses in the Departments of Mathematics, Chemistry, Physics, Biology, and Computer Sciences, as well as in the Thayer School of Engineering. Course offerings from these departments are described in the ORC and on respective Departmental websites.

Please note: many upper-level courses eligible for graduate credit offered within the EAPS Department and elsewhere on campus are normally only offered in alternate years. It is recommended that students develop a tentative graduate curriculum that spans at a minimum a full two years.

- d) **Courses outside Dartmouth:** Professionally rewarding and research-relevant short courses and full-term courses that can complement Department course offerings may be offered at other institutions. The Department is willing, on a case-by-case basis, to provide financial support of up to \$1,000 for enrollment and travel in faculty-approved off-campus courses. The remainder of the costs must be covered by the advisor and/or additional funding sources. A student's request for financial support must include a written justification for the amount, a description of the course, and at least one letter of support from the student's primary advisor and/or members of the student's research committee. The Department will only provide funding for one course outside Dartmouth per student per degree.

- e) **Leave of absence:** A student undertaking a full-term course (or other pursuit) outside Dartmouth that will lead to them being off campus cumulatively for four calendar weeks or more during a term must apply to the Guarini School for a leave of absence. At least 30 days before they leave, they need to complete a '[Request for remote enrollment form](#).' For more information students should visit the [Guarini School Time Away Policy and Process](#).
- f) **Employment Outside the Department of Earth and Planetary Sciences:** International graduate students with F-1 nonimmigrant status are limited by federal regulations to no more than 20 hours of on-campus employment per week. For Ph.D. students, the stipend is considered, for immigration purposes, to be employment and is subject to the 20-hour limitation. This means that international Ph.D. students are not eligible for additional on-campus work during academic terms.

3) Requirements and Guidelines for M.S. and Ph.D. Degrees

- a) **Prerequisites for M.S. and Ph.D. degrees:** To be considered for admission to the Earth and Planetary Sciences graduate program a prospective student must have completed an undergraduate science major with broad background in Earth and Planetary Science, for which the coursework should have included the following:
- i. The equivalent of Dartmouth courses [Math 3](#) and [Math 8](#).
 - ii. The equivalent (or higher level) of any **two** of the following Dartmouth course sequences:
 1. [Chemistry 5](#) and [6](#);
 2. [Physics 3](#) and [4](#) (or [13](#) and [14](#));
 3. [Biology 11](#) and [16](#)

If a student is admitted into the graduate program without having completed such courses, the student must fulfill these prerequisites in addition to the specific degree requirements described below. Courses taken to satisfy the EAPS graduate program prerequisites do not count towards the courses required for M.S. or Ph.D. degrees. The following are additional ways that students can satisfy these prerequisites.

- **AP Credits:** An AP Chemistry or Physics exam with a score of 5 and/or AP credit given at the student's undergraduate institution will count for the first course of the two-course sequence - i.e., [CHEM 5](#), [PHYS 3](#).
- **Upper-Level Courses Taken at Dartmouth and Elsewhere:** If a student takes or has taken an upper-level Chemistry, Physics or Biology course that requires one of the courses above as a prerequisite, that course can be substituted for a lower-level prerequisite course on a 1:1 basis for courses taught in the same department. For example, if a student takes [CHEM 75](#) (Physical Chemistry 1) which has a prerequisite of Chemistry 6, then CHEM 75 can fulfill the Chemistry 6 requirement.
- **Upper-Level EAPS Courses:** Of the four required courses above, one course in a given two-course sequence for subject X can be replaced by an upper-level Geo-X course in the same subject taken at Dartmouth. This is typically the second course of the two-course sequence. Specifically, EAPS 162 (Geochemistry), EAPS 151 (Isotope Geology), and EAPS 154 (Soil and Water Chemistry) may be taken instead of the second chemistry course. EAPS 164 (Geophysics) and EAPS 167 (Geomechanics) may be taken instead of the second physics course. EAPS 172 (Geobiology) may be taken instead of the second biology course. As noted above, if an upper-level EAPS course is used

to satisfy a prerequisite, it cannot also count towards the M.S. or Ph.D. degree requirements.

