AST 1010 Discovering the Universe Cr. 1
This is a first-year astronomy laboratory course designed to introduce and explore the field of astronomy. We will discuss current hot topics throughout astronomy, and explore data from observatories including Wayne State's robotic Zowada Observatory, as well as NASA missions. It is intended for astronomy majors and minors or those considering an astronomy major or minor. Offered Yearly.

AST 2010 Descriptive Astronomy Cr. 4
Satisfies General Education Requirement: Natural Scientific Inquiry, Physical Sciences
Lecture course that introduces the concepts and methods of modern astronomy, the solar system, stars, galaxies, and cosmology; recent discoveries about planets, moons, the sun, pulsars, quasars, and black holes. Meets General Education Laboratory requirement only when taken with Coreq: AST 2011. Offered Every Term.

Prerequisite: (AST 2010 (may be taken concurrently) with a minimum grade of C or AST 5010 (may be taken concurrently) with a minimum grade of C) or PHY 5010 (may be taken concurrently) with a minimum grade of C
Course Material Fees: $25

AST 2011 Descriptive Astronomy Laboratory Cr. 1
Laboratory exercises and observations; includes two late evening viewing sessions. Satisfies General Education Laboratory requirement when taken concurrently with AST 2010. Offered Every Term.
Prerequisite: (AST 2010 (may be taken concurrently) with a minimum grade of C or AST 5010 (may be taken concurrently) with a minimum grade of C) or PHY 5010 (may be taken concurrently) with a minimum grade of C

AST 2030 Life in the Universe Cr. 3
Satisfies General Education Requirement: Natural Scientific Inquiry, Quantitative Experience Comp
Are we alone in the Universe? In the last three decades astronomers have discovered thousands of planets around stars other than our own Sun. Which of those planets might have the right conditions to harbor life? In this course we will discuss the emerging field of astrobiology. We will explore the conditions needed for life, where in the Universe might have those conditions, and how scientists are searching for planets and signs of life elsewhere in the Universe. Offered Fall, Winter.

AST 4100 Astronomical Techniques Cr. 3
Techniques of modern astrophysics. Detectors used in astronomy for optical and infrared photons, radio and microwaves, X- and gamma rays, and neutrinos. Techniques in imaging, photometry, spectroscopy, astrometry, polarimetry, and for analyzing public data available on the web. Offered Fall.
Prerequisites: PHY 2180 with a minimum grade of C and PHY 2181 with a minimum grade of C
Restriction(s): Enrollment is limited to Undergraduate level students.

AST 4200 Astronomical Laboratory Cr. 2
Satisfies General Education Requirement: Writing Intensive Competency
Introduction to laboratory techniques of modern astrophysics. Optical astronomy, including measurement of the quantum efficiency of a CCD-based astronomical digital camera; measurement of the throughput as a function of wavelength of a set of standard astronomical filters; measurement of the HR diagram of a star cluster using the calibrated camera and filters. Offered Fall.
Prerequisites: AST 4100 with a minimum grade of D
Course Material Fees: $25

AST 4300 Planetary Astronomy and Space Science Cr. 3
Formation and evolution of the solar system: planetary surfaces, interiors, atmospheres, and magnetospheres; asteroids, comets, planetary satellites, and ring systems. Emphasis on using basic physics to understand observed properties of the solar system. Offered Winter.
Prerequisites: PHY 2180 with a minimum grade of C and PHY 2181 with a minimum grade of C