

ASTRONOMY (MINOR)

Courses

ASTR 100 - Current Topics in Astronomy (4 Credit Hours)

This course is designed primarily for the non-physics major student who wishes to better understand the nature of the universe. Topics will be chosen from such areas as the history of astronomy, naked eye observations, the planets and moons, the origin of the solar system, stellar classification, stellar evolution, galactic astronomy, and cosmology. Course and laboratory work will explore the physical and observational background for these topics with an emphasis on the quantitative nature of modern astronomy. Two or three lectures per week; one two-hour laboratory each week. This course satisfies the quantitative reasoning general education requirement. No previous training in physics is required, however mathematical preparation is assumed to include high school algebra and trigonometry.

ASTR 125 - Principles of Physics I: Quarks to Cosmos (4 Credit Hours)

Physics/Astronomy 125 will introduce students to topics that are at the current frontiers of physics and astronomy, and help students develop quantitative reasoning and analytical skills necessary for further study in these fields. Topics possibly covered include special relativity, waves and interference, quantization of light and energy, the hydrogen atom, nuclear structure, radioactivity, and cosmology. The course satisfies the quantitative reasoning requirement. Three lectures and one three-hour laboratory per week.

Prerequisite(s): MATH 130 or MATH 135 or MATH 145 or concurrent.

Crosslisting: PHYS 125.

ASTR 199 - Introductory Topics in Astronomy (1-4 Credit Hours)

A general category used only in the evaluation of transfer credit.

ASTR 299 - Intermediate Topics in Astronomy (1-4 Credit Hours)

A general category used only in the evaluation of transfer credit.

ASTR 300 - Astrophysics (4 Credit Hours)

This course is designed to teach students to build and use physical models to understand a variety of astronomical systems. Students will apply key concepts from modern and classical Physics in an astronomical context, including gravity, light, relativity, thermodynamics, nuclear physics, and the interactions of light and matter. They will leverage these topics, and introduce others as necessary, to first develop models for stellar systems, including our Sun. They will then use this experience to explore a number of Astrophysical topics of interest, such as Supernovae, General Relativity and Black Holes, the structure of our Galaxy, Active Galactic Nuclei, and Cosmology.

Prerequisite(s): ASTR 100, ASTR 125 or PHYS 125, PHYS 122 or PHYS 127.

ASTR 311 - Special Topics in Astronomy (4 Credit Hours)

This course is to provide qualified students with the opportunity to pursue experimental and/or theoretical work in one or more of the areas of Modern Astronomy.

Prerequisite(s): PHYS 122 or PHYS 127, and PHYS 200 or concurrent or consent.

ASTR 312 - Experimental Physics (4 Credit Hours)

A course in the theory and practice of physical research with emphasis on the understanding and use of present-day research instrumentation. May be repeated once for credit as either PHYS 312 or ASTR 312.

Prerequisite(s): PHYS 122 or PHYS 127, PHYS 311 recommended.

ASTR 340 - Advanced Topics (1-2 Credit Hours)

Independent work on selected topics at the advanced level under the guidance of individual staff members. May be taken for a maximum of four semester hours of credit.

Prerequisite(s): Junior standing and consent of chairperson.

ASTR 361 - Directed Study (1-4 Credit Hours)

Prerequisite: Consent of chairperson.

ASTR 362 - Directed Study (1-4 Credit Hours)

Prerequisite: Consent of chairperson.

ASTR 363 - Independent Study (1-4 Credit Hours)

ASTR 364 - Independent Study (1-4 Credit Hours)

ASTR 399 - Advanced Topics in Astronomy (1-4 Credit Hours)

A general category used only in the evaluation of transfer credit.

ASTR 451 - Senior Research (4 Credit Hours)

Prerequisite: PHYS 312 or consent of chairperson.

ASTR 452 - Senior Research (4 Credit Hours)

Prerequisite: PHYS 312 or consent of chairperson.