- b) **Core curriculum for both M.S. and Ph.D:** All first-year graduate students are required to enroll in EAPS 201, 202 and 203 in sequence, offered in fall, winter and spring terms each year, respectively. These courses are intended to aid in the development of critical research and professional skills, including coding and statistics, pedagogy, science communication, public speaking, and grant/proposal writing. In special cases (required field seasons during one of these terms, for example), one or more of these courses may be delayed to the second year.
- c) **Professional Ethics training:** This required training is incorporated into EAPS 201 and it is expected that all students will attend the ethics sessions in EAPS 201.
- d) **Teaching Assistants (TAs):** Each graduate student is required to TA at least one course during each year of their graduate degree. To fulfill this requirement, graduate students must be enrolled in either EAPS 185 (for STRETCH TAs) or EAPS 189 during **every** term in which the student serves as a TA.
- e) **CPR/First Aid training:** The EAPS Department encourages all graduate students to complete first aid training, ideally in the first year of their graduate degree. CPR/First Aid classes are offered through [Dartmouth EMS](#). Graduate students who serve as TAs on the Stretch are required to have Wilderness First Aid (WFA) certification. The department will organize and support this course for all Stretch TAs.
- f) **Approved Driver Program:** Graduate students may be required to drive a college vehicle as an 'Approved Driver'. Information to become an Approved Driver can be found on the Transportation Services' [Driver Safety Program](#) website. TAs on the STRETCH are required to be Approved Drivers and know how to drive a van towing a trailer. Please contact the Stretch Program Coordinator for information on the trailer towing training program.
- g) **Individual Development Plan (IDP):** An IDP ([see example here](#)) is useful for articulating and accomplishing course and research goals, assessing communication between a student and an advisory committee, and promoting overall well-being and success in the program. An IDP form will be provided to each graduate student by their advisor annually (minimum). After the form is completed by the student and advisor, they should meet and discuss the form.

h) Specific Requirements for M.S. Students:

- i) **M.S. Course Requirements:** The M.S. requires a total of at least six (6) graduate-level courses, including:
- **EAPS 201, 202 and 203**
 - **EAPS 117 (Statistics for Earth and Planetary Scientists)**: Note that this course requirement can be waived if the student has completed 2 college-level statistics courses, one of which may be an AP Statistics score of 4 or 5.
 - **At least two additional courses carrying graduate credit:** These courses do not technically need to be EAPS courses ([per the ORC](#)), but typically are mostly EAPS courses. Of these, **one** may be from the EAPS 270–276 series (topical literature). Courses **not** eligible for course credit toward a graduate degree include Thesis Research (EAPS 181-183), Teaching Field Methods (EAPS 185), and Supervised Teaching in Earth and Planetary Sciences (EAPS 189). With approval from their thesis committee, a M.S. student may transfer no more than 1 course credit from another institution to count toward fulfilling these requirements.
- ii) **Complete the equivalent of three terms (nine course credits) of thesis research for registered credit (EAPS 181-183):** See [section 2c](#) for additional details regarding EAPS 181-183.
- iii) **Submit names of the thesis committee to the Graduate Coordinator:** Additional information on committee membership is given in [Section 4](#). This should be completed by April 1st of a student's first year.
- iv) **Submit a thesis proposal:** The submitted thesis proposal must be signed by all members of one's committee, signifying their approval. This document should be prepared in close collaboration with one's research advisor while taking EAPS 203. A completed draft of the thesis proposal is due to the student's committee and EAPS 203 instructor(s) by the last day of class. Once the committee approves the proposal, **a copy of the signed thesis proposal cover page should be emailed to the Graduate Coordinator by June 30th.**
- v) It is expected that, at a minimum, a student will **meet with the Dartmouth members of their committee at least once** during the fall or winter term of their 2nd year to give a 20-minute presentation on the progress of their research. After this presentation, the committee will discuss the student's progress and determine what is required to ensure that they maintain satisfactory progress. **It is the graduate student's**

responsibility to prepare a short summary of this meeting, and submit a copy, signed by the student and their advisor, to the Graduate Coordinator.

