



AST 1003 – THE SOLAR SYSTEM (3 credits)
STUDY ABROAD ITALY

Course dates: Monday March 17 - May 9, 2025

Travel dates: Friday May 16 - Sunday May 25, 2025

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<https://web.spcollege.edu/instructors/id/mcclintock.bruce>

Our itinerary



SPC 2022-23 Catalog Course Description

AST 1003 The Solar System (3.00 Credits)

This course is a study of Earth as a planet, the Moon, and the Sun, measurement of time, eclipses, planets and their satellites, comets, meteors, and various theories of the origin of the solar system. Consideration will be given to the historical development of science and the basic principles of mechanics as applied to astronomy.

Italy

Although this course explores all aspects of astronomy, the study abroad portion will specifically focus on contributions from Italian historical figures as well as how the study of astronomy influenced Italian culture. The distinctive history of Italy affords students the opportunity to appreciate several scientific advances that shaped our world, while experiencing the impact astronomy has had on a different culture than our own.

Students can look forward to visiting multiple historical sites that advanced our understanding of science and astronomy. In Venice, students will visit St. Mark's Square, where the first telescope was presented and see a 323-foot bell tower with lunar phases and other astronomical features. Students will learn about Galileo in Florence with a side trip to Pisa where he conducted experiments on gravity from the famous leaning tower. Rome offers the opportunity to see the Pantheon with its oculus in the great ceiling that serves as a sundial. Students may also be able to visit the Rome Observatory on Monte Mario with its spectacular views of the city.

Required Course Materials

Astronomy eBook - FREE online open access resource textbook

ISBN: ISBN-13: 978-1-947172-24-1

Publisher: OpenStax

Publication Date: 2022

<https://openstax.org/details/books/astronomy>

Class assignments [***SUBJECT TO CHANGE PRIOR TO COURSE START***]

1. **Module quizzes (400 points):** 8 module quizzes, worth 50 points each, will be completed and based on readings, videos, and other online resources. The quizzes are available online in MyCourses (D2L).
2. **Class activities (200 points):** Students are expected to attend weekly classes on campus regularly and actively participate in class activities.
3. **Student behavior (200 points):** students will behave professionally and respectfully towards other cultures. While students are expected to enjoy this journey, they must follow all rules and procedures to ensure a safe and meaningful experience for all. This includes proper preparation for the trip and active engagement in all learning opportunities during the trip.
4. **Post-trip critical reflection (200 points):** after returning from the trip, students are expected to reflect on their experience. Further details will be provided in class. Students will share their experiences and interact with other students during our debriefing session back home.

Grading Scale

A: 90-100% **B:** 80-89.99% **C:** 70-79.99% **D:** 60-69.99% **F:** 0- 59.99%

W: self-withdrawals **before** the withdrawal deadline on the 1st or 2nd attempt at the class

WF: self-withdrawals **after** the withdrawal deadline or for inactivity

<https://www.spcollege.edu/financial-aid/keeping-your-financial-aid/withdrawals>

Attendance Policy

For this class, attendance is defined as **attending campus classes on time for the full class period AND completing all assignments on or before the day they are due.**

Week 1 and 2: Students absent Weeks 1 and 2 will be dropped from the class roll. Students must be considered in **attendance (see above) during Weeks 1 and 2** to remain enrolled.

Overall Attendance: Inactive students who have more than 1 absence AND have not completed the first 4 graded quizzes by their respective due dates will be assigned a WF grade for inactivity.

Students can withdraw with a W grade through MySPC before the 60% point in the semester (1st or 2nd attempt) or with a WF grade after the deadline.

Students must follow all attendance policies to be eligible to go on the trip.

Course objectives and Major Learning Outcomes

1. The student will summarize historical developments in astronomy by:
 - a. Describing the motivating factors for ancient cultures to observe and predict celestial events.
 - b. Explaining the advantages of the Copernican (heliocentric) model over the Ptolemaic (geocentric) model.
 - c. Discussing the significance of Galileo's first observations with a telescope.
 - d. Paraphrasing Kepler's Laws of planetary motion and describing Newton's contributions to classical physics, gravitation, and orbital motion.
 - e. Recalling important events in the discovery and exploration of objects in our solar system.
2. The student will apply tools of astronomical observation by:
 - a. Defining important locations on the celestial sphere and their relation to the motion of the Earth.
 - b. Using declination and right ascension to interpret constellation charts.
 - c. Relating measurements of time to the motions of the Earth and the Moon.
 - d. Selecting an appropriate telescope (or other scientific instrument) to observe the various types of electromagnetic radiation.
3. The student will characterize Earth as a planet by:
 - a. Identifying Earth's interior layers and describing their properties.
 - b. Describing the role of plate tectonics in the evolution of Earth's geology.
 - c. Recounting the origin of Earth's atmosphere and oceans.

- d. Summarizing the evolution of Earth's atmosphere, including the greenhouse effect and its importance to Earth's current and future habitability.
 - e. Describing the origin of Earth's magnetic field and its influence on solar-terrestrial relations.
 - f. Discussing the role of small body impacts in Earth's past, and the current threat posed by Earth-crossing asteroids.
4. The student will describe the Moon and its interactions with the Earth by:
- a. Explaining the phases of the Moon and the geometry of eclipses.
 - b. Comparing the Moon's surface and interior to those of the Earth.
 - c. Summarizing how the interaction of the Sun, Earth, and Moon produces the tides.
 - d. Explaining the currently accepted theory of the Moon's origin and evidence that supports it.
5. The student will summarize the contents of the solar system by:
- a. Describing the general characteristics of the Sun.
 - b. Comparing and contrasting other planets with the Earth, using characteristics such as rotation, density, atmosphere, and magnetic field strength.
 - c. Distinguishing between Terrestrial, Jovian and dwarf planets (such as Pluto).
 - d. Describing the composition and location of asteroids.
 - e. Describing the nature and origin of meteors, meteorites, and meteor showers.
 - f. Describing the composition, behavior and locations of comets.
 - g. Describing the Kuiper belt and the Oort cloud and their connection to the origins of comets.
6. The student will summarize the variety of natural satellites in the solar system by:
- a. Identifying and describing prominent moons, including which could be habitable.
 - b. Comparing and contrasting Earth's moon with other moons in the solar system.
 - c. Describing the role of tidal heating as a source of geologic activity on some moons.
 - d. Discussing current theories about the origins of large moons.
 - e. Describing the nature and origin of the small irregular moons of Mars, Jupiter, and Saturn.
7. The student will explore theories of planetary system formation by:
- a. Summarizing the currently accepted theory of how our solar system formed.
 - b. Describing the currently accepted model of how planetary systems are formed.
 - c. Describing how our planetary system differs from other planetary systems.

SPC Syllabus Addendum Link: <http://www.spcollege.edu/addendum/>

Important dates: <https://spcollege.edu/academic-calendar>