Master Syllabus Department of Physics and Astronomy



ASTR 330 ASTRONOMY AND ASTROPHYSICS 1

Course Description

This course is a review of mechanics, electromagnetic radiation and atomic structure in the context of modern astrophysics. The solar system, an introduction to celestial mechanics, the interactions of light and matter and light detection, and stellar structure are surveyed. (4 credit hours)

Prerequisites: PHYC 120, 122.

Course Objectives

The course is intended to introduce the students to the application of physics and physical laws processes and questions in astronomy.

Course Rationale

The course serves as an elective for physics majors and is a requirement for the astrophysics minor.

Course Content, Format, and Bibliography

Content

Celestial mechanics

Physical processes in the solar system

Continuous electromagnetic radiation

Radiation and matter

Telescopes and detectors

Stellar Spectra, Atmospheres and Interiors

Format

Students are evaluated on the basis of homework and examinations. There is also a laboratory component to the course that requires written reports.

This course is taught as a dual undergraduate/graduate course. Students will be required to complete activities appropriate for the level of the course in which they are enrolled. Student performance on homework, exams and/or labs will be evaluated using different standards for undergraduate and graduate students.

Master Syllabus: ASTR 330

Bibliography

Textbook

Astronomy a Physical Perspective, by Marc L. Kutner, Cambridge University Press.

Introductory Astronomy & Astrophysics, by Michael Zeilik and Stephen A. Gregory, Saunders College Publishing, 1998.

An Introduction to Modern Astrophysics, by Bradley W. Carroll and Dale A. Ostlie, Addison-Wesley Publishing Company, 2006.

Astronomy a Physical Perspective, by Marc L. Kutner, Cambridge University Press.