- vi) **Obtain thesis examining committee approval by the Guarini School:** Submit to the Guarini school a completed "[Master's Examination Committee Approval Request](#)" form, available on the Guarini School "[Thesis and Dissertation Forms](#)" webpage. This must be completed well before scheduling your thesis defense, and requires signatures from your advisor, the EAPS Graduate Coordinator, and the Guarini School.
- vii) **Complete a thesis of professional quality:** A near-final draft of the thesis is due to the committee members at least two weeks prior to the scheduled defense. **Be sure to follow ALL [formatting requirements](#) listed on the Guarini School "[Thesis and Dissertation Forms](#)" webpage (see "[Thesis Guidelines](#)" on that page).** A near-final **draft of the thesis is due to the committee members at least two weeks prior to the scheduled defense.**
- viii) **Meet with the Graduate Coordinator before scheduling your thesis defense:** Before you can schedule your final M.S. thesis defense, you must meet with the Graduate Coordinator to review your academic record to ensure you have met all of your degree requirements. Once it is determined that you have met all the degree requirements, and after you pass your oral defense, the Graduate Coordinator will prepare the [Degree Certification form](#).
- ix) **Pass a final oral defense of the thesis before the Thesis Committee:** All other members of the faculty are encouraged to attend this defense. The thesis defense will be preceded by a public oral presentation of the student's research, giving all faculty and students a chance to ask questions or offer comments. No defense may be scheduled until: a) the thesis examining committee is approved by the Guarini School (see section vi above); b) the Graduate Coordinator has agreed that you have satisfied all degree requirements (see section viii above). See [Section 5d](#) for more information about the defense.
- x) **Email a copy of your Thesis cover page with all Committee Member signatures to the Graduate Coordinator:** Once you successfully defend your thesis and your Committee has officially signed your Thesis cover page (signaling final approval of your written thesis), email a digital copy of the signed cover page to the Graduate Coordinator. Leave the Guarini Dean signature line blank. Signatures MAY be digital signatures (e.g., you don't need committee members to sign hard copies). Ideally, the electronic signatures should be high-resolution versions of an actual signature. The Graduate Coordinator will then email your signed cover

page along with the Degree Certification Form to the Guarini School and cc the student and advisor.

- xi) **Submit *signed* PDF copy of the final thesis to the Guarini School for editorial review:** Details on the [required formatting](#) of theses are available on the Guarini website. Pending editorial approval of one's thesis by the Guarini School, the student will **upload the final version of their thesis to the [Dartmouth Digital Commons](#)** through the Guarini "Graduation Portal".
- xii) **Complete all "Exit Forms" for the Guarini Graduate School:** These forms can all be found on the Guarini School "Graduation Portal".
- xiii) **Complete departmental off-boarding process:** This includes:
 - 1. Clean out your office space and remove all personal belongings.
 - 2. Schedule a walk-through of your office space with Robyn Harris.
 - 3. Schedule a walk-through of your lab space with Joshua Landis. Make sure your lab space is clean and that no materials, samples, or equipment are left behind. All lab notebooks should be left with your PI, and all data should be [archived](#).
 - 4. If the laptop you have been using is Dartmouth-owned, let Robyn Harris know (see Workplace handbook).
 - 5. Return any keys, access cards, or other Dartmouth-issued items to Robyn Harris.
- xiv) **Optional bound copies of the thesis:** Directions for obtaining personal bound copies of the thesis are given when the thesis is uploaded. A credit card must be used. Any remaining student research funds can be used for extra copies.

i) **Specific requirements for Ph.D Students.**

- i) **Ph.D. Course Requirements:** The Ph.D. requires a total of at least nine (9) graduate-level courses, including:
 - **EAPS 201, 202 and 203**
 - **EAPS 107 (Mathematical Modeling of Earth Processes)**
 - **EAPS 117 (Statistics for Earth and Planetary Scientists):** Note that this course requirement can be waived if the student has completed 2 college-level statistics courses, one of which may be an AP Statistics score of 4 or 5.

