

**115. Introduction to Quantum Mechanics (3)**

Prerequisite: Physics 102, 105A, 110, Math 81. Historical background, postulates, meaning and methods of quantum mechanics; applications to atomic phenomena.

**116. Quantum Physics of Atoms (3)**

Prerequisite: Phys 115. Quantum mechanics applications to atomic and nuclear physics.

**120. Electrical Measurements (3)**

Prerequisite: Physics 4A-B-C, Math 77. Theory, operation and use of direct and alternating current measuring instruments. (2 lecture, 3 lab hours)

**130A-B. Advanced Laboratory (2-2)**

Prerequisite: Physics 102, 105A-B; senior physics major. Advanced experiments in mechanics, electricity and magnetism, atomic and nuclear physics. Opportunity for at least one individual project. (6 lab hours)

**140. Thermodynamics and Kinetic Theory (3)**

Prerequisite: Math 81. Fundamental concepts and laws of thermodynamics and kinetic theory with applications.

**162. Introduction to Solid State Physics (3)**

Prerequisite: Physics 115. Classification of solids; crystalline state and lattice vibrations; properties of metallic lattices and dielectrics; magnetic properties of solids; free electron theory and band theory of metals; semiconductors; imperfections.

**170A-B. Introduction to Mathematical Physics (2-2)**

Application of mathematical methods to the solution of problems in physics.

**175T. Topics in Contemporary Physics (3)**

Designed to provide students with special work in such areas of physics as plasmas, high energy physics, solid state, nuclear structure, astrophysics, low temperature phenomena.

**180A-B. Seminar in Physics (1-1)**

Prerequisite: senior or graduate physics major or permission of department chairman.

**190. Independent Study (1-3; max see reference)**

See *Regulations and Procedures—Independent Study*.

**GRADUATE COURSES**

(See *Course Numbering System—Definitions and Eligibility*)

*Note: Preparation equivalent to a physics major at Fresno State College and the permission of the instructor are prerequisite to admission to any of the graduate courses in Physics.*

**203A-B. Theoretical Physics (3-3)**

Advanced treatment of classical analytical mechanics including Lagrange's and Hamilton's formulation of the laws of motion, special relativity, small oscillation theory, hydrodynamics.

**220A-B. Advanced Electricity and Magnetism (3-3)**

Electromagnetic theory and its applications; solutions of Laplace's equation; electromagnetic potentials; cylindrical and spherical waves; retarded potentials; Lienard-Wiechert potentials; special relativity and electron theory.