

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 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.

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Course 12

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

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 Chemistry of Habitable Environments |

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

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.

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 |
| PLUS | 6.100B Intro. to Computational Thinking and Data Science |
| -OR- | 16.C20J Intro. to Computational Science and Engineering |

CHOOSE 12 UNITS

CONCENTRATION: PLANETARY SCIENCE + ASTRONOMY

REQUIRED FOR THIS CONCENTRATION

| | |
|--------|---------------------------------|
| 12.420 | Essentials of Planetary Science |
|--------|---------------------------------|

CHOOSE 24-27 UNITS

| | |
|---------|---|
| 12.006J | Nonlinear Dynamics: Chaos |
| 12.104 | Geochemistry of the Earth and Planets |
| 12.108 | Earth Materials: Minerals and Rocks |
| 12.177 | Astrobiology, Origins and Early Evolution of Life |
| 12.400 | Our Space Odyssey |
| 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 | Physical Principles of Remote Sensing |
| 12.422 | Planetary Atmospheres |
| 12.425J | Extrasolar Planets: Physics and Detection Techniques |
| 12.43J | Space Systems Engineering |

36-39 UNITS TOTAL

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