- **One upper-level Science or Engineering course outside the Department** eligible for graduate credit and **approved by the committee.**
 - **At least three additional courses carrying graduate credit:** These courses do not technically need to be EAPS courses ([per the ORC](#)), but typically are mostly EAPS courses. Of these, **two** may be from the EAPS 270-276 series (topical literature), including the same course twice. Courses **not** eligible for course credit towards a graduate degree include Thesis Research (EAPS 181-183), Teaching Field Methods (EAPS 185), and Supervised Teaching in Earth and Planetary Sciences (EAPS 189). At the discretion of the thesis committee, some courses below the 100 level from outside the Department (particularly ENGS) may be counted towards this requirement in addition to the single course required from outside the EAPS Department (see bullet directly above).
- ii) **Submit names of the summer research committee to the Graduate Coordinator:** Additional information on committee membership is given in [Section 4](#). This should be completed by April 1st of a student's first year.
 - iii) **Submit a summer research project proposal:** The submitted summer research project proposal must be signed by all members of one's committee, signifying their approval. This document should be prepared in close collaboration with one's research advisor while taking EAPS 203. A completed draft of the thesis proposal is due to the student's committee and EAPS 203 instructor(s) by the last day of class. Once the committee approves the proposal, **a copy of the signed thesis proposal cover page should be emailed to the Graduate Coordinator by June 30th.**
 - iv) **Successfully pass a qualifying exam set by the EAPS faculty:** See [Section 5b](#) for details on the qualifying exam, which occurs during the same time as the summer research defense. This should be completed by May 1st of a student's second year.
 - v) **Successfully present and defend the results from one's summer research project:** All members of one's summer research committee must be present at this exam. Additional information about scheduling and the nature of this defense is given in [Section 5b](#). This should be completed by May 1st of a student's second year at the same time as the qualifying exam.
 - vi) **Write and present a thesis proposal before one's thesis proposal committee:** **A draft of the thesis proposal is due to committee members at least two weeks prior to the scheduled**

meeting/presentation. While it is strongly recommended that the outside committee member be present at one's thesis proposal presentation, it is not required. Additional information about scheduling and the nature of this presentation is in [Section 5c](#). This should be completed before May 1st of your third year.

- vii) **Submit a copy of the thesis proposal,** signed by the committee, to the Graduate Coordinator. This should be completed by the end of Spring term of a student's third year.
- viii) After the third year of one's Ph.D. research, it is expected that, at a minimum, a student will **meet with the Dartmouth members of their committee** once during the fall or winter term each year to give a 20-minute presentation on the progress of their research. After this presentation, the committee will discuss the student's progress and determine what is required to ensure that they maintain satisfactory progress. **It is the graduate student's responsibility to prepare a short summary of this meeting and to provide a copy of this summary, signed by the graduate student and the advisor, to the Graduate Coordinator.**
- ix) **Obtain thesis examining committee approval by the Guarini School:** Submit to the Guarini school a completed "[PhD Examination Committee Approval Request](#)" form, available on the Guarini School "[Thesis and Dissertation Forms](#)" webpage. This must be completed well before scheduling your thesis defense, and requires signatures from your advisor, the EAPS Graduate Coordinator, and the Guarini School.
- x) **Complete a thesis meeting the highest standards of professional scholarship:** The thesis may be a series of published (or at least publishable) papers linked by appropriate text. **Be sure to follow ALL formatting requirements** listed on the Guarini School "[Thesis and Dissertation Forms](#)" webpage (see "[Thesis Guidelines](#)" on that page). A near-final **draft of the thesis is due to the committee members at least two weeks prior to the scheduled defense.**
- xi) **Meet with the Graduate Coordinator before scheduling your thesis defense:** Before you can schedule your final Ph.D. thesis defense, you must meet with the Graduate Coordinator to review your academic record to ensure you have met all of your degree requirements. Once it is determined that you have met all the degree requirements, and after you pass your oral defense, the Graduate Coordinator will prepare the [Degree Certification form](#).
- xii) **Pass a final oral defense of the thesis before the Thesis Examining Committee:** All other members of the faculty are encouraged to attend

