

ASTR - Physics-Astronomy

ASTR 110IN Introduction to Astronomy: Mysteries of the Sky: 3 Credits (3 Lec)

(F, Sp) An introduction to contemporary astronomy that explores the nature, methods, and limitations of scientific inquiry within the context of our struggle to understand the structure and evolution of the Universe. Topics include the history of astronomy, motions of the night sky, the solar system, stellar evolution, galaxies, and cosmology. Common Exams.

ASTR 120CS The Sun and Society: 3 Credits (3 Lec)

PREREQUISITE: Completion of Q core. (F, Sp) From the northern lights to a calendar that is built around it, the sun has played an essential role in the culture of humanity. We will explore the current scientific understanding of the sun, and the many ways it has shaped humanity

ASTR 291 Special Topics: 1-4 Credits ()

ASTR 371 Solar System Astronomy: 4 Credits (3 Lec, 1 Lab)

PREREQUISITE: PHSX 205, PHSX 220, or PHSX 240

COREQUISITE: PHSX 207, PHSX 222, or PHSX 242. (F, Su)

Covers the origin and evolution of our solar system, including detailed examinations of the sun, earth, moon, other planets, and satellites. Exciting new discoveries and emerging research results will be integrated into the course. The laboratory operates in a "project mode" and includes experiments with models that can be done indoors as well as with the use of telescopes

ASTR 372 Stars and the Milky Way: 3 Credits (3 Lec)

PREREQUISITE: PHSX 224. (Sp) Taught Spring Term: This course will provide an introduction to stars and the Milky Way. Topics to be covered include the classification of stellar spectra, stellar atmospheres, the interior of stars, the interstellar medium and star formation, stellar evolution, stellar remnants, Milky Way structure, and Milky Way kinematics

ASTR 373 Extragalactic Astronomy: 3 Credits (3 Lec)

PREREQUISITE: ASTR 372

COREQUISITE: PHSX 320, PHSX 343. () Fall alternate even years:

This course will provide an introduction to extragalactic astronomy and astrophysics. Topics to be covered include the nature of galaxies, galactic evolution, the structure of the Universe, active galaxies and supermassive black holes, cosmology, and the early Universe

ASTR 475 Observational Astronomy Techniques: 4 Credits (3 Lec, 1 Lab)

PREREQUISITE: ASTR 372, or graduate standing

COREQUISITE: PHSX 331. Fall alternate odd years: The physics and advanced analytical techniques of modern observational astronomy. Topics covered include coordinate systems, the optics of telescopes, detectors, images and spectra, data reduction and analysis using student developed computer code, model selection, and physical interpretation of data

ASTR 476 Theoretical Astrophysics: 3 Credits (3 Lec)

PREREQUISITE: ASTR 373 and PHSX 425. (Sp) Taught in Spring

Term: A course covering the physics of astronomical objects and various phenomena, such as stellar radiation, compact objects, accretion, galactic dynamics, dark matter, dark energy, and physics of the early Universe

ASTR 491 Special Topics: 1-4 Credits ()

ASTR 550 Radiative Processes in Astrophysics: 3 Credits (3 Lec)

PREREQUISITE: PHSX 519. This course covers electromagnetic radiation from astrophysical sources. Topics include radiative transfer, blackbody radiation, atomic and molecular absorption and emission, radiation from moving charges, relativistic beaming, Bremsstrahlung, synchrotron radiation, and Compton scattering. Applications to stars, the interstellar medium, supernovae, X-ray binaries, and active galactic nuclei will be discussed. Offered every other Spring (even years)

ASTR 560 Stellar Astrophysics: 3 Credits (3 Lec)

PREREQUISITE: PHSX 425, PHSX 462, PHSX 446, or graduate standing. () This course covers the physics of stars and stellar remnants.

Topics include equations of the observed properties of stars, stellar structure, equations of state, numerical stellar models, dynamics and evolution of compact objects and accretion theory. Offered every other Fall (even years)

ASTR 561 Astrophysics of Galaxies: 3 Credits (3 Lec)

PREREQUISITE: ASTR 560. This course covers the stellar, gaseous, and dark matter content of galaxies, their internal bulk properties, structure, and dynamics. Additional topics include galaxy evolution, supermassive black holes, active galactic nuclei and large-scale structure. Offered every other Spring (odd years)

ASTR 591 Special Topics: 1-4 Credits ()