Earth,
Atmospheric
and
Planetary Sciences

Undergraduate Handbook

unleash your natural curiosity...

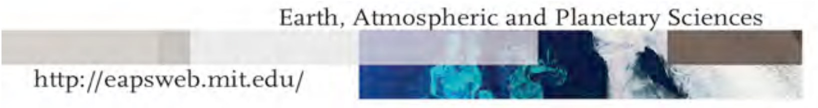
- Can determining rates of environmental change in the past provide insight about possible future climate change?
- How did the history of life affect the history of the earth?
- Will global climate change cause sea level to rise? By how much?
- Did the early solar system have many proto-planets with dynamos that generated magnetic fields?
- How can mathematical modeling based on simple assumptions predict the shape of valleys, whether on the scale of streams or the Amazon River?
- Can the chemistry and structure of Earth rocks provide information about Mars' history?
- Are there other Earth-like planets around other stars, and how would we measure them?
- How have planetary impact shaped the history of the Earth and the structure of our solar system?

These are just some of the wide-ranging and intriguing questions that students and researchers in MIT's Department of Earth, Atmospheric, and Planetary Sciences (EAPS) endeavor to answer. As you learn more about EAPS, you will find that our work encompasses intersecting elements of biology, physics, chemistry, math, and engineering. If you love natural phenomena and possess broad scientific interests, a willingness to develop a similarly broad suite of skills, and a desire to tackle demanding questions, an undergraduate major in EAPS might be an excellent option for you.

Earth, Atmospheric and Planetary Sciences

http://eapsweb.mit.edu/

CONTENT SUMMARY



Introduction

The Department of Earth, Atmospheric, and Planetary Sciences at MIT is vigorous and dynamic, uniting faculty and students in the quest to solve real world problems through the application of physics, chemistry, biology, and mathematics. Work in each area of research is data-driven, fieldwork oriented, computationally complex, and process-focused.

What do we mean by fieldwork? Among many possibilities, you might be in mapping rock units in Tibet, using a telescope at an observatory in Hawaii, collecting air samples on Cape Cod, gathering data on a research cruise in the Pacific. All field work leads back to campus for work in the analytical lab and/or for computational modeling.

With an emphasis on personal attention, the EAPS undergraduate program provides students with a challenging course of study in the geophysical sciences: geology, geophysics, geochemistry, geobiology, atmospheric science, oceanography, climate, planetary science, and astronomy. The Department's flexible academic program allows students to develop individualized courses of study, and our small class sizes encourage and enhance student-professor interactions.

Exploring EAPS

Spend some time getting to know what we do by exploring the Earth, Atmospheric, and Planetary Sciences [EAPS] video collection on TechTV. Once you've gained a sense of the breadth and depth of study within our department, take another step to become more involved in EAPS.

UROPs in EAPS

The faculty in Earth, Atmospheric, and Planetary Sciences are eager to have UROP students joint their research teams. EAPS is a collegial department with an informal atmosphere. Students, researchers, and faculty all work together and know each other well. UROP students are welcome members of the team. First year students often ask if they are eligible to work on a UROP project. In the vast majority of cases, the answer is, yes!

The most common way to find a UROP project in EAPS is just to ask. Investigate the kinds of research each faculty member does by looking at their web pages. The EAPS website <eapsweb.mit.edu> has a page for each faculty member that has a brief research description. Often there is also a link to an independent page with more detail. Once you know who is doing work that interests you, go knock on their door, or send them an email saying you're interested in a UROP project, and ask if they have anything available. Most faculty are willing to work with you to find a project in their lab. Occasionally a project is listed on the UROP website, but most commonly students become involved by just asking.

If you have any questions or want help with a place to get started, visit the EAPS Education Office. No appointment is necessary. It is common for students to drop in.

Minor options

A minor in EAPS can be a high-value addition to many major programs of study, allowing you to find intriguing and important applications for your developing skills in (for example) Math, Physics, Chemistry, and Biology. Consider whether gaining knowledgeable expertise* in an area of Earth science, climate science, or planetary exploration will make you a better engineer, applied scientist, environmental lawyer, public health scientist, industry manager, or policy maker. Gaining a broadened background to some of the most challenging applied problems facing us today can distinguish you in your ongoing pursuit of an advanced degree in any area or in a career in many industries. Whatever your ambitions or widened interests are, there is a discipline within EAPS for unleashing your natural curiosity.

