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 210. General Physics B: Thermodynamics, Waves & Optics [4]. Calculus-based, for science/engineering students. [Prereq: MATH 110 (C) and PHYX 109 (C) 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.]


PHYS 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-UJ.]

PHYX 304. Cosmos [4]. Grand picture in astronomy. Galaxies; general and special relativity; quantum gravity; cosmology; birth, present structure, and death of stars. For nonmajors. [Weekly. 3 hrs lect, 2 hrs disc. B-LD.]

PHYX 310. Spacetime & Relativity [3]. Einstein’s ideas on spacetime curvature, geometry of spacetime, and physics of gravitational collapse. Offered alternate years. [Prereq: PHYX 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 311 (C) or MATH 315(C); MATH 313 (C).]

PHYX 325. Thermal Physics [4]. Elements of classical and statistical thermodynamics. [Prereq: MATH 210 (C).]

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 313 (C). Rec: MATH 311(C) or MATH 315(C).]


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


PHYX 480. Selected Topics in Physics for Seniors [1-3]. 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 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.]