this defense. The thesis defense will be preceded by a public oral presentation of the student's research, giving all faculty and students a chance to ask questions or offer comments. No defense may be scheduled until: i) membership of the thesis committee is approved by the Guarini School (see section x above); ii) the Graduate Coordinator agrees that you have satisfied all degree requirements (see section xi above). See [Section 5d](#) for more information about the defense.

- xiii) **Email a copy of your Thesis cover page with all Examining Committee Member signatures to the Graduate Coordinator:** Once you successfully defend your thesis and your Committee has officially signed your Thesis cover page (signaling final approval of your written thesis), email a digital copy of the signed cover page to the Graduate Coordinator. Leave the Guarini Dean signature line blank. Signatures MAY be digital signatures (e.g., you don't need committee members to sign hard copies). The Graduate Coordinator will then email your signed cover page along with the Degree Certification Form to the Guarini School and cc the student and advisor.
- xiv) **Submit one signed PDF copy of the final thesis to the Guarini School for editorial review:** Details on the [required formatting](#) of theses are available on the Guarini website. Pending editorial approval of one's thesis by the Guarini School, the student will **upload the final version of their thesis to the Dartmouth Digital Commons** through the Guarini "Graduation Portal".
- xv) **Complete all "Exit Forms" for the Guarini Graduate School:** These forms can all be found on the Guarini School "Graduation Portal".
- xvi) **Complete departmental off-boarding procedures:** This includes:
1. Clean out your office space and remove all personal belongings.
 2. Schedule a walk-through of your office space with Robyn Harris.
 3. Schedule a walk-through of your lab space with Joshua Landis. Make sure your lab space is clean and that no materials, samples, or equipment are left behind. All lab notebooks should be left with your PI, and all data should be [archived](#).
 4. If the laptop you have been using is Dartmouth-owned, let Robyn Harris know. (see Workplace Handbook).
 5. Return any keys, access cards, or other Dartmouth-issued items to Robyn Harris.
- xvii) **Optional bound copies of the thesis:** Directions for obtaining personal bound copies of the thesis are given when the thesis is uploaded. A credit card must be used. Any remaining student research funds can be used for extra copies.

4) Thesis and Exam Committee Membership

- a) **General guidelines** for the composition of one's thesis committee are given in the Guarini School Academic Policies. The student and primary research advisor will choose the other members of this committee during their first year no later than the April 1st deadline and submit these names to the Graduate Coordinator. If the student's primary advisor is a senior faculty member, then there must be at least one other senior faculty member on the committee. The composition of this committee may change as a student's academic interests evolve.

Final approval of any thesis defense committee rests with the Dean of the Guarini School. To this end, prior to scheduling the defense of one's thesis for either M.S. or Ph.D. degrees, the degree candidate must submit the names of the members of the thesis defense committee for approval by the Guarini Dean. The necessary [M.S.](#) and [Ph.D.](#) forms for this submission are available on the Guarini "[Thesis and Dissertation Forms](#)" webpage.