* AS IN SOMETHING TO PUT ON YOUR RESUME!!

Policy and environment, environmental law, public health

Follow EAPS

EAPS Degree Requirements

Required Subjects: All the basics

12.001 Introduction to Geology
12.002 Introduction to Geophysics and Planetary Science
12.003 Introduction to Atmosphere, Ocean, and Climate Dynamics
12.009 Theoretical Environmental Analysis

18.03 Differential Equations
or
18.034 Differential Equations

12.TIP Thesis and Independent Study Preparation
12.ThU Undergraduate Thesis

Laboratory/Field Subjects: Science *in situ*

One of the following pairs or single subjects:

12.115 Field Geology II
and
12.116 Field Geology Analysis

12.221 Field Geophysics
and
12.222 Field Geophysics Analysis

12.307 Weather and Climate Laboratory
12.335 Experimental Atmospheric Chemistry
12.410J Observational Techniques of Optical Astronomy

The remainder of the program consists of 60 units from either the Discipline or Supporting Science subjects; no more than 36 units can be from Supporting Sciences

The program of study must be approved by the student's academic advisor and the undergraduate committee of the department.

Discipline Subjects: Making it your own

[refer to Roadmaps for suggested sequences.]

12.005 Applications of Continuum Mechanics to Earth, Atmospheric, and Planetary Sciences
12.006J Nonlinear Dynamics I: Chaos
12.007 Geobiology: History of Life on Earth
12.008 Classical Mechanics: A Computational Approach
12.021 Earth Science, Energy, and the Environment
12.086 Modeling Environmental Complexity
12.102 Environmental Earth Science
12.104 Geochemistry of the Earth and Planets
12.108 Structure of Earth Materials
12.109 Petrology
12.113 Structural Geology
12.114 Field Geology I
12.119 Analytical Techniques for Studying Environmental and Geologic Samples
12.120 Environmental Earth Science Field Course
12.158 Molecular Biogeochemistry
12.163 Geomorphology
12.170 Essentials of Geology
12.201 Essentials of Geophysics
12.207 Nonlinear Dynamics II: Continuum Systems
12.213 Alternate Energy Sources, 6
12.214 Environmental Geophysics
12.301 Past and Present Climate
12.306 Atmospheric Physics and Chemistry
12.310 An Introduction to Weather Forecasting
12.333 Atmospheric and Ocean Circulations
12.336J Air Pollution

12.338 Aerosol and Cloud Microphysics
12.385 Environmental Science and Society
12.340 Global Warming Science
12.348J Global Climate Change: Economics, Science, and Policy
12.420 Physics and Chemistry of the Solar System
12.425 Extrasolar Planets: Physics and Detection Techniques
12.43J Space Systems Engineering
12.431J Space Systems Development I

Supporting Science Subjects: Your EAPS toolbox

1.00 Introduction to Computers and Engineering Problem Solving
1.060 Engineering Mechanics II
1.061 Transport Processes in the Environment
1.080 Environmental Chemistry and Biology

3.012 Fundamentals of Materials Science and Engineering
or
5.60 Thermodynamics and Kinetics

5.03 Principles of Inorganic Chemistry I
5.12 Organic Chemistry I
5.61 Physical Chemistry
6.00 Introduction to Computer Science and Programming
7.03 Genetics
7.05 General Biochemistry
7.21 Microbial Physiology
8.03 Physics III
8.04 Quantum Physics I
8.044 Statistical Physics I
8.07 Electromagnetism II
8.09 Classical Mechanics III

8.21 Physics of Energy
12.010 Computational Methods of Scientific Programming
12.012 MatLab, Statistics, Regression, Signal Processing
12.320J Introduction to Hydrology
18.04 Complex Variables with Applications
18.05 Introduction to Probability and Statistics
18.06 Linear Algebra
18.100 Real Analysis I
18.311 Principles of Applied Mathematics

Students with appropriate interests may substitute two subjects in urban planning, economics, policy, or management for subjects in the Supporting Science category.

