

ASTRONOMY AND ASTROPHYSICS (ASTR)

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ASTR Courses

ASTR 101. Introduction to the Solar System. 4 units

Term Typically Offered: F,W,SP,SU

2020-21 or later catalog: GE Area B1

2019-20 or earlier catalog: GE Area B3

Descriptive astronomical properties of the Earth, Moon, other planets and their satellites. Comets, asteroids and other members of the Solar System. Theories of the formation of the Solar System. Opportunities for astronomical observations. Intended for non-engineering and non-science majors. Not open to students who have completed or are taking ASTR 301 or ASTR 302. Course may be offered in classroom-based or online format. 4 lectures. Fulfills GE Area B1 (GE Area B3 for students on the 2019-20 or earlier catalogs).

ASTR 102. Introduction to Stars and Galaxies. 4 units

Term Typically Offered: F, W, SP

2020-21 or later catalog: GE Area B1

2019-20 or earlier catalog: GE Area B3

Descriptive astronomical properties of the Sun, stars, galaxies and interstellar material. Expanding universe and cosmological models. Opportunities for astronomical observations. Not open to students who have completed or are taking ASTR 301, ASTR 302, or PHYS 132. Course may be offered in classroom-based or online format. 4 lectures. Fulfills GE Area B1 (GE Area B3 for students on the 2019-20 or earlier catalogs).

ASTR 200. Special Problems for Undergraduates. 1-2 units

Term Typically Offered: F, W, SP

Prerequisite: Consent of department chair.

Individual investigation, research, studies, or surveys of selected problems. Total credit limited to 4 units, with a maximum of 2 units per quarter.

ASTR 270. Selected Topics. 1-4 units

Term Typically Offered: TBD

Prerequisite: Open to undergraduate students and consent of instructor.

Directed group study of selected topics. The Class Schedule will list topic selected. Total credit limited to 8 units. 1 to 4 lectures.

ASTR 301. Planetary Systems. 3 units

Term Typically Offered: W

Prerequisite: PHYS 132 or PHYS 122 and MATH 141 or MATH 161.

Quantitative and descriptive properties of planetary systems, including our solar system. Physics of planets and their formation, moons, comets, and interplanetary media. Extrasolar planets and astrobiology. 3 lectures.

ASTR 302. Stars and Galaxies. 3 units

Term Typically Offered: SP

Prerequisite: PHYS 122 or PHYS 132; and MATH 141 or MATH 161.

Quantitative and descriptive properties of stars, galaxies and interstellar material; including stellar structure and evolution, and structure and evolution of galaxies. 3 lectures.

ASTR 324. Longitude, Navigation, and Timekeeping. 4 units

Term Typically Offered: W

2020-21 or later: Upper-Div GE Area B

2019-20 or earlier catalog: GE Area B5, B6, or B7

Prerequisite: Junior standing; completion of GE Area A with grades of C- or better; completion of GE Areas B1 through B3; and completion of MATH 119 with a grade of C- or better.

Evolution of navigational science from 1700 to today, covering the 'longitude problem' to the Global Positioning System. Emphasizes relevant concerns with navigation and timekeeping, including celestial navigation, clocks, and the use of technology, mathematics, and science to address societal problems. 4 lectures. Fulfills GE Area Upper-Division B (GE Areas B5, B6, or B7 for students on the 2019-20 catalog).

ASTR 326. Cosmology. 3 units

Term Typically Offered: F

Prerequisite: PHYS 211 (may be taken concurrently).

Introduction to the basic ideas of modern observational cosmology from the Big Bang to the ultimate fate of the universe. Topics include: special and general relativity, curvature of space, dark matter, dark energy, cosmic microwave background, type Ia supernovae. 3 lectures.

ASTR 400. Special Problems for Advanced Undergraduates. 1-2 units

Term Typically Offered: F, W, SP

Prerequisite: Consent of department chair.

Individual investigation, research, studies, or surveys of selected problems. Total credit limited to 4 units, with a maximum of 2 units per quarter.

ASTR 404. Research Experience for Advanced Undergraduates. 1-2 units

Term Typically Offered: F, W, SP

CR/NC

Prerequisite: Consent of department chair.

Individual investigations, research, studies, or surveys of selected problems. Credit/No Credit grading only. Total credit limited to 4 units, with a maximum of 2 units per quarter.

ASTR 444. Observational Astronomy. 4 units

Term Typically Offered: F

Prerequisite: ASTR 301 or ASTR 302.

Introduction to observational astronomy. Coordinate systems, telescopes and observational instruments (CCDs, filters, spectrographs), observational methods and techniques, data reduction and analysis. Laboratory activities include use of a telescope, CCD camera for data acquisition, data reduction and analysis, and presentation of results. 3 lectures, 1 laboratory.

ASTR 470. Selected Advanced Topics. 1-4 units

Term Typically Offered: TBD

Prerequisite: Consent of instructor.

Directed group study of selected topics for advanced students. The Class Schedule will list topic selected. Total credit limited to 8 units. 1 to 4 lectures.

ASTR 471. Selected Advanced Laboratory. 1-2 units

Term Typically Offered: TBD

Prerequisite: Consent of instructor.

Directed group laboratory study of selected topics for advanced students.

The Class Schedule will list topic selected. Total credit limited to 8 units.

1 to 2 laboratories.