- b) **M.S. Advising Committees** generally consist of three faculty members from the EAPS Department (including the advisor). One of the three may be, but is not required to be, from outside the Department. With approval from the Guarini Dean, the third member of the thesis committee may be an emeritus faculty member, research faculty member, or other similar Ph.D.-level expert with a demonstrated record of active and on-going peer-reviewed research and who is qualified to critique the student's work.
- c) **Ph.D. Advising Committees** consist of a total of at least four faculty members: A minimum of three full-time Dartmouth faculty members, at least two of which must be from the EAPS Department (including the advisor), plus an external member with a faculty-equivalent appointment outside of Dartmouth. With approval from the Guarini Dean, the third Dartmouth member of the thesis committee may be an emeritus faculty member, research faculty member, or other similar Ph.D.-level expert with a demonstrated record of active and on-going peer-reviewed research and who is qualified to critique the student's work. Also, with approval from the Guarini Dean, the external committee member may be a staff scientist at a research facility (e.g., USGS, CRREL, NASA). In these cases, the external committee member should have a demonstrated record of active and on-going peer-reviewed research and should be uniquely qualified to critique the student's work. The external member may participate in meetings and defenses in person or via videoconference.
- i) Ph.D. committees sometimes evolve with different faculty members serving on the committee over the course of a student's degree. In other words, the faculty members on a Ph.D. student's committee *may* be different during their Summer Research Defense, Thesis Proposal

Defense, and/or their Final Thesis Defense. This could be due to changes in faculty member availability (e.g. retirement), the student's evolving research foci, or student preference. In the majority of cases, however, faculty membership is consistent during the entire Ph.D. degree.

- ii) Note that an external committee member is not required for the Ph.D. Summer Research Defence and Oral Qualifying Exam, but should be identified prior to the Ph.D. Thesis Proposal Defense.

5) Oral Exams and Thesis Defenses

- a) **Scheduling and procedures:** The summer research defense (Ph.D.) and the final thesis defense (M.S. and Ph.D.) should be scheduled at times when a maximum of members of the Department can attend. Students and advisors should work together to coordinate all examinations and defenses during a term (rather than during a term break) to assure best-possible attendance and departmental faculty and student participation.

To ensure a fair and appropriate process, the student can request that an EAPS Department faculty member not on the committee attend their defense and remain through the closed session as well as the committee discussions. This faculty member is often the Graduate Coordinator but can also be the Chair, Graduate Liaison, or other faculty member of the student's choosing. This faculty member may ask questions during the defense but will not vote on the outcome of the defense. In addition, any member of the EAPS faculty may attend and ask questions at the closed session of a defense.

- b) **Summer research defense and oral qualifying exam for Ph.D. Students:** Ph.D. students will arrange to present and defend their summer research results before their summer research committee. During the same closed-door defense of their summer research, the student will take an oral qualifying exam based on an understanding of the literature related to the student's subdiscipline.

Any student who does not conduct their summer-research defense and oral qualifying exam by May 1st of their second year may be dismissed from the Ph.D. program and admitted to the M.S. program, unless there are extenuating circumstances.

The summer research defense will be preceded by a public oral presentation *of the background, aims, methods, results, and conclusions* from the student's summer research. After the presentation, all faculty and students will be given a chance to ask questions or offer comments. At the conclusion of the open session, the defending student and committee will enter a closed

session. During the defense, the student's approach to research will be scrutinized for its significance, timeliness, logical coherence, and optimization of research approaches. Please note that the purpose of this exercise is for the Ph.D. student to successfully demonstrate to the faculty that they can propose, design, execute and report on a 'stand-alone' research project.

In addition to the closed oral defense of the summer research project (approximately 1 hour), time in the closed session will be given to an oral qualifying exam (up to 2 additional hours for a total ~3 hour closed defense). At the time of approval of the summer research proposal, the student will be given two papers, potentially unrelated to the specifics of the project, by each summer research committee member (with a maximum of 6 papers for students with committees larger than 3). These papers could be anything from recent papers in the field to more classic papers selected by the committee member. The qualifying portion of the exam will be devoted to discussion of these papers – the expectation is that the student will read them in detail, discuss them with committee members prior to the defense, and read very broadly around those topics to be able to answer detailed questions related to the contribution.

