

Planetary Science, Certificate

LAPLSCERT

Explore strange new worlds in our solar system and beyond. Learn how to assess their geologic evolution, surface environments and atmospheres and how to search for possible biosignatures. Acquire new skills to enhance your preparation for exciting careers, with opportunities in the burgeoning space exploration industry in Arizona and across the nation.

Description

The certificate program in planetary science prepares undergraduate students in topics related to the formation and evolution of planetary bodies and associated remote sensing technologies employed in these studies. The program includes specific training in the origins of planetary systems, tectonics, volcanism, geomorphology and remote mapping of surficial geology using spacecraft and land-based observational data. Additional skills may include understanding of planetary atmospheres, astrobiology, geodynamics and cosmochemistry.

This interdisciplinary program prepares students for technical career paths and helps prepare them to best engage with exciting opportunities at the frontier of planetary exploration.

At a glance

- **College/School:** [The College of Liberal Arts and Sciences](#)
- **Location:** [Tempe](#)

Program requirements

[2024 - 2025 Certificate Map](#)
[Certificate Map \(Archives\)](#)

The certificate requires a minimum of 18 credit hours. At least 12 credit hours must be completed in upper-division coursework and at least nine credit hours must be completed at ASU. At least six upper-division hours in the certificate must be completed in courses offered by The College of Liberal Arts and Sciences. A grade of "C" (2.00 on a 4.00 scale) or higher is required for each course used to fulfill a certificate requirement.

Required Courses (9-10 credit hours) -- 9 credit hours

[AST 111: Introduction to Solar Systems Astronomy \(SCIT OR SQ\)](#) or [GLG 101: Introduction to Geology I \(Physical\) \(SCIT OR SQ\)](#) or [SES 100: Introduction to Exploration \(QTRS OR CS\)](#) or [SES 106: Habitable Worlds \(SCIT OR SQ\)](#) or [SES 107: A Solar System Journey \(SCIT OR SG\)](#) or [SES 121: Earth, Solar System and Universe \(SCIT OR SQ\)](#) (3-4)
[GLG 404: Fundamentals of Planetary Geology](#) (3)
[SES 421: Foundations of Planetary Science](#) (3)

Electives (choose three) -- 9 credit hours

[AST 494: Exoplanets](#) (3)
[GLG 321: Mineralogy](#) or [GLG 424: Petrology](#) (3)
[GLG 362: Geomorphology](#) (3)
[GLG 406: Geology of Mars](#) (3)
[GLG 418: Geophysics](#) or [GLG 419: Geodynamics](#) (3)
[GLG 420: Volcanology](#) or [GLG 422: Planetary Volcanology](#) (3)
[GLG 485: Meteorites and Cosmochemistry](#) (3)
[GLG 490: Remote Sensing](#) (3)
[SES 294: Introduction to Space Weather](#) (3)
[SES 311: Essentials of Astrobiology: Exploration for Life in the Universe](#) or [GLG 460: Astrobiology](#) (3)
[SES 494: Geology of Venus](#) (3)
[SES 494: Planetary Interiors](#) (3)

Students may also use other courses as electives, especially special topics courses (SES/AST/GLG 494 and/or GLG 490), chosen in consultation with an academic advisor in the School of Earth and Space Exploration.

Prerequisite courses may be needed in order to complete the requirements of this certificate.

Enrollment requirements

Certificate courses may have prerequisites, and the most common are listed below. Additional enrollment requirements may include completion of these courses or their equivalents with a "C" or better:

- GLG 101/103 Introduction to Geology I (Physical), and Laboratory or SES 121/123 Earth, Solar System and Universe, and Laboratory

- a math course at the level of MAT 266 Calculus 2 or higher
- a chemistry course at the level of CHM 113 or higher
- a physics course at the level of PHY 121/122 or higher

A student pursuing an undergraduate certificate must be enrolled as a degree-seeking student at ASU. Undergraduate certificates are not awarded prior to the award of an undergraduate degree. A student already holding an undergraduate degree may pursue an undergraduate certificate as a nondegree-seeking graduate student.

Career opportunities

The employment prospects of graduates who complete the planetary science certificate are enhanced by the potential for employment at the intersection of these fields. Opportunities include:

- community college and university educators teaching earth science or astronomy classes
- docents at science museums and planetariums
- faculty and researchers at universities working on federally funded planetary science research, instruments or missions
- K-12 educators for programs with Earth science or astronomy curriculum
- researchers in aerospace companies contracted to build subsystems, instruments or missions for federally funded planetary science research

In Arizona, such opportunities are offered at institutions that include the public universities, Mesa Community College, the United States Geological Survey, Lowell Observatory and the Planetary Science Institute. Arizona companies that employ people in these fields include World View, Paragon, FreeFall, General Dynamics, Qwaltec and KinetX. National companies include Lockheed Martin, Honeywell, Ball, SpaceX, Blue Origin, Virgin Galactic, Intuitive Machines, Firefly, Northrop Gumman, Axiom, Planet Labs, Blue Canyon Technologies, Astrobotic and ispace.

Graduates may also find employment in federal labs or as congressional staff.

Contact information

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