

# ASTRONOMY (AST)

**NOTE: All prerequisites for Astronomy (AST) courses must be completed with a grade of "C-" or better.**

## Astronomy (AST) Courses

**AST 1013. Introduction to Astronomy. (3-0) 3 Credit Hours. (TCCN = ASTR 1303)**

Prerequisite: MAT 1023 or MAT 1073. A descriptive course including the development of astronomy, its methods, and the motions, laws, and evolution of the solar system. Topics include general properties and types of stars, unusual stellar objects such as quasars and black holes, galaxies, evolution, and cosmology. Occasional evening viewing sessions are held. May apply toward the Core Curriculum requirement in Life and Physical Sciences. Generally offered: Fall, Spring, Summer. Course Fees: LRC1 \$12; LRS1 \$46.20; MEPA \$18; STSI \$21.60; DL01 \$75.

**AST 1031. Introduction to Astronomy Laboratory. (1-2) 1 Credit Hour. (TCCN = ASTR 1103)**

Prerequisite: Completion of or concurrent enrollment in AST 1013, or consent of instructor. This course is an introduction to practical observational techniques, using the school's telescopes as well as student-built classical instruments and exercises in the use of the telescope and certain other astronomical instruments, including simple observations, measurements, and photography. Topics include in-class projects on spectroscopy, stellar positions, solar heating, planetary motions, solar and astrophotography, star clusters, galaxies, and cosmology. Generally offered: Fall, Spring. Course Fees: LRC1 \$4; LRS1 \$15.40; MEPA \$18; STSI \$7.20.

**AST 1033. Exploration of the Solar System. (3-0) 3 Credit Hours. (TCCN = ASTR 1304)**

Prerequisite: MAT 1023 or MAT 1073. A descriptive course of modern studies of the solar system, including a survey of the properties of the planets and smaller bodies (asteroids and comets) and current theories of the origin of planetary systems. Topics include results from the latest satellite, robotic, and human exploration of space, origin of life in the solar system, existence of other planetary systems, possibilities of space colonization, and the search for extraterrestrial life (techniques and possibilities of communication with other intelligences). May apply toward the Core Curriculum requirement in Life and Physical Sciences. Generally offered: Fall, Spring. Course Fees: LRC1 \$12; LRS1 \$46.20; MEPA \$18; STSI \$21.60; DL01 \$75.

**AST 3013. Fundamentals of Astronomy. (3-0) 3 Credit Hours.**

Prerequisite: PHY 1963 and MAT 1223 (or MAT 1224 in previous catalogs), or MAT 1193 and STA 1403, completed with a grade of "C-" or better. This is a one-semester introductory survey course on modern astronomy for science and engineering majors. Students need to be comfortable with solving problems and using math as a tool to help master the course material. Students concerned about their problem-solving and math skills should consider taking AST 1013 instead, which is intended for non-science majors. Among the topics covered are the celestial sphere, basic orbit theory, stellar parameters, binary stars and light curves, and basic introduction to stellar spectral classification. (Formerly AST 2063 in previous catalogs. Credit cannot be earned for both AST 3013 and AST 2063.) Generally offered: Fall. This course has Differential Tuition. Course Fee: DL01 \$75; MEPA \$18.

**AST 3023. Introduction to Astrophysics. (3-0) 3 Credit Hours.**

Prerequisite: AST 3013 or consent of instructor. Topics include an introduction to stellar structure and evolution, stellar atmospheres, collapsed stars, galactic structure, introduction to cosmology, etc. (Formerly AST 3003 and PHY 4003 in previous catalogs. Credit cannot be earned for more than one of the following: AST 3003, AST 3023, or PHY 4003.) Generally offered: Spring. This course has Differential Tuition. Course Fee: MEPA \$18; DL01 \$75.

**AST 4203. Stellar Astrophysics. (3-0) 3 Credit Hours.**

Prerequisite: AST 3023 or consent of instructor. Topics include properties and evolution of stars, stellar atmospheres, stellar spectra, nuclear reactions, stellar models, equations of state, radiative transfer, nucleosynthesis in stars, supernovae, and degenerate stars. This course has Differential Tuition.

**AST 4953. Special Studies in Astronomy. (3-0) 3 Credit Hours.**

Prerequisites: AST 3023 and consent of instructor. An organized course offering the opportunity for specialized study not normally or not often available as part of the regular course offerings. Special Studies may be repeated for credit when the topics vary, but not more than 6 semester credit hours, regardless of discipline, will apply to a bachelor's degree. This course has Differential Tuition. Course fee: DL01 \$75.