

Physics (PHYS)

PHYS& 100 Physics Non-Sci Majors

5 credits | NSL

Quarter(s): Sp

Emphasizes the process and historical/logical development of physics and relates the conceptual ideas of physics to everyday experience. The course is offered primarily to meet laboratory science requirements for an Associate degree; it is also useful in lieu of high school physics. Laboratory is included. Prerequisites: MATH 88 OR MATH 97 OR CCP 88 OR CCP 97 OR permission of the instructor.

PHYS& 114 General Phys I w/Lab

5 credits | NSL

Quarter(s): F

Provides the first quarter of a sequence for students in various health science, technology, and pre-professional areas. Student-initiated motion studies introduce the fundamental principles of mechanics through studies of kinematics, Newton's Principles, energy and momentum conservation principles, and their rotational analogues. Students participate in supporting small group laboratory investigations.

Prerequisites: MATH 098 or MATH 087/097 with a grade of C or better OR CCP 098 or CCP 097 with a grade of B or better.

PHYS& 115 General Phys II w/Lab

5 credits | NSL

Quarter(s): W

Incorporates both thermodynamics and electromagnetism, including active student investigations of temperature, heat and thermal energy, entropy, the properties of simple electric and magnetic fields, and simple AC and DC circuits. Classroom activities help students connect the nature and role of fundamental principles in physics with real everyday operations of those principles. Students learn operation and use of contemporary instrumentation in lab investigations.

Prerequisites: PHYS& 114 or Instructor Permission.

PHYS& 116 General Phys III w/Lab

5 credits | NSL

Quarter(s): Sp

Emphasizes