

Courses

PHYSICS

Note: Math 77, Physics 4A-B-C are prerequisite to all upper division and graduate physics courses, except Physics 100A-B. No more than 12 units of lower division physics may be applied toward a degree.

2A-B. General Physics (4-4)

Prerequisite: Math 28, 29, or equivalents; satisfactory score on mathematics proficiency test. Mechanics, properties of matter, heat, sound, light, electricity and magnetism, and modern physics. (3 lecture, 3 lab hours)

4A. Mechanics and Wave Motion (4)

Prerequisite: Math 75. Statics, forces, motions, properties of matter, wave motion and sound; solution of problems illustrating principles of mechanics. (3 lecture, 3 lab hours)

4B. Electricity and Magnetism (4)

Prerequisite: Physics 4A, Math 75, 76. Electrostatics, concepts of fields and potential, capacitance, D.C. circuits, chemical and thermal effects, magnetic fields, induced current, alternating current circuits. (3 lecture, 3 lab hours)

4C. Heat, Light and Radiation (4)

Prerequisite: Physics 4A, Math 75, 76. Temperature, calorimetry, heat flow, engine cycles, lenses, mirrors, optical instruments, spectra, atomic structure, radioactivity, X rays, and nuclear physics. (3 lecture, 3 lab hours)

55. Sound (3)

For music students and others interested in the physical basis of music. Vibrations and spectra of various musical instruments; harmony and discord, the tempered scale; acoustics; reproducing instruments; hearing.

100A-B. Modern Physics (2-2)

Prerequisite: Physics 2A-B or equivalent. Classical and quantum physics, electromagnetic spectrum, relativity, radiation and atomic structure, wave nature of matter, natural and artificial radioactivity, properties of nuclear radiations, structure of nucleus, fission process, fusion. Topics treated without use of calculus.

102. Modern Physics (3) (Former Phys 102A)

Foundations of atomic and nuclear physics, extranuclear structure of the atom, radioactivity and nuclear physics.

105A-B. Analytical Mechanics (3-3)

(A) Analytical and vector treatment of the fundamental principles of statics, kinematics, and dynamics. (B) Advanced dynamics; harmonic motion, central force fields and Lagrange's equations.

107A-B. Advanced Electricity and Magnetism (3-3)

Prerequisite: Physics 105A. (A) Mathematical analysis of electrostatics and magnetostatics, Gauss' law, solutions of Laplace's equation, images, theory of conduction, magnetic potentials. (B) Motion of ions in electric and magnetic fields, electromagnetic induction, Maxwell's equations and wave propagation, electron theory and magnetic properties.

110. Physical Optics (3)

Theory of optical phenomena; wave theory of light with applications to optical instruments; interference and diffraction phenomena, dispersion, polarization.