

ASTRONOMY (ASTR)

ASTR 100 PRINCIPLES OF ASTRONOMY 3 UNITS

Pass/No Pass or Grade is Allowed

Recommended Preparation: Elementary algebra proficiency, as determined through the Southwestern College Multiple Measures Process; RDG 158 or equivalent or through the Southwestern College multiple measures placement processes.

Lecture 3 hours

Offered: ALL

Introduces the concepts and methods developed in astronomy to describe and understand the physical nature and processes on astronomical phenomena. Includes topics such as the sky, the solar system, stars and stellar evolution, nebulae, the Milky Way Galaxy, galaxies, and cosmology. [D; CSU; UC]

ASTR 109 ASTRONOMY LABORATORY 1 UNIT

Pass/No Pass or Grade is Allowed

Recommended Preparation: Elementary algebra proficiency, as determined through the Southwestern College Multiple Measures Process.

Corequisite: ASTR 100, ASTR 120, ASTR 150, ASTR 170, ASTR 180 or ASTR 205 (may be taken previously).

Laboratory 3 hours

Offered: ALL

Demonstrates astronomical principles through observation, simulation, and analysis of data. Includes topics such as the sky, the solar system, stars, nebulae, galaxies, and cosmology. [D; CSU; UC]

ASTR 120 SOLAR SYSTEM ASTRONOMY 3 UNITS

Pass/No Pass or Grade is Allowed

Recommended Preparation: Elementary algebra proficiency, as determined through the Southwestern College Multiple Measures Process; RDG 158 or equivalent or through the Southwestern College multiple measures placement processes.

Lecture 3 hours

Offered: FALL, SPRING

Investigates the origin of the Sun and planets and how they change. Analyzes the physical properties of planets, moons, rings, comets, and asteroids. Surveys the history of space exploration. Topics include: solar system formation and evolution; comparative planetology; recent discoveries regarding our solar system; and planets around distant stars. [D; CSU; UC]

ASTR 150 DISCOVERY OF THE COSMOS 3 UNITS

Pass/No Pass or Grade is Allowed

Recommended Preparation: RDG 158 or equivalent or through the Southwestern College multiple measures placement processes.

Lecture 3 hours

Offered: SPRING

Chronological exploration of the major astronomical observations and discoveries - from ancient times to the early twentieth century - that have shaped our current understanding of the universe. Includes constellations and astronomical lore; the sky; ancient cosmologies; heliocentrism; pre- and early-telescopic discoveries; stars; nebulae; the Galaxy; galaxies; and the expanding universe. [D; CSU; UC]

ASTR 170 THE RADICAL UNIVERSE 3 UNITS

Pass/No Pass or Grade is Allowed

Recommended Preparation: Elementary algebra proficiency, as determined through the Southwestern College Multiple Measures Process; RDG 158 or equivalent or through the Southwestern College multiple measures placement processes.

Lecture 3 hours

Offered: FALL

Explores how modern advances in human understanding of the physical nature of the universe -- relativity, quantum mechanics, and cosmology -- show that the universe often radically defies intuition. Demonstrates how behavior of the universe extends far beyond expectations derived from daily experiences. Topics include: black holes; curved spacetime; and origin and fate of the universe. [D; CSU; UC]

ASTR 180 LIFE IN THE UNIVERSE 3 UNITS

Pass/No Pass or Grade is Allowed

Recommended Preparation: Elementary algebra proficiency, as determined through the Southwestern College Multiple Measures Process; RDG 158 or equivalent or through the Southwestern College multiple measures placement processes.

Lecture 3 hours

Offered: FALL, SPRING

Explores how the universe evolved from a mix of subatomic particles into intelligent life itself. Examines the probability that extraterrestrial intelligence exists and the possibility of communication. Topics include: origin and evolution of the universe; birth, aging, and death of stars; chemical enrichment of the galaxy; and comets and the origin of life. [D; CSU; UC]

ASTR 201

ASTRONOMY FOR SCIENCE MAJORS

3 UNITS

Pass/No Pass or Grade is Allowed

Prerequisite: MATH 244 or MATH 101 and MATH 104, or equivalent or through the Southwestern College multiple measures placement processes.

Lecture 3 hours

Offered: FALL

Introduces modern astronomy for students with a strong interest in science and mathematics. Includes topics such as the sky; light and energy; the Solar System; stars and stellar evolution; black holes; the Milky Way Galaxy; galaxies; origin, evolution, and fate of the universe. [D; CSU; UC]

ASTR 205

ELEMENTARY ASTROPHYSICS

3 UNITS

Pass/No Pass or Grade is Allowed

Prerequisite: PHYS 270 or equivalent.

Lecture 3 hours

Offered: FALL, SPRING

Modern observational advances and theoretical results concerning the physical properties and processes in stars and their relationship to stellar evolution. Topics include: interstellar nebulae, stellar associations, the Milky Way, galaxies, active galaxies and quasars, and modern cosmology. [D; CSU; UC]

ASTR 299

INDEPENDENT STUDY

1-3 UNITS

Pass/No Pass or Grade is Allowed

Limitation on Enrollment: Eligibility for independent study.

Lecture 3 hours

Offered: ALL

Independent study or research in some area of the mathematical sciences of particular interest to the student and not included in regular courses of the college. [D; CSU; **UC] (**UC Limitation: credit for variable topics courses is given only after a review of the scope and content of the courses by the enrolling UC campus.)