

ASTR - ASTRONOMY

ASTR 1105 Descriptive Astronomy: The Solar System (3-0-3)

History of astronomy, structure of the solar system, formation of the sun and planetary bodies, moons, comets, asteroids, and meteors.

ASTR 1106 Descriptive Astronomy: Stars and Galaxies (3-0-3)

Prerequisite: ASTR 1105 recommended as a prerequisite or co-requisite. The sun, stars and stellar evolution, black holes, nebulae and interstellar dust, galaxies, quasars, and cosmology.

ASTR 1305 Descriptive Astronomy Lab (0-2-1)

Prerequisite or Co-requisite: ASTR 1105 or ASTR 1106. Laboratory exercises in astronomy and instruction on the use of telescopes and observational techniques. Activities will include the investigation of the physical nature of astronomical objects and the observation and measurement of the moon, planets, and stars.

Prerequisite(s): ASTR 1105 (may be taken concurrently) or ASTR 1106 (may be taken concurrently)

ASTR 3105 Physics, Chemistry, and Geology of the Solar System (3-0-3)

Prerequisite: ASTR 1105 with a grade of 'C' or better. Application of the laws of physics and the principles of chemistry to the solar system with special attention to the processes at work on and within planets and their satellites.

Prerequisite(s): ASTR 1105 with a minimum grade of C

ASTR 3115 Introduction to Astrophysics (3-0-3)

Prerequisites: ASTR 1105 and 1106, PHYS 1111 or 2211, and MATH 1131. Application of the laws of physics to the interpretation of astronomical observations, including general physical principles (celestial mechanics, light and telescopes), and the properties of stars, planets, galaxies, and the universe.

Prerequisite(s): (ASTR 1105 and ASTR 1106 and PHYS 1111 and MATH 1131) or (ASTR 1105 and ASTR 1106 and PHYS 2211 and MATH 1131)

Restriction(s):

Freshman students may **not** enroll.

Students cannot enroll who have a major in Undeclared or Undesignated Studies.

Students in a Certificate in Gerontology degree may **not** enroll.

Students in the University College college may **not** enroll.

ASTR 3205 Observational Techniques for Astrophysics (3-2-4)

Course Description: Prerequisites: ASTR 1305, PHYS 1111 or 2211, and MATH 1131. Lecture and laboratory in observational techniques for astronomy, including the use of telescopes, observational instruments, and computers.

Prerequisite(s): (ASTR 1305 and PHYS 1111 and MATH 1131) or (ASTR 1305 and PHYS 2211 and MATH 1131)

Restriction(s):

Freshman students may **not** enroll.

Students cannot enroll who have a major in Undeclared or Undesignated Studies.

Students in a Certificate in Gerontology degree may **not** enroll.

Students in the University College college may **not** enroll.

ASTR 4796 Senior Capstone (1-0-1)

This senior-level class is focused on preparing ESS students for post-baccalaureate academic and professional pursuits. The course is designed to allow students the opportunity to hone their critical thinking skills, advance their capacity to solve problems, and improve their ability to communicate effectively by synthesizing previous coursework in the diverse fields of earth and space science. Students will be assessed based on preparation of an academic portfolio and a capstone exam.

Restriction(s):

Enrollment limited to Senior students.

ASTR 4899 Undergraduate Research in Astronomy (0-(1-3)-(1-3))

Prerequisite: Approval of Instructor and Department Chair. Independent study in a selected area of astronomy. Enrollment limited to students judged capable of performing astronomy research. Study will be directed by a faculty member representing the chosen area of specialization.

Repeatability: Repeatable for credit up to 9 times or 30 hours.

Restriction(s):

Enrollment limited to students in the Department Prerequisite college.

ASTR 4960 Astronomy Senior Thesis (0-0-4)

Prerequisite: Senior standing and permission of instructor. An undergraduate research course culminating in a senior thesis. Requires significant independent research supervised by an astronomy faculty adviser and committee. S/U grading.

Restriction(s):

Enrollment limited to Senior students.

Enrollment limited to students major in Secondary Ed - Science, Secondary Ed - Earth Science, Earth and Space Science Sec Ed or Earth Science.

ASTR 5555G Special Topics in Astronomy and Astrophysics (3-0-3)

Prerequisites: ASTR 1105 or 1106, PHYS 1111 or 2211, and MATH 1131 with a grade of C or better in each. Course will encourage students to pursue specific topics in astronomy to greater depth. Students may be required to participate in observing activities, including night-time or remote observing. Course may be taken two times for credit.

ASTR 5555U Special Topics in Astronomy and Astrophysics (3-0-3)

Prerequisites: ASTR 1105 or 1106, PHYS 1111 or 2211, and MATH 1131 with grade C or better in each. Course will encourage students to pursue specific topics in astronomy to greater depth. Students may be required to participate in observing activities, including night-time or remote observing. Course may be taken two times for credit.

Prerequisite(s): (ASTR 1105 and PHYS 1111 and MATH 1131) or (ASTR 1105 and PHYS 2211 and MATH 1131) or (ASTR 1106 and PHYS 1111 and MATH 1131) or (ASTR 1106 and PHYS 2211 and MATH 1131)