

ASTRONOMY (ASTR)

ASTR 104 Astronomy of the Solar System 3 Hours

An introductory study of that portion of the physical universe extending beyond the earth from the sun to the outer limits of the solar system, including its relationship to the rest of the universe and to the earth. Topics include phenomena visible from earth, the earth's motions and timekeeping, eclipses, motions of planets and satellites, and the historical development of scientific understanding of the solar system. Comparison of physical properties among the sun, planets, and satellites interrelate the earth and its life forms with the extraterrestrial environment that supported the development and continuation of life on earth. This course contains an integral laboratory that includes planetarium exercises and evening observing sessions using telescopes. **Colonnade/Statewide General Education Code E-SL, E-NS | SL, NS**
Recent Term(s) Offered: spring 2021; fall 2021; spring 2022; fall 2022; spring 2023; fall 2023

ASTR 106 Astronomy of Stellar Systems 3 Hours

An introductory study of that portion of the physical universe in the space beyond the bounds of the solar system. Topics include the physical properties of stars and stellar systems, stellar formation and evolution, supernovas, pulsars, galaxies, quasars, black-holes, and cosmology—scientific theories of the origin, evolution, and fate of the universe on the grandest scale. Emphasis is given to the significance of these topics to the development and fate of the earth and its star. This course contains an integrated laboratory that includes planetarium exercises and evening observing sessions using telescopes. **Colonnade/Statewide General Education Code E-NS, E-SL | SL, NS**
Recent Term(s) Offered: spring 2021; fall 2021; spring 2022; fall 2022; spring 2023; fall 2023

ASTR 108 Descriptive Astronomy 3 Hours

Introductory survey of our universe; from observations of the sun, moon and stars in the sky to our understanding of planets, stars, galaxies and the overall characteristics of the cosmos. **Colonnade/Statewide General Education Code E-NS | NS**
Recent Term(s) Offered: spring 2021; fall 2021; spring 2022; fall 2022; spring 2023; fall 2023

ASTR 214 General Astronomy 4 Hours

An introduction to astronomy for science majors. Topics include distances, masses, and luminosities of stars, stellar atmospheres and structure, stellar evolution, star systems, interstellar matter, galaxies, cosmology, the sun, and the solar system. Three hours of lecture and two hours of laboratory per week. **Colonnade/Statewide General Education Code NS, SL**
Prerequisite(s): MATH 136 (may be taken concurrently)
Recent Term(s) Offered: fall 2021; fall 2022; fall 2023

ASTR 275 Astronomy Research Methods 3 Hours

Intensive project-based course to familiarize students with the fundamentals of astronomy using scientific research investigations as examples. Objectives include familiarization with astronomical instrumentation for imaging and spectroscopy of celestial objects, digital image reduction and analysis, and interpretation of results. Additional topics of discussion will include the process and nature of scientific research and professional ethics. Examples will be drawn from popular astronomical investigations in modern astronomy. This course does not count towards a major or minor in physics or astronomy. Note: Permission of instructor may be required.

Prerequisite(s): MATH 117
Recent Term(s) Offered: None

ASTR 298 Research Experiences 1-3 Hours (repeatable max of 3 hrs)

Individual or group research project carried out under the direct supervision of faculty. An oral presentation or paper (reviewed by a faculty committee) is required. Note: Permission of instructor required.
Prerequisite(s): MATH 117 and (ASTR 106 or ASTR 214 or ASTR 275)
Recent Term(s) Offered: spring 2021; fall 2021; spring 2022; fall 2022; spring 2023; fall 2023

ASTR 305 Introduction to Astrobiology 3 Hours

Inter-disciplinary study of life on Earth and possible life beyond Earth. Topics include the environments suitable for life, evolution of life forms, and the search for intelligent extraterrestrial life. Integrates concepts and methods from astronomy, biology, chemistry and geology. **Colonnade/Statewide General Education Code K-SY**
Prerequisite(s): MATH 116 and (ASTR 106 or BIOL 120 or CHEM 120 or GEOL 111)
Recent Term(s) Offered: spring 2021; spring 2022; spring 2023

ASTR 314 Observational Astronomy 4 Hours (repeatable max of 4 hrs)

A study of the techniques of observational astronomy. Topics include imaging techniques, spherical astronomy, magnitude systems, telescope optics, data acquisition, and statistical analysis of astronomical data. Three hours of lecture and two hours of laboratory per week.
Prerequisite(s): ASTR 214 or (PHYS 103 and ASTR 104) or (ASTR 104 and ASTR 106) or (PHYS 103 and ASTR 106)
Recent Term(s) Offered: spring 2022

ASTR 405 Astronomy for Teachers 3 Hours

Selected topics in astronomy for elementary and secondary teachers. Does not count toward physics major credit.
Prerequisite(s): (ASTR 104 or ASTR 106 or ASTR 214)
Recent Term(s) Offered: fall 2021

ASTR 414 Astrophysics 4 Hours

Introduction to current astrophysical topics, including radiation theory, the interstellar medium, stellar evolution, galaxies, quasars, and cosmology.
Prerequisite(s): PHYS 321 and MATH 237
Corequisite(s): MATH 331
Recent Term(s) Offered: spring 2021; spring 2023