All EAPS subject descriptions along with the term each is offered can be found on in the Subject Listings and Schedule maintained by the Registrar's Office.

http://student.mit.edu/catalog/m12a.html

Roadmaps

The degree requirements give you 60 units of restricted electives, chosen from the Discipline or Supporting Science subjects, so that you can tailor your program of study to match your interests and your plans beyond the S.B. degree.

The pages that follow present some suggested rigorous programs of study focused on different research specialties. Many include one or two more classes than you are required to take to graduate so that you can see that a still more advanced program is possible. The suggested programs give you a general idea of what you might take; you should consult with your advisor to plan a program specifically for you. Your choice of classes will depend on your plans beyond the Bachelor's degree.

A senior thesis is required. More details are in a later section with information needed by EAPS majors.

Core Material – required of all students

Sophomore Year

Fall		IAP		Spring	
Subject #	Units	Subject #	Units	Subject #	Units
12.001	12	This might be a good time to take an IAP class or explore a UROP.		12.002	12
12.003	12			18.03	12
Elective	12			Elective	12
HASS	12			HASS	12
Total Units	48				48

Atmospheres, Oceans, and Climates-Chemistry

Junior Year

Fall		IAP		Spring	
Subject #	Units	Subject #	Units	Subject #	Units
12.335	12			12.330	12
5.60	12			12.338	12
Elective	12			5.03	12
HASS	12			HASS	12
Total Units	48				48

Senior Year

Fall		IAP		Spring	
Subject #	Units	Subject #	Units	Subject #	Units
12.301	12			12.333	12
				18.311	12
Elective	12			12.009	12
12.TIP	6			12.ThU	6
HASS	12			HASS	12
Total Units	42				54

Atmospheres, Oceans, and Climates-Dynamics

Junior Year

Fall		IAP		Spring	
Subject #	Units	Subject #	Units	Subject #	Units
12.008	12	12.310	6	12.307	15
5.60	12			12.330	12
Elective	12			Elective	12
HASS	12			HASS	12
Total Units	48		6		51

Senior Year

Fall		IAP		Spring	
Subject #	Units	Subject #	Units	Subject #	Units
12.301	12			12.333	12
8.03	12			18.311	12
Elective	12			12.009	12
12.TIP	6			12.ThU	6
HASS	12			HASS	12
Total Units	54				54

Energy Resources

Junior Year

Fall		IAP		Spring	
Subject #	Units	Subject #	Units	Subject #	Units
12.021	12	12.221	6	12.222	6
5.60	12			12.340	12
				18.05	12
Elective	12			Elective	12
HASS	12			HASS	12
Total Units	48		6		54

Senior Year

Fall		IAP		Spring	
Subject #	Units	Subject #	Units	Subject #	Units
8.21	12	12.213	6	12.348	12
				12.009	12
Elective	12			12.108	12
HASS	12			HASS	12
12.TIP	6			12.ThU	6
Total Units	42		6		54

Environmental Science

Junior Year

Fall		IAP		Spring	
Subject #	Units	Subject #	Units	Subject #	Units
12.010	12	12.221	6	12.119	12
12.104	12	or		5.03	12
Elective or 12.335	12	See list at bottom of table*		Elective or 12.307	12
				12.222	6
HASS	12			HASS	12
Total Units	48		6		54

* 12.115/12.116, 12.221/12.222, 12.307, 12.335 are all appropriate CI-M options.

