ASTRONOMY (ASTR)

ASTR A100 **3 Units (54 lecture hours)**
Introduction to Astronomy
Grading Mode: Standard Letter, Pass/No Pass
Transfer Credit: CSU; UC.

Introduction to the origin, evolution and structure of the solar system, stars, galaxies and the Universe. Milestones in the science of astronomy from ancient times to the space age. Historical development of astronomical ideas leading to current models. Special focus on the latest discoveries from both ground- and space-based instruments. Consideration of current controversies in astronomy and the future of astronomical research. May be taken for grades or on a pass-no pass basis. Lecture.

ASTR A100H **3 Units (54 lecture hours)**
Introduction to Astronomy Honors
Grading Mode: Standard Letter, Pass/No Pass
Transfer Credit: CSU; UC.

Introduction to the origin, evolution and structure of the solar system, stars, galaxies and the universe. Milestones in the science of astronomy from ancient times to the space age. Historical development of astronomical ideas leading to current models. Special focus on the latest discoveries from both ground- and space-based instruments. Consideration of current controversies in astronomy and the future of astronomical research. May be taken for grades or on a pass-no pass basis. Lecture.

ASTR A100L **1 Unit (54 lab hours)**
Introduction to Astronomy Laboratory
Prerequisite(s): ASTR A100, ASTR A100H, ASTR A101, ASTR A102, ASTR A103 or ASTR A104, or concurrent enrollment.

Grading Mode: Standard Letter, Pass/No Pass
Transfer Credit: CSU; UC.

A laboratory course designed for non-science majors. It will provide practical experience with the scientific method through outdoor astronomical observations and indoor analysis of experimental data. May be taken for grades or on a pass-no pass basis. Lab.

ASTR A100M **1 Unit (54 lab hours)**
Introduction to Astronomy Laboratory Honors
Prerequisite(s): ASTR A100, ASTR A100H, ASTR A101, ASTR A102, ASTR A103 or ASTR A104, or concurrent enrollment.

Grading Mode: Standard Letter, Pass/No Pass
Transfer Credit: CSU, UC.

A laboratory course designed for non-science majors. It will provide practical experience with the scientific method through outdoor astronomical observations and indoor analysis of experimental data. May be taken for grades or on a pass-no pass basis.

ASTR A101 **3 Units (54 lecture hours)**
Planetary Astronomy
Grading Mode: Standard Letter, Pass/No Pass
Transfer Credit: CSU; UC.

An introduction to the current solar system. A comparative study will be made of the planets and their satellites, dwarf planets, asteroids, and interplanetary debris. An overview of the formation, evolution and structure of the solar nebula will be presented. Current topics on interplanetary missions, extrasolar planets, and extraterrestrial life will be discussed. May be taken for grades or on a pass-no pass basis. Lecture.

ASTR A102 **3 Units (54 lecture hours)**
Stellar Astronomy
Grading Mode: Standard Letter, Pass/No Pass
Transfer Credit: CSU; UC.

A detailed study of the formation, structure, and evolution of the sun and stars, including an overview of binary systems, variable stars, supernovae, white dwarfs, neutron stars, black holes, and other stellar phenomena. A survey of particle physics and special and general relativity will also be included. May be taken for grades or on a pass-no pass basis. Lecture.

ASTR A103 **3 Units (54 lecture hours)**
Cosmology
Grading Mode: Standard Letter, Pass/No Pass
Transfer Credit: CSU; UC.

An introduction to the origin and evolution of the Universe with emphasis on the cosmological models. Types of galaxies and their distribution in the universe, gravitational lensing, dark matter, and dark energy will be examined. An overview of particle physics and special and general relativity will be included. May be taken for grades or on a pass-no pass basis. Lecture.

ASTR A104 **3 Units (54 lecture hours)**
Galactic Astronomy
Grading Mode: Standard Letter, Pass/No Pass
Transfer Credit: CSU; UC.

An overview of the origin, structure, and dynamical nature of the Milky Way. An emphasis on the different types of galaxies and their evolution through time. Observational techniques used to study galaxies and the evidence for supermassive black holes, quasars, and dark matter. May be taken for grades or on a pass/no-pass basis. Lecture.

ASTR A110 **2 Units (18 lecture hours; 54 lab hours)**
Observational Astronomy
Grading Mode: Standard Letter, Pass/No Pass
Transfer Credit: CSU; UC.

An introduction to the methods and techniques of observational astronomy, telescope principles, and operations as applied to public viewing of astronomical phenomena. This course is designed for students to operate the telescopes and assist the public in observing objects in the night sky. May include field trips to nearby observatories, planetaria, and public science facilities. May be taken for grades or on a pass-no pass basis.

ASTR A200 **4 Units (72 lecture hours)**
Introduction to Astrophysics
Prerequisite(s): PHYS A185 or PHYS A185H.

Advisory: PHYS A285.

Grading Mode: Standard Letter
An introduction to astrophysics for science students. Emphasis on applying physical principles to gain a quantitative understanding of astrophysical phenomena. Topics covered include celestial mechanics; electromagnetic radiation; spectroscopy; stellar structure, evolution, and remnants; galaxies; and cosmology. Transfer Status: CSU, UC.

ASTR A200H **4 Units (72 lecture hours)**
Introduction to Astrophysics Honors
Prerequisite(s): PHYS A185 or PHYS A185H.

Advisory: PHYS A285.

Grading Mode: Standard Letter
Transfer Credit: CSU; UC.

An introduction to astrophysics for science students. Emphasis on applying physical principles to gain a quantitative understanding of astrophysical phenomena. Topics covered include celestial mechanics; electromagnetic radiation; spectroscopy; stellar structure, evolution, and remnants; galaxies; and cosmology.