ASTRONOMY AND ASTROPHYSICS

Department of Physics and Astronomy
College of Natural Science

101 The Celestial Clockworks
Spring, 1(1-0)
Relationship between ancient skylore and timekeeping. Establishment of a calendar and celestial navigation. Development of the Greek horoscope as a time recorder and coordinate system.

207 The Science of Astronomy
Fall, 3(3-0) P:M: ((PHY 231 or concurrently) or (PHY 231B or concurrently) or (ISP 205 or concurrently) or (PHY 181B or concurrently) or (PHY 183 or concurrently) or (PHY 183B or concurrently)) or (LBS 271 or concurrently) or (PHY 231C or concurrently)) and (MTH 116 or concurrently) or (MTH 114 or concurrently) or (LBS 117 or concurrently) Not open to students with credit in AST 201.
In-depth study of one topic in astronomy with emphasis on key discoveries. Topics may be cosmology, the solar system, and the life of stars. Observing with portable telescopes.

208 Planets and Telescopes
Spring, 3(2-2) P:M: (PHY 183 or PHY 183B or PHY 193H) and (MTH 132 or MTH 152H or LBS 118) RB: AST 207 Not open to students with credit in AST 303.

301 Junior Research Seminar
Fall, Spring, 1(1-0) P:M: Completion of Tier I writing requirement.
Preparation and presentation of a review paper on a current topic in astronomy or astrophysics.

303 Planetary System Astronomy
Fall of even years, 3(3-0) P:M: (PHY 183 or PHY 193H or PHY 183B) and (MTH 132 or MTH 152H or LBS 118) SA: AST 201.
Origin and nature of the solar system. Planets of the solar system and other star systems. Asteroids, meteorites, and comets. Determination of time and celestial coordinates.

304 Stars
Fall of even years, 3(3-0) P:M: AST 208 and PHY 215 and (PHY 321 or concurrently) SA: AST 401.

307 The Milky Way
Fall of odd years, 3(3-0) P:M: (PHY 183 or PHY 193H or PHY 183B) and (MTH 132 or MTH 152H or LBS 118) SA: AST 202.

308 Galaxies and Cosmology
Spring of odd years, 3(3-0) P:M: AST 208 and PHY 215 and (PHY 321 or concurrently) SA: AST 402.

310 Directed Studies
Fall, Spring, Summer, 1 to 3 credits.
A student may earn a maximum of 4 credits in all enrollments for this course. R: Approval of department.
Individual study or project in astronomy or astrophysics under the direction of a faculty member.

312 Observational Astronomy
Spring, 1(0-2) P:M: AST 303 or AST 307
Basic observational techniques in astronomy. Stellar photometry and spectroscopy.

410 Senior Thesis
Fall, Spring, Summer, 1 to 4 credits.
A student may earn a maximum of 5 credits in all enrollments for this course. P:M: (AST 301) and completion of Tier I writing requirement. Design and execute an original experiment or computation. A written and oral report of the research is required.

800 Research Methods
Fall, Spring, Summer, 3(3-0) A student may earn a maximum of 12 credits in all enrollments for this course. RB: AST 801.
Apprenticeship in astrophysical research. Student will work closely with faculty member to learn research techniques.

802 Techniques of Modern Astrophysics
Fall, Spring, 3 credits. RB: AST 801
Students are introduced to modern astrophysics through participation in short projects involving literature surveys, professional planning, and research in observational, theoretical, and computational astrophysics.

805 Research Project
Fall, Spring, 3(0-3) A student may earn a maximum of 6 credits in all enrollments for this course. Research project to be completed under the guidance of an astronomy faculty member.

810 Radiation Astrophysics
Fall of odd years, 3(3-0)
Transfer of radiant energy through plasmas and processes for emission and absorption of photons. Interpretation of the spectra of stars, the interstellar medium, and galaxies.

820 Advanced Topics in Astrophysics
Fall, Spring, 3(3-0) A student may earn a maximum of 9 credits in all enrollments for this course. RB: AST 801.
Advanced work in a specialized astrophysical topic.

825 Galactic Astronomy
Spring of odd years, 3(3-0)
The Milky Way as a galaxy. Observations and techniques of theoretical analysis that are used to discover the features of our galaxy.

835 Extragalactic Astronomy
Fall of even years, 3(3-0)
Galaxies beyond the Milky Way. Large-scale structure of the universe. Cosmology.

840 Stellar Astrophysics
Spring of even years, 3(3-0)