Senior Year

Fall		IAP		Spring	
Subject #	Units	Subject #	Units	Subject #	Units
12.086	12			12.009	12
12.301	12			12.338	12
				12.009	12
HASS	12			HASS	12
12.TIP	6			12.ThU	6
Total Units	42				54

Geobiology

Junior Year

Fall		IAP		Spring	
Subject #	Units	Subject #	Units	Subject #	Units
5.12	12	12.115	6	12.116	6
5.60	12			12.007	12
12.113	12			7.05	12
12.114	6			Elective	12
HASS	12			HASS	12
Total Units	54		6		54

Senior Year

Fall		IAP		Spring	
Subject #	Units	Subject #	Units	Subject #	Units
12.086	12			1.080	12
12.158	9			12.119	12
Elective	12			12.009	12
HASS	12			HASS	12
12.TIP	6			12.ThU	6
Total Units	51				54

Geophysics

Junior Year

Fall		IAP		Spring	
Subject #	Units	Subject #	Units	Subject #	Units
12.010	12	12.221	6	12.222	6
5.60	12			12.005	12
				12.108	12
Elective	12			Elective	12
HASS	12			HASS	12
Total Units	48		6		54

Senior Year

Fall		IAP		Spring	
Subject #	Units	Subject #	Units	Subject #	Units
12.109	12			12.207	12
12.201	12			12.009	12
Elective	12			Elective	12
HASS	12			HASS	12
12.TIP	6			12.ThU	6
Total Units	54				54

Geoscience

Junior Year

Fall		IAP		Spring	
Subject #	Units	Subject #	Units	Subject #	Units
12.113	12	12.115	12	12.116	6
12.114	6			12.108	12
12.163	12			12.119	12
Elective	12			Elective	12
HASS	12			HASS	12
Total Units	54		12		54

Senior Year

Fall		IAP		Spring	
Subject #	Units	Subject #	Units	Subject #	Units
12.113	12			12.108	12
12.163	12			12.119	12
Elective	12			12.009	12
HASS	12			HASS	12
12.TIP	6			12.ThU	6
Total Units	54				54

Planetary Science-Exploration

Junior Year

Fall		IAP		Spring	
Subject #	Units	Subject #	Units	Subject #	Units
12.420	12			12.108	12
12.008	12			12.43J	12
12.410	15			Elective	12
HASS	12			HASS	12
Total Units	51				58

Senior Year

Fall		IAP		Spring	
Subject #	Units	Subject #	Units	Subject #	Units
8.03	12			12.009	12
Elective	12			12.431J	18
HASS	12			HASS	12
12.TIP	6			12.ThU	6
Total Units	42				48

Planetary Science-Observation

Junior Year

Fall		IAP		Spring	
Subject #	Units	Subject #	Units	Subject #	Units
12.420	12			8.03	12
12.008	12			18.04	12
12.410	15			Elective	12
HASS	12			HASS	12
Total Units	51				48

Senior Year

Fall		IAP		Spring	
Subject #	Units	Subject #	Units	Subject #	Units
8.04	12			12.009	12
Elective	12			8.044	12
HASS	12			HASS	12
12.TIP	6			12.ThU	6
Total Units	42				42

Minor Programs

Earth, Atmospheric, and Planetary Sciences

Core Subjects

Two subjects from:

12.001 Intro to Geology
12.002 Intro to Geophysics and Planetary Sciences
12.003 Intro to Atmosphere, Ocean, and Climate Dynamics
12.006J Nonlinear Dynamics I: Chaos
12.102 Environmental Earth Science
12.400 The Solar System

One subject from:

18.03/18.034 Differential Equations
5.60 Thermodynamics and Kinetics

Restricted Electives

Two or more additional Course 12 subjects within one of the EAPS concentration areas, approved by the minor advisor; and 12 units from the following:

Lab: 12.115, 12.119, 12.307, 12.410J
Field and IAP: 12.120, 12.141, 12.213, 12.214, 12.221, 12.310, 12.411
Independent Study: 12.IND, 12.UR

Astronomy

The Minor in Astronomy, offered jointly by the Department of Earth, Atmospheric, and Planetary Sciences and the Department of Physics, covers the observational and theoretical foundations of astronomy. The minor requires seven subjects as follows:

Astronomy, Mathematics, and Physics
Required subjects:
8.03 Physics III
8.282J Introduction to Astronomy
18.03 Differential Equations
Astrophysics
Choose one
8.284 Modern Astrophysics
8.286 The Early Universe
Planetary Astronomy
Choose one
12.008 Classical Mechanics: A Computational Approach
12.400 The Solar System
12.420 Physics and Chemistry of the Solar System
12.425 Extrasolar Planets: Physics and Detection Techniques

Instrumentation and Observations
Choose one
8.287J Observational Techniques of Optical Astronomy
12.43J Space Systems Engineering
12.431J Space Systems Development
12.432J Space Systems Development II

Independent Project in Astronomy
Choose one
8.UR or 12.UR Undergraduate Research
8.ThU or 12.ThU Undergraduate Thesis
12.411 Astronomy Field Camp

Four of the subjects used to satisfy the requirements for the astronomy minor may not be used to satisfy any other minor or major.

