# EARTH SCIENCES B.S. with Planetary Sciences concentration

**Quarter offered:** F=Fall, W=Winter, S=Spring, *=Not offered this year

## INTRODUCTORY REQUIREMENTS

### Calculus:
- **MATH 11A (FWS)** ___
- **MATH 11B (FWS)** ___
- **MATH 19A (FWS)** ___ (preferred)
- **MATH 19B (FWS)** ___ (preferred)

### Advanced Mathematics:
- **EART 111 (F)** ___
- **EART 10/L Geological Principles/Lab (S)** ___ (preferred)
- **EART 20/L Environmental Geology/Lab (S)** ___
- **MATH 22 (WS)** ___
- **MATH 23A (FWS)** ___

### General Chemistry:
- **CHEM 1A (FWS) + CHEM 1B/M (FWS) + CHEM 1C/N (FWS) ___**

### Geology:
- **EART 5/L California Geology/Lab (F) ___**
- **EART 10/L Geological Principles/Lab (S) ___ (preferred)**
- **EART 20/L Environmental Geology/Lab (S) ___**

### Astronomy:
- **ASTR 12 (F) ___ OR ASTR 16 (*) ___ OR ASTR 18 (*) ___**

### Physics:
- **PHYS 6A/L (FWS) + PHYS 6 B/M (WS) + PHYS 6C/N (FWS) ___**
- **PHYS 5A/L (F) ___ + PHYS 5B/M (W) ___ PHYS 5C/N (S) ___ (preferred, SD recommended)**

## ADVANCED REQUIREMENTS

### EART 110A/L Evolution of the Earth/Lab (F) ___
- **EART 110B/M Earth as a Chemical System/Lab (W) ___**
- **EART 110C/N The Dynamic Earth/Lab (S) ___**
- **EART 119 Introduction to Scientific Computing (W) ___**
- **EART 160 Planetary Science (F) ___**
- **EART 190 Earth Science Mentorship (F) ___ (Optional)**

### Topical Electives:
- **EART 162 Planetary Interiors (W) ___**
- **EART 163 Planetary Surfaces (S) ___**
- **EART 164 Planetary Atmospheres (*) ___**

### Electives:
- **THREE upper-division electives, 5 or more credits each, chosen from the following...**

#### Recommended Electives:
- **EART 107 Remote Sensing of the Environment (W) ___**
- **EART 109/L Elements of Field Geology/Lab (FS) ___**
- **EART 116 Hydrology (*) ___**
- **EART 117/L Paleomagnetism/Lab (*) ___**
- **EART 121 The Atmosphere (*) ___**
- **EART 128 Isotopes (W) ___**
- **EART 130/L Magmas & Volcanos/Lab (S) ___**
- **EART 140/L Geomorphology/Lab (W) ___**
- **EART 148 Glaciology (S) ___**
- **EART 150/L Structural Geology/Lab (F) ___**
- **EART 152 Tectonics (S) ___**
- **EART 162 Planetary Interiors (W) ___**
- **EART 163 Planetary Surfaces (S) ___**
- **EART 164 Planetary Atmospheres (*) ___**
- **EART 172 Geophysical Fluid Dynamics (S) ___**
- **EART 209 Solid Earth Geochemistry (*) ___**
- **EART 210 Stellar & Planetary Formation & Evolution (*) ___**
- **ASTR 112 Physics of Stars (S) ___**
- **ASTR 118 Physics of Planetary Systems (W) ___**
- **MATH 130 Celestial Mechanics (*) ___**

#### DC Requirement:
- **TWO of the four required electives must be from the following Earth Sciences Disciplinary Communication Curriculum...**
- **EART 100 Vertebrate Paleontology (W) ___**
- **EART 101 Invertebrate Paleobiology (F) ___**
- **EART 102 Marine Geology (*) ___**
- **EART 104 Geologic Hazards (F) ___**
- **EART 109 Elements of Field Geology (FS) ___**
- **EART 116 Hydrology (*) ___**
- **EART 120 Sedimentology and Stratigraphy (S) ___**
- **EART 125 Stats/Data Analysis in Geo Sciences (*) ___**
- **EART 140 Geomorphology (W) ___**
- **EART 146 Ground Water (W) ___**
- **EART 148 Glaciology (S) ___**
- **EART 150 Structural Geology (F) ___**
- **EART 152 Tectonics (S) ___**
- **EART 160 Planetary Sciences (F) ___**
- **EART 188A Summer Field Internship (S) ___**
- **EART 191 Climate Change Science and Policy (W) ___**
- **EART 195 Senior Thesis (FWS) ___**

#### NOTE: Courses may be used to satisfy both the elective and DC requirements

## COMPREHENSIVE REQUIREMENT

### Summer Senior Field Internship: EART 188A (S) ___ + 188B (S) ___ (EART 109/L is a prerequisite)

### Senior Thesis: Ocean science topic recommended, generally requires 3-quarter commitment, enroll in EART 195 (FWS) ___

### Graduate course or seminar: Must achieve grade of B or better; course must be 5-units and include written report ___

### EART 191 Climate Change & Policy (W) ___

### Internship: Must complete written report, may enroll in EART 198 (FWS) ___

#### NOTE: None of the above may count toward fulfilling an upper-division elective if used as a capstone.