

# Planetary Science + Astronomy

Exploring the workings of our solar system provides a window into Earth's past, with implications for our future. The study of magnetic fields of meteorites has helped establish a timeline for how quickly our solar system emerged from its protoplanetary nebula and offers insights into the early composition of planetary bodies as they formed. The atmospheric extremes of other planets can tell us about our own climate and its potential changes, whether it be the cooling effects of dust, the heat-trapping properties of carbon dioxide, or even interactions with the solar wind. And, as we continue to discover the existence of water and organic molecules elsewhere in the solar system, we are given more clues to the origins of life on Earth – and the tantalizing prospect of detecting life beyond our own planet.

*Where will your curiosity take you?*

*Learn how a major in Course 12 can help you build quantitative and analytical skills that will be important to your career after earning your degree at MIT.*

**Course 12**

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EAPS Education Office 54-912 | 617-253-3381

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# Course 12 Major Requirements

[144-150 UNITS IN MAJOR]

## INTRODUCTORY SUBJECTS

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 the Global Climate Cycle

CHOOSE 36 UNITS

## PLUS

6 UNITS

12.TIP	Thesis Preparation
12.THU	Undergraduate Thesis <i>(at least 6 units, CI-M)</i>

AT LEAST 6 UNITS

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## LAB + FIELD

12.115 + 12.116	Field Geology + Analysis of Geologic Data
12.307	Weather and Climate Laboratory
12.335	Experimental Atmospheric Chemistry
12.410J	Observational Techniques of Optical Astronomy

CHOOSE 12-15 UNITS

*All are CI-M subjects.*

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## COMPUTATION

12.010	Computational Methods of Scientific Programming
12.012	MatLab, Statistics, Regression, Signal Processing
12.C25J	Real World Computation with Julia
6.100A	Introduction to Computer Science Programming in Python
<b>PLUS</b>	6.100B Intro. to Computational Thinking and Data Science
<b>-OR-</b>	16.C20J Intro. to Computational Science and Engineering

CHOOSE 12 UNITS

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## CONCENTRATION: PLANETARY SCIENCE + ASTRONOMY

REQUIRED FOR THIS CONCENTRATION

12.420	Essentials of Planetary Science
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CHOOSE 24-27 UNITS

12.006J	Nonlinear Dynamics: Chaos
12.013	Planetary Explorations
12.108	Earth Materials: Minerals and Rocks
12.177	Astrobiology, Origins and Early Evolution of Life
12.402J	Introduction to Astronomy
12.409	Hands-On Astronomy: Observing Stars and Planets
12.411	Astronomy Field Camp
12.412	Meteorites, Cosmochemistry, and the Solar System Foundation
12.421	Remotes Sensing: Physical Principles and Techniques
12.422	Planetary Atmospheres
12.423	Planetary Formation
12.425J	Extrasolar Planets: Physics and Detection Techniques
12.43J	Space Systems Engineering

36-39 UNITS TOTAL

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## SUPPORTING SUBJECTS

RECOMMENDED FOR THIS CONCENTRATION

8.03	Physics III
8.04	Quantum Physics I
8.044	Statistical Physics I
18.03 -OR- 18.032	Differential Equations

CHOOSE 36 UNITS

For a complete list of supporting subjects, please visit » [catalog.mit.edu](https://catalog.mit.edu)