

## DEPARTMENT OF EARTH, ATMOSPHERIC, AND PLANETARY SCIENCES

### Undergraduate Study

#### ***Bachelor of Science in Earth, Atmospheric, and Planetary Sciences (Course 12)***

The Earth, Atmospheric, and Planetary Sciences Department offers undergraduate preparation for professional careers in a wide range of fields in geoscience (which includes geology, geophysics, geobiology, and geochemistry), atmospheric science, climate science, environmental systems, and planetary science and planetary astronomy.

The curriculum for the Bachelor of Science in Earth, Atmospheric, and Planetary Sciences (<https://catalog.mit.edu/degree-charts/earth-atmospheric-planetary-sciences-course-12>) ensures a fundamental background through general departmental subjects and advanced study in a concentration area chosen by the student. The student and advisor plan an appropriate and relevant selection of electives. Students are also required to take field and/or laboratory subjects, and to complete an independent research project as part of the degree requirements.

#### ***Bachelor of Science in Climate System Science and Engineering (1-12)***

The Department of Civil and Environmental Engineering (<https://catalog.mit.edu/schools/engineering/civil-environmental-engineering>) and the Department of Earth, Atmospheric and Planetary Sciences (p. 3) offer a joint undergraduate degree program leading to the Bachelor of Science in Climate System Science and Engineering (<https://catalog.mit.edu/degree-charts/climate-system-science-engineering-course-1-12>). A detailed description of the requirements can be found under the section on Interdisciplinary Programs.

#### ***Double Major***

Studies in physics, chemistry, biology, applied mathematics, and electrical or civil engineering are directly relevant preparation for work in earth, atmospheric, and planetary sciences. Students from these departments can arrange a program of study in Course 12 leading to a second major with subjects that strengthen their undergraduate program.

#### ***Five-Year Program***

Students with strong academic records from the departments of Earth, Atmospheric, and Planetary Sciences, Chemistry, Physics, Mathematics, Civil and Environmental Engineering, Electrical Engineering and Computer Science, or Chemical Engineering, should be able to complete a Master of Science in Earth and Planetary Sciences, in Atmospheric Sciences, or in Ocean Sciences in one year

of additional study, particularly if programs are arranged for this purpose from the beginning of the fourth year.

Applications for graduate enrollment in the department are considered any time after the beginning of the fourth year. Students may receive the Bachelor of Science as soon as the requirements are completed, or may elect to defer the award for simultaneous presentation with the Master of Science.

#### ***Minor in Earth, Atmospheric, and Planetary Sciences***

The Minor in Earth, Atmospheric, and Planetary Sciences provides an opportunity to complement or expand upon one's major by exploring in depth the natural processes that govern the structure and evolution of the Earth and planets. Areas of study include planetary surfaces, interiors, atmospheres, oceans, and biospheres. The EAPS Minor requires a solid foundation in two core subjects plus electives that create expertise in a particular area. Opportunities for field work, laboratory work, and independent study are an essential component of the minor.

#### **Core Subjects**

*Select two of the following:* 24

12.001	Introduction to Geology
12.002	Introduction to Geophysics and Planetary Science
12.003	Introduction to Atmosphere, Ocean, and Climate Dynamics
12.004	Introduction to Chemistry of Habitable Environments

*Select one of the following:* 12

5.601 & 5.602	Thermodynamics I and Thermodynamics II and Kinetics
18.03	Differential Equations <sup>1</sup>

#### **Restricted Electives**

Select at least 24 units in Course 12 subjects, approved by the minor advisor, to provide a depth of understanding and expertise in an EAPS discipline. <sup>2</sup> 24

Laboratory or Independent Study: Select one option from either of the following groups: 12-15

#### *Laboratory*

12.110A & 12.110B	Sedimentary Environments and Sedimentology in the Field
12.115 & 12.116	Field Geology and Analysis of Geologic Data
12.307	Weather and Climate Laboratory
12.373	Field Oceanography
12.335	Experimental Atmospheric Chemistry
12.410[ <i>J</i> ]	Observational Techniques of Optical Astronomy

#### *Independent Study*

12.IND	Independent Study
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12.UR	Undergraduate Research
<b>Total Units</b>	<b>72-75</b>

<sup>1</sup> 18.032 *Differential Equations* is also an acceptable option.

<sup>2</sup> Consult the list of EAPS undergraduate subjects (<https://catalog.mit.edu/subjects/12>).

### ***Minor in Astronomy***

The Earth, Atmospheric, and Planetary Sciences Department jointly offers a Minor in Astronomy (<https://catalog.mit.edu/interdisciplinary/undergraduate-programs/minors/astronomy>) with the Department of Physics (Course 8). A detailed description and list of requirements for this minor is available under Interdisciplinary Programs.

### ***Inquiries***

Additional information may be obtained from the department's Education Office, Room 54-912, 617-253-3381.