Atmospheric Chemistry

Atmospheric Chemistry is an interdisciplinary field that blends fundamental science with engineering and policy. It is a domain that is growing in scope, complexity, and demand, as society grapples with burgeoning global, regional, and local challenges including those in energy and public health. The minor is offered by the Departments of Earth, Atmospheric, and Planetary Sciences, Civil and Environmental Engineering, Chemistry, Engineering Systems Division, and Aeronautics and Astronautics. The minor re-quires six subjects. The core of the minor consists of four required subjects spanning thermodynamics and kinetics, atmospheric and ocean dynamics, air pollution, and atmospheric physics and chemistry, complemented by (at least) one subject in observations/applications, and one subject in the links of atmospheric chemistry to policy.

Chemistry, Dynamics, and the Atmosphere

Required subjects:

12.003	Introduction to Atmosphere, Ocean, and Climate Dynamics
5.60	Thermodynamics and Kinetics
1.085J	Air Pollution
12.306	Atmospheric Physics and Chemistry

Observations/Applications
One of the following:
1.080 Environmental Chemistry
12.335 Experimental Atmospheric Chemistry

12.338 Aerosol and Cloud Microphysics and Chemistry
or
12.310 An Introduction to Weather Forecasting

12.IND Independent Study

Linkages of Atmospheric Chemistry to Policy
One of the following:
12.385 Environmental Science and Society
12.340 Global Warming Science
12.346 Global Environmental Science and Politics

Four of the subjects used to satisfy the requirements for the atmospheric chemistry minor may not be used to satisfy any other minor or major.

Energy

EAPS participates in the interdisciplinary minor in Energy Studies. More detailed information can be found on the MITei website. [http://mitei.mit.edu/education/energy-minor].

FAQs for prospective majors

What will I do as an EAPS student?

Here is a sampling of what we do at EAPS:

- Using the compositions and isotopic signatures of organic compounds found in rocks and sediments, we reconstruct ancient biotic communities to understand how life might have evolved within them.
- To understand the processes that shape our current Earth, we study and learn the tempo of events and the rates at which processes have operated. The techniques of high-precision radiometric dating allow us to calibrate the geologic time scale. No Dates – No Rates.
- Using the latest methods for combining materials at high temperatures and pressures, we study the chemical differentiation of the Earth and the development of the crust and mantle. From this information, we extrapolate the processes of formation and evolution of the interiors of other planets, including the moon, Mars, and meteorite parent bodies. Our ability to process seismic waves and generate images of the Earth's interior leads us to a greater understanding of the movements along a fault and the generation of earthquakes.
- Using a suite of techniques that include field measurements and mathematical and analog modeling, we gain a greater understanding of the link between the ocean and climate. A complete understanding requires knowledge of fluid dynamics as well as atmospheric and ocean chemistry.
- Currently, EAPS faculty have instrument packages

orbiting Mars and Mercury and one on its way to Pluto. A new mission is being built to go to an asteroid, including student-built hardware that will fly aboard. EAPS researchers have access to the most up-to-date observatories, including Magellan in Chile and the NASA Infrared Telescope Facility (IRTF) located on Mauna Kea, Hawaii.

Listen to alumnae talk about EAPS and what they find interesting about their work and the department.

Struck by Asteroids

Stacy

Do EAPS students work in the field?

Yes. Observational programs are at the core of our science. Research takes place all around the world, at all latitudes and longitudes. The faculty of EAPS believes that the best place to learn about the earth is out in the field. Classes take appropriate field trips in New England, and some teaching takes place in the western U.S.