At the conclusion of the summer-research defense, the summer research committee will evaluate the student's performance and preparation to pursue Ph.D. degree in the following terms:

- i) Unconditionally invite the student to write and defend a Ph.D. thesis proposal;
- ii) Conditionally invite the student to write and defend a Ph.D. thesis proposal after completion of remedial action(s);
- iii) Invite the student to re-defend their research and/or take the oral exam at a later date; this option will only be made available during the first defense;
- iv) Accept the student into the M.S. program.

In the case of a conditional pass (option **5bii**, above), which is assigned if, in the committee's view, the student fails to adequately defend the results from their summer research or lacks preparation in certain areas of their Earth and Planetary Sciences background, the committee will advise remedial action. Such action may include the student's completion of additional courses, directed reading with a faculty member, assigned teaching assistantships, or additional research. It is the student's responsibility to assure that any deficiencies are made up expeditiously. **The student may not defend a thesis proposal until all recommended remedial actions are complete.**

In the event of option **5biv**, above, or in the event that a Ph.D. student fails to schedule and satisfactorily pass their summer-research defense by the appointed deadline, the student may be admitted into the M.S. program. In this event, and given successful completion of one's M.S., the student must re-apply to the Ph.D. program if they wish to continue to pursue a Ph.D. degree.

- c) Ph.D. Thesis proposal presentation:** A draft of one's proposal for Ph.D. research must be submitted to the members of one's Thesis Committee at least two weeks prior to the proposal defense. An accompanying presentation is required in front of one's thesis committee, but any student may also choose to present to the entire department. The committee-only presentation is open to any interested faculty member, and it is strongly recommended that the external committee member be encouraged to attend. The purpose of this meeting is to further evaluate and refine the thesis proposal, to make the proposal and subsequent thesis the strongest possible document.

If the committee finds that the student lacks preparation in certain areas of their Earth and Planetary Sciences background, the committee will advise remedial action. Such action may include taking additional courses, directed reading with a faculty member, assigned teaching assistantships, or additional research. It is the student's responsibility to assure that any deficiencies are made up expeditiously.

If the committee finds the thesis proposal and presentation unacceptable, the student may be given an opportunity to revise the proposal and defend it again during the next academic term. Two successive failures will automatically result in dismissal of the student from the Ph.D. program. At the discretion of the thesis committee, the student may be admitted into the M.S. program.

If a Ph.D. student has not completed their thesis proposal by May 1st of one's third year, pending any extenuating circumstances, progress in the program will be considered unsatisfactory and the student's funding may be revoked, and/or they may be dismissed from the Ph.D. program. At the discretion of the thesis committee, the student may be admitted into the M.S. program.

- d) Final M.S. or Ph.D. Thesis defense:** Candidates for M.S. and Ph.D. degrees must present a public presentation of their thesis research, followed by a private meeting with the thesis committee. **A near-final draft of the thesis must be submitted to examining committee members a minimum of two weeks prior to the defense.** Students must arrange scheduling of the defense with the committee prior to making any final arrangements with outside examiners. At the end of the closed session, the thesis committee will indicate one of the following [5 defense outcomes](#):

- i) Pass, unconditional**
- ii) Pass, conditional**
- iii) Not pass, with conditions, re-defense not required**
- iv) Not pass, with conditions, re-defense required**
- v) Not pass, unconditional**

These outcomes and their associated requirements are determined by the Guarini School, and are detailed below (see [here](#) and [here](#) for more info).

i) Pass, unconditional:

- No edits, or only minor edits, required; no additional research or analysis required.
- The student will not be enrolled in the upcoming term and will submit their final, revised as necessary, thesis by [date determined by committee].

ii) Pass, conditional:

- Significant edits required; additional, limited analysis or research might be required.
- Student is not required to redefend. Student will submit revised thesis to the Examining Committee by [date determined by committee].
- Student can enroll in one additional term to complete the required edits, analysis, and/or research.

