ASTRONOMY AND ASTROPHYSICS

Not all courses are offered every semester. Refer to the schedule of courses for each term's specific offerings.
More Info (https://one.uf.edu/soc/)

Unless otherwise indicated in the course description, all courses at the University of Florida are taught in English, with the exception of specific foreign language courses.

Department Information

The Department of Astronomy is home to a vibrant community actively engaged in research, education, and outreach. The department's faculty are involved in a wide range of research programs (https://www.astro.ufl.edu/research/) using world-class resources including an in-house design-through-fabrication instrumentation program (https://www.astro.ufl.edu/instrumentation/past-current-projects/), partner level access to the Gran Telescope Canarias (https://www.astro.ufl.edu/research/telescopes/), the HiPerGator-2 (https://www.astro.ufl.edu/research/computing/) supercomputer, and more.
Website (https://www.astro.ufl.edu/)

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Map (http://campusmap.ufl.edu/#/index/0038)

Curriculum
- Astronomy and Astrophysics
- Astronomy Minor

Courses

AST 1002 Discovering the Universe 3 Credits
Grading Scheme: Letter Grade
An elementary and largely nonmathematical survey of the universe of stars, planets, and galaxies. Get acquainted with the development of astronomy as a human activity and how people know what they know. Primarily for those not majoring in physical science or mathematics.
Attributes: General Education - Physical Science

AST 1022L Astronomy Laboratory 1 Credit
Grading Scheme: Letter Grade
Introduces experimental work in astronomy including scheduled laboratory exercises during the day in the teaching lab and evening observational astronomy at the on campus teaching observatory. (P)
Attributes: General Education - Physical Science

AST 2000 Cosmology 3 Credits
Grading Scheme: Letter Grade
Overview of cosmology, the study of the large-scale structure and history of the universe, in four components: ideas about the universe as a whole predating the twentieth century; ideas from twentieth century physics that impact modern cosmology; stars, black holes, galaxies and quasars as probes of the universe; and the Hot Big Bang Model.

AST 2003 Introduction to the Solar System 3 Credits
Grading Scheme: Letter Grade
Survey of the solar system including the sun, planets, satellites, asteroids, meteorites and comets. (P)
Prerequisite: simple algebra.
Attributes: General Education - Physical Science

AST 2037 Life in the Universe 3 Credits
Grading Scheme: Letter Grade
The origin of life on Earth and the possibility of life elsewhere. A multidisciplinary approach is followed. Conditions for life to form and the likelihood that such conditions may exist elsewhere in the universe are discussed. Also considered are schemes proposed for the search for extraterrestrial intelligence (SETI). (P)
Attributes: General Education - Physical Science

AST 2730 Introduction to Python for Physical Sciences 4 Credits
Grading Scheme: Letter Grade
Learn syntax, capabilities, and foundations of Python and basic numerical methods to address physical problems with a computational approach. Covers basics of dataset manipulation, algorithm development, and plotting.

AST 3018 Astronomy and Astrophysics 1 3 Credits
Grading Scheme: Letter Grade
First part of a two part sequence. Survey of astronomy and astrophysics for physical science, engineering, or mathematics majors. Covers gravitation, orbits and tides; the Moon's phases and eclipses; light and spectra; the solar system; and a few historical milestones. (P)
Prerequisite: (PHY 2048 or PHY 2060) and (MAC 2311 or MAC 3472).
Corequisite: PHY 2049.
Attributes: General Education - Physical Science

AST 3019 Astronomy and Astrophysics 2 3 Credits
Grading Scheme: Letter Grade
Second part of a two part sequence. Survey of astronomy and astrophysics for physical science, engineering or mathematics majors. Covers compact objects; the Solar System; exoplanets; the Milky Way and galaxies; cosmology and relativity.
Prerequisite: (PHY 2048 or PHY 2060) and (MAC 2311 or MAC 3472).
Corequisite: PHY 2049.
Attributes: General Education - Physical Science

AST 3043 History of Astronomy through Newton 3 Credits
Grading Scheme: Letter Grade
Astronomy from its beginnings through Newton. Emphasizes the works of Ptolemy, Copernicus, Kepler, Galileo, and Newton.
Prerequisite: MAC 1105 or MAC 1114.
Attributes: General Education - Humanities, General Education - International, General Education - Physical Science

AST 3722C Techniques of Observational Astronomy 1 3 Credits
Grading Scheme: Letter Grade
First part of the AST 3722C-4723C sequence. The fundamental principles and techniques used in planning, making, reducing and analyzing modern astronomical observations. Includes classroom lectures and discussion, indoor laboratory work, data analysis and outdoor night observations. Introduces numerical treatment of observations, CCD imaging, digital imaging processing and astronomical spectroscopy.
Corequisite: AST 3018.

AST 4211 Essentials of Astrophysics 3 Credits
Grading Scheme: Letter Grade
Foundation and background on topics in astrophysics, including broadening mechanisms of spectral lines, equations of state of gases, thermodynamics, radiation sources, radiative transport, kinetic theory of gases and stellar structure.
Prerequisite: AST 3018, AST 3019 and a working knowledge of calculus.

AST 4300 Galactic Astronomy 3 Credits
Grading Scheme: Letter Grade
Intensive introduction to the fundamental properties of the Milky Way and its system of satellite galaxies. Course is intended for astronomy majors and natural science students. Topics include the ages, chemical abundances and kinematics of field stars and star clusters, the properties of the interstellar medium and its role in star formation, the dark matter content and models of the Milky Way's physical structure.
Prerequisite: AST 3018, AST 3019 and a working knowledge of calculus.

AST 4402 Galaxies and Cosmology 3 Credits
Grading Scheme: Letter Grade
An investigation into the properties of galaxies and their distribution in space. Some cosmological implications of this distribution are discussed. Intended for astronomy majors and advanced students of other mathematical sciences.
Prerequisite: AST 3018, AST 3019 and a working knowledge of calculus.

AST 4723C Techniques of Observational Astronomy 2 3 Credits
Grading Scheme: Letter Grade
Second part of a sequence. The fundamental principles and techniques used in planning, making, reducing, and analyzing modern astronomical observations. Includes classroom lectures and discussion, indoor laboratory work, data analysis, and outdoor night observations. Introduces numerical treatment of observations, CCD imaging, digital imaging processing, and astronomical spectroscopy.
Prerequisite: AST 3722C.

AST 4905 Individual Work 1-3 Credits
Grading Scheme: Letter Grade
Assigned reading or research for qualified undergraduates.
Prerequisite: AST 3018 and AST 3019, or two years of college physics and instructor permission.

AST 4911 Undergraduate Research in Astronomy 0-3 Credits
Grading Scheme: Letter Grade
Provides firsthand, supervised research in Astronomy. Projects may involve inquiry, design, investigation, scholarship, discovery or application in Astronomy.

AST 4930 Special Topics 1-3 Credits
Grading Scheme: Letter Grade
Lecture, seminar or laboratory sessions covering selected topics of current interest in astronomy.
Prerequisite: instructor permission.

PHZ 3152 Advanced Computational Techniques 3 Credits
Grading Scheme: Letter Grade
Advanced Computational Techniques in Astronomy and Physics. Advanced techniques in computational methods in the natural sciences and numerical analysis. Includes version controlling and programming in distributed environments; grid construction and convergence techniques; numerical differentiation; linear algebra; root finding; differential equations; Monte Carlo simulations; open source project development.
Prerequisite: MAC 2312 or equivalent.