**PLANETARY SCIENCE AND ASTRONOMY, MINOR**

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

**Program Description**

Planetary Science and Astronomy minors will study the Solar System, stars, galaxies and the universe as a whole. Students will survey a wide variety of topics in astronomy and will learn to solve problems to see how this general knowledge has been obtained. Students will use telescopes to obtain astronomical data, and will learn to analyze these data to constrain astronomical theories. Communication of these topics, both oral and written, to the public and to their peers will be emphasized, as will logic and general problem-solving skills. It will serve students who want to acquire a significant knowledge of the universe as they pursue majors in unrelated fields of study. For example, this minor will serve students who are seeking careers in science education at the 6-12 level, in elementary education, in science journalism, and in geoscience.

**What is Planetary Science and Astronomy?**

Planetary Science and Astronomy is the study of the Earth system in the context of the Solar System and the universe as a whole. The Planetary Science and Astronomy minor provides an introduction to the fundamentals of this field of study. It focuses on astronomy of objects and phenomena in the Solar System, Milky Way Galaxy, and in the Universe. The focus is on conceptual study, and includes some quantitative astrophysics and in quantitative analysis of astronomical data.

**You Might Like This Program If...**

- You want to go deeper into questions about black holes, life in the Universe, and the origin of the Universe.
- You want to learn how to use small telescopes and to conduct astronomical observations.
- You have an interest in science communication or science education.
- You are interested in planetary science and want to complement your major.

**Program Requirements**

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<tr>
<th>Requirement</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Requirements for the Minor</td>
<td>19</td>
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</table>

**Requirements for the Minor**

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (http://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10).

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>ASTRO 401</td>
<td>Fundamentals of Planetary Science and Astronomy</td>
<td>4</td>
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</table>

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<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<td></td>
<td><strong>Prescribed Courses: Require a grade of C or better</strong></td>
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<tr>
<td>ASTRO 401</td>
<td>Astronomical Telescopes, Techniques, and Data Analysis</td>
<td>3</td>
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**Additional Courses**

Select one of the following: 3

- ASTRO 1  Astronomical Universe
- ASTRO 5  The Sky and Planets
- ASTRO 6  Stars, Galaxies, and the Universe
- ASTRO 10  Elementary Astronomy
- ASTRO 11  Elementary Astronomy Laboratory
- ASTRO 291  Astronomical Methods and the Solar System

Select three of the following: 9

- ASTRO 120  The Big Bang Universe
- ASTRO 130  Black Holes in the Universe
- ASTRO 140  Life in the Universe
- ASTRO 292  Astronomy of the Distant Universe

**Academic Advising**

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers. Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information need to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (http://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy)

**University Park**

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