iii) Not pass, with conditions, re-defense not required:

- Very significant revisions, and/or additional experiments, and/or analysis required.
- Student is not required to redefend. Student will submit revised thesis to the Examining Committee by [date determined by committee].
- Student can enroll in one or more additional terms to complete the required research.

iv) Not pass, with conditions, re-defense required:

- Very significant revisions required, failure to adequately answer questions, and/or additional experiments required.
- Student can enroll in one or more additional terms to complete the required research.
- Student is required to re-defend by [date determined by committee].

v) Not pass, unconditional:

- No re-defense possible for Ph.D or M.S.
- For a Ph.D. student, a Master's degree can be considered if the committee agrees.
 - If the committee agrees to a M.S. degree, the student can enroll in one or more additional terms to complete required research, degree requirements, and prepare a Master's thesis.

- If the committee agrees to a M.S. degree, student is required to defend the Master's thesis by [date determined by committee].

6) Students Holding Previous Graduate Credits and Degrees

- a) Students with graduate credits from elsewhere:** A student entering the Dartmouth EAPS graduate program with graduate credits from another institution may, at the discretion of the Graduate Coordinator, transfer up to 6 course credits towards the Ph.D. If any of these courses are identical in content to the EAPS requirements, they may be counted as such, exclusive of the EAPS 201-203 and EAPS 270-279 series. Irrespective of the number of credits transferred in this way, at least one course numbered 100-199 must be taken at Dartmouth.
- b) Students in the Earth and Planetary Sciences M.S. program at Dartmouth wanting to continue toward a Ph.D. in Earth and Planetary Sciences at Dartmouth:** A student currently enrolled in the Earth and Planetary Sciences M.S. program who wants to continue toward the Ph.D. degree should proceed as follows:
- i) Notify their advisory committee and the Graduate Coordinator of their plan promptly and in writing, outlining research interests. Early notification will facilitate the development of a coherent M.S. to Ph.D. program transition.
 - ii) The decision to transition from an M.S. to a Ph.D. must be approved by the advisory committee and the Graduate Coordinator.
 - iii) The student's advisor must write a letter of support for the transition from M.S. to Ph.D (including the term when the transition should officially happen). The graduate coordinator will send this letter to Guarini and the registrar so that the student's status can be changed in Slate and Banner.
 - iv) If the student wishes to significantly change their thesis committee during the transition to a Ph.D. they may do so (following the guidelines in 4c). Depending on their future research direction and how much it departs from their current topic of study, they may opt for their new committee members to assign papers for the summer research defense, and/or participate in the summer research defense.
 - v) If it is decided to make the transition prior to earning an M.S. degree, the student must complete all the regular Ph.D. degree requirements within the regular timeframe that begins upon matriculation to the Ph.D. program. However, students may opt to complete some of the degree requirements at an earlier date. Also, with the approval of their Ph.D. committee, a student continuing to a Ph.D. degree may use EAPS 181-183 to count toward the nine graduate credits required of the Ph.D. degree.
 - vi) If it is decided to complete an M.S. degree prior to starting the Ph.D., in parallel with the policy pertaining to students entering with a M.S. from

elsewhere, the student can count up to 6 courses taken for the M.S. towards the Ph.D. requirements.

TWO-YEAR COURSE PLAN WORKSHEET

Date: _____
Student Name: _____
Advisor: _____

Pre-requisites completed (list the courses taken that fulfill the prerequisites, see section 3a for more information):

Math (equivalent of MATH 3 and 8): _____

Chemistry (equivalent of CHEM 5 and 6): _____

Physics (equivalent of PHYS 13 and 14, or 3 and 4): _____

Biology (equivalent of BIOL 11 and 16) _____

Academic Year _____

Summer	Fall	Winter	Spring

Academic Year _____

Summer	Fall	Winter	Spring