What can I do with an EAPS degree?

MIT's EAPS undergraduates go on to pursue graduate work as well as meaningful careers in the energy, environmental, and space industries, including:

- satellite tracking and operations

- natural resource development
- meteorology and hurricane tracking
- geotechnical engineering
- land use planning
- scientific journalism
- marine policy development
- teaching

As a sampling, some recent undergraduates are working at Jet Propulsion Laboratory, serving as consultants, attending law school, and interning in Japan and Germany. Students who decided to attend graduate school in the geophysical sciences are at top-tier institutions in their fields, including MIT, MIT/WHOI Joint Program, Brown University, CalTech, University of Michigan, Princeton, and Stony Brook University.

If you choose a job in industry or business, you can anticipate a competitive salary. In a fall 2005 survey of the starting annual salary for bachelor's degree candidates, those with a degree in the geosciences earned salaries ranked at the 52nd percentile; careers in chemistry and biology fell below this level. Equally important, experienced earth scientists report a high level of job satisfaction.

Why are the geophysical sciences a compelling area of study?

The geophysical sciences have provided compelling evidence for three dramatic revisions in the way we view ourselves and our world: the Copernican model of the solar system, evolution as a process that has shaped modern life, and plate tectonics as a process that has shaped the surface of the modern Earth. The second and third of these revisions has required a fourth: "the discovery of time" (Toulmin and Goodfield, 1965)—the understanding that the Earth is 4.6 billion years old. The geophysical sciences and astronomy/astrophysics are distinguished by the role of history in their research. The standard paradigm of conducting science focuses on the use of the scientific method; this is often interpreted to mean that we only gather data by controlled experiment. In studying the Earth system, however, we are studying the result of a series of experiments that have already been run. How then do we proceed to be scientifically and quantitatively rigorous about our conclusions concerning Earth's history and the implications for Earth's future? We do so by identifying critical environments in the modern world where the solid Earth, its fluid envelopes, and its biota interact, and where we can gather meticulous data to combine with that which we've gathered from innovative and precise laboratory techniques. Modeling the earth system creates a bridge between observed and expected conditions and leads to a greater understanding of possible future states or past causation.

How do I choose between science and engineering?

Study in either of these broad areas will stimulate you and allow you to make an impact on society. In deciding which is a better fit for you, consider the following questions:

- Which would you prefer to study: the natural environment or the interaction of the natural environment with the built environment?
- Would you prefer to work with a time scale of 100–1,000 years, or would you like to answer questions that go back millions of years?

- Are you curious about the Earth’s interior or how to use geothermal energy to heat a community? Do you wonder how Cape Cod was created, or how to control oceanfront erosion?
- Are you interested in the complexity of the climate system? Are you concerned about climate change and its impact on the Earth?

Your answers to these questions will help you determine whether science or engineering is the right choice for you. Broadly speaking, science deals with longer time scales and larger space scales than engineering. Although science and engineering certainly overlap and most engineers need to understand science, the focus of engineering is on measuring, altering, or controlling the natural environment. Science, on the other hand, differentiates itself by attempting to use both measurements and theory to answer the fundamental questions about how natural systems work.

EAPS Education Office

Undergraduate Officer: Prof. Rick Binzel, [rpb@mit.edu]
Education Director: Dr. Vicki McKenna, [vsm@mit.edu]
Administrative Assistant: Ms. Jacqui Taylor,
[jtaylor@mit.edu]

Building 54, Room 912
77 Massachusetts Avenue
Massachusetts Institute of Technology
Cambridge, MA 02139

phone: (617) 253-3381
email: eapsinfo@mit.edu
website: eapsweb.mit.edu

The mission of the EAPS Education Office is to support the department's undergraduate programs and to help serve the academic needs of EAPS undergraduate students. At our office you can get information, forms, and advice.

The Education Office coordinates the education activities within the department, working directly with the Undergraduate Committee. Additional responsibilities include working individually with students to advise them regarding degree requirements, policies and procedures, and career options.

