Physics

Nickas, Pantelidis.

Major: Physics courses – 161; 185; 225; 331; 332; three terms of 301; 431; 432; either 408-409 or 471 (culminating experience).
Cognate courses – Mat 121, 122, 231.
Comprehensive evaluation (written and oral). Total of 9 or 10 major courses, plus 3 cognates = 12 or 13.
Highly recommended: CS 121.

Minor: Physics courses – Any five.
Cognate courses – Mat 121 and 122. Total of 5, plus 2 cognates = 7.

By-pass credit opportunities: Students who are placed directly into 185, General Physics II, and who receive a grade of B or above therein, will receive credit for 161, General Physics I, upon request.

Phy 160. Special Topics.
Phy 161. General Physics I. Mechanics, thermodynamics, wave motion, and sound. Lecture and laboratory. Partially satisfies the Natural World LADR. Prerequisite: Mat 112 or 121, or concurrent enrollment.
Phy 185. General Physics II. Electricity and magnetism, light, relativity. Lecture and laboratory. (Replaces Phy 125.) Prerequisites: Phy 161.
Phy 210. Great Experiments in Physics. Large-scale shifts in physical thought and societal behavior can often be linked to single major experiments throughout the history of physics. This course is designed to examine those landmark experiments and determine their effect on the scientific community. Prerequisite: One year of college-level science. Offered every other year.
Phy 225. Modern Physics. Experimental and theoretical basis of modern concepts of atomic and nuclear structure and some of their applications. Prerequisite: 185. Offered Spring Term in alternate years.
Phy 235. Mathematical Methods in Physics. Introduction to time series analysis, various functions, polynomials, and numerical methods needed in the study of physics and other sciences. Prerequisite: Mat 122.
Phy 260. Special Topics.
Phy 301. Seminar and Advanced Lab. Weekly discussion of current topics in physics; selected experiments and small scale research projects in classical and modern physics. Open to second-semester sophomore, junior, and senior majors and minors in physics. May be repeated for credit. .25 unit.
Phy 307. Directed Study. .50 unit.
Phy 323. Principles of Electronics. Introduction to the theoretical and practical implications of discrete electronic components, direct current (dc) and alternating current (ac) circuit design and semiconductor devices as used in the laboratory as well as in consumer electronics.
Phy 329. Physics and Metaphysics of Ancient Greece. A study of the development of physics and metaphysics from the pre-Socratics through Ptolemy; the influence of Greek physics and
astronomy on science from medieval times to Newtonian and post-Newtonian physics and cosmology. Offered Spring Term. No prerequisites. 1 unit.

**Phy 331. Classical Mechanics.** Mathematical analysis of selected topics in classical mechanics, including Lagrangian and Hamiltonian approaches. Prerequisite: 161.

**Phy 332. Electricity and Magnetism.** Physics of electric and magnetic fields, with emphasis on the development and consequences of Maxwell’s equations. Prerequisite: 185.

**Phy 357. Internship.** Off-campus supervised experience in physics.

**Phy 360. Special Topics.**

**Phy 370. Directed Study.** One unit.

**Phy 408, 409. Independent Study.** A two-semester equivalent of 471. .50 unit each.

**Phy 431. Physical Optics.** Theoretical and experimental study of the properties of light. Prerequisite: 185.

**Phy 432. Quantum Mechanics.** A description of few particle systems using both wave and matrix mechanics; the Schrodinger equation, uncertainty, expectation, operators, and eigenvalue problems. Prerequisite: 331 or consent of instructor.

**Phy 471. Independent Study.**