

**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)**

Nonrelativistic quantum theory; state vectors and Hermitian operators, quantum mechanical pictures and representations, angular momentum, perturbation theory. Application to central force problems; hydrogen and helium atoms, scattering. Foundations of quantum field theory. Application of Group Theory to Quantum Mechanics.

**223. Statistical Mechanics (3)**

Theoretical principles of classical and quantum statistics.

**253A-B. Astrophysics (3-3)**

Radiant energy, atomic spectra, excitation and ionization, positional astronomy, magnitude systems, binary and variable stars, colors and star temperatures and stellar spectra. Continuous stellar radiation, theory of line formation, stellar interiors, stellar evolution, interstellar matter, galactic structure and galaxies.

**275T. Topics in Contemporary Physics (1-3; max total 6)**

Advanced topics in such areas as plasma physics, high energy physics, solid state physics, astrophysics, nuclear physics, biophysics, relativity.

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

See *Academic Placement—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.