Physics majors and minors must earn a minimum grade of C in all physics courses.

LOWER DIVISION

PHYX 100. From Stars to Rocks: Being a Scientist in the 21st Century [3]. Introduction to the impact of astronomy, chemistry, physics, and geology on student life and society, practical aspects of the study of the disciplines and associated careers from different perspectives. [E-LD]


PHYX 104S. Descriptive Astronomy [4]. Understand and appreciate astronomy/planet Earth. Methods of obtaining facts and formulating principles. Labs: naked-eye star/planet observation, movement of moon and celestial sphere, constellations, galaxies, star clusters, light and spectroscopy, telescopes. Lab will include service learning through providing workshops to students in K-12 schools and programs requiring two visits to local schools. For nonmajors. [Weekly: 3 hrs lect, 3 hrs lab/field trips. Prereq: Math placement category I, II, or III. B-LD.]


PHYX 118. College Physics: Biological Applications [1]. Geometrical optics, simple DC circuits. [Prereq: PHYX 106 C. Weekly: 2 hrs lect; half semester.]


PHYX 210. General Physics B: Thermodynamics, Waves & Optics [4]. Calculus-based, for science/engineering students. [Prereq: MATH 110C and PHYX 109C with a grade of C or higher; or an approved physics series. Weekly: 2 hrs lect, 2 hrs actv, 3 hrs lab.]

PHYX 211. General Physics C: Electricity, Magnetism [4]. Calculus-based, for science/engineering students. [Prereq: MATH 210(C) and PHYX 210(C) or ENGR 211 and MATH 210(C) for engineering majors with grades of C or higher. Weekly: 2 hrs lect, 2 hrs actv, 3 hrs lab.]


UPPER DIVISION

PHYX 303. Life in the Universe [3]. Scholarly discussion of the probability that there are planets with life elsewhere in the universe, starting from current ideas about the origin and evolution of our solar system and life. [Not intended for Physics majors. B-UD.]


PHYX 310. Spacetime & Relativity [3]. Einstein’s ideas on space-time curvature, geometry of space-time, and physics of gravitational collapse. Offered alternate years. [Prereq: MATH 210; PHYX 320. Rec: MATH 241.]

PHYX 315. Introduction to Electronics & Electronic Instrumentation [3]. Devices and circuits, both analog and digital, in science instrumentation. Construct amplifiers and digital circuits. [Prereq: PHYX 211 with a grade of C or higher. Weekly: 2 hrs lect, 3 hrs lab.]


PHYX 324. Analytical Mechanics [4]. Principles and foundations of mechanics, from classical to modern ideas. [Prereq: PHYX 211; MATH 311C or MATH 315C; MATH 313C.]


PHYX 340. Mathematical and Computational Methods [2]. Numerical, symbolic and graphical programming and simulations, mathematical applications important to physicists. [Prereq: PHYX 211(C).]


PHYX 361. Galaxies & Cosmology [4]. Structure and morphology of galaxies, active galactic nuclei, and quasars; dynamics of galaxies; interstellar medium; techniques of radio astronomy; the cosmic distance ladder and the expanding universe; the Big Bang. [Prereq: PHYX 360.]


PHYX 430. Computerized Instrumentation [3]. Experiment with computer interfacing, data acquisition, reduction. Assumes familiarity with some computer language. Use IBM PCs and Turbo Pascal. [Prereq: PHYX 316. Weekly: 1 hr lect, 6 hrs lab. Offered occasionally.]

PHYX 441. Electricity & Magnetism I [3]. Vector analysis, electrostatics, magnetostatics & electrodynamics. [Prereq: PHYX 340; MATH 313C (Rec: MATH 311C) or MATH 315C.]


PHYX 450. Quantum Physics I [4]. Quantum mechanics; introductory atomic physics. [Prereq: PHYX 320: MATH 313.]


PHYX 482. Senior Lab [2]. Experiments for senior physics majors. Bridge gap between carefully structured lower division lab experiences and truly independent research and development. [Prereq: PHYX 315 and PHYX 320. Rep.]

PHYX 480. Selected Topics in Physics for Seniors [1-5]. Offered as demand warrants. [Prereq: IA. Rep with different topics.]

PHYX 484. Physics Seminar I [0.5]. This is the first of a two-semester sequence. Students are expected to develop the skills necessary to research, prepare and effectively deliver technical presentations to an audience of peers. [Prereq: senior standing. CR/NC.]

PHYX 485. Physics Seminar II [0.5]. Seminar presentations by physics majors, faculty, and guest speakers. Capstone course. All physics majors are encouraged to attend the seminars. Only students with senior standing may enroll. [Prereq: PHYX 484; senior standing.]

PHYX 490. Senior Thesis I [1-3]. Based on theoretical or experimental investigation. Consult with department to choose subject. File approved proposal with department prior to semester(s) in which work will be done. [Prereq: consent of faculty member. Rep.]
**PHYX 491. Senior Thesis II** (2). Continue senior thesis project if more time required. [Prereq: PHYX 490. Rep.]

**PHYX 495. Undergraduate Research** (1-3). Individual investigation of selected problem. [Rep. For students showing outstanding ability. Prereq: IA.]

**PHYX 499. Directed Study** (1-3). Individual study on selected problems. [Prereq: IA. Rep.]