140. Thermodynamics and Kinetic Theory (3)

Prerequisite: Math 117 or 119. 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.

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.

206. History and Philosophy of Physical Science (2)

Development of physical science from the historical standpoint and its significant contributions; philosophy of science, nature of reality, principle of causality, role of definitions in science, uncertainty and measurements, rise and decline of the mechanical view, epistemology.

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.

221A-B. Atomic and Nuclear Physics (3-3)

The nature of matter and radiation as deduced from the classical quantum and quantum mechanical theories; atomic and nuclear structure; the nature of the nucleus as deduced from classical, quantum and quantum mechanical theories; models of nuclear structure.

222A-B. Quantum Mechanics (3-3)

223. Statistical Mechanics (3)

Theoretical principles of classical and quantum statistics.

280A-B. Group Study of Selected Topics (3-3)

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

See *Regulations and Procedures—Independent Study*.

299. Thesis or Project (2-4; max total 4)

Prerequisite: See *Master's Degrees—Thesis Requirements*. Preparation, completion, and submission of an acceptable thesis or project for the master's degree.