For EAPS Majors

Events

Cookie Hour: 3pm, every weekday, 54-923

TERM ACTIVITIES

Department Lecture Series: Wednesday, 4pm, 54-915

MIT Atmospheric Science Seminar [MASS]: Monday, 12 noon, 54-915

Sack Lunch Seminar [Climate and Physical Oceanography]: Wednesday, 12 noon, 54-915

Chemical Oceanography and Biogeochemistry Seminar [E25 Seminar]: Friday, 3pm, E25-605 s

All department events are listed on the MIT calendar and on Google calendars available here [http://eapsweb.mit.edu/events].

Building

EAPS majors have an undergraduate lounge. Please contact the Education Office about the lock code for access.

You should also contact the Education Office to arrange for access to the building 54 on nights and weekends.

Academic Integrity

"MIT anticipates that you well pursue your studies with purpose and integrity. The cornerstone of scholarship in all academic disciplines is honesty. MIT expects that your will approach everything you do here honestly – whether solving a math problem, writing a research or critical paper, or writing an exam."

Academic Integrity at the Massachusetts Institute of Technology: A Handbook for Students

Advising

Advisors are assigned to majors by taking into account the interests of the students. Your advisor will work with you to plan a program of study that suits your interests. You should submit your plan to the Education Office at the end of your Sophomore year

Senior Thesis

All EAPS majors must complete a senior thesis. Most commonly the research for the thesis is done under the supervision of an EAPS faculty member or senior/principal research scientist. Special arrangements must be made if work is to be done under the supervision of a faculty member in another department or with an off-campus supervisor.

You should start your research no later than the beginning of the Fall term of your senior year. Often thesis projects develop from UROP projects, but this is not required. When you determine a thesis topic you should file the completed thesis contract with the Education Office for review by the Undergraduate Committee. Required forms are on the following page and the Undergraduate Resources page of the EAPS website.

Your Roadmap-plan your program

Sophomore Year

Fall		IAP		Spring	
Subject #	Units	Subject #	Units	Subject #	Units
Total Units					

Junior Year

Fall		IAP		Spring	
Subject #	Units	Subject #	Units	Subject #	Units
Total Units					

Senior Year

Fall		IAP		Spring	
Subject #	Units	Subject #	Units	Subject #	Units
Total Units					

Revision of EAPS Departmental Program

I hereby petition for the following change(s) in my BACHELOR OF SCIENCE degree program.

Substitute

Number	Course Title	Units

For this Discipline or Supporting Science course

Number	Course Title	Units

COMMENTS: please add any comments on the back.

Student Name ______________________________
(Please Print)

Signature: _______________________Date:_______

APPROVALS:

ADVISOR	UNDERGRADUATE OFFICER
Name: (please print)	Name: (please print)
Signature:	Signature:
Date:	Date:

Return this form to the Education Office, 54-911, when signed by your Faculty Advisor. After consideration by the Undergraduate Committee, a copy will be returned to you.

Undergraduate Thesis Contract

Student Name: _______________________________

Tentative Thesis Title: __________________________

____

____

Supervisor Name: _____________________________

If non-EAPS department member, fill in below.

Supervisor Title: ______________________________

Phone: ______________ Email: _________________

Address (if non-MIT): ___________________________

____

Supervisor's Agreement

I have assisted in the definition of this thesis proposal, and I believe it to be an appropriate topic for at least 6-15 units of undergraduate thesis credit. I agree to supervise the progress of the thesis, and to evaluate the work once the thesis is completed. I understand that the thesis will be publically available, and state that no proprietary data will be included.

Signature: ________________________Date:_______

Thesis Reviewer Agreement

(required when thesis supervisor is not a member of the EAPS faculty)

Student Name: ______________________________

Tentative Thesis Title: _________________________

____

____

Supervisor Name: ____________________________

EAPS Faculty Reviewer: ________________________

Faculty Reviewer's Agreement

I agree that I will review the finished thesis and sign the thesis indicating the quality is acceptable as a thesis within EAPS. I will periodically check with the student during the writing process to ensure that progress is being made.

Signature: _______________________Date:_______

An EAPS faculty member must review your thesis if your research is supervised by a faculty member outside of EAPS or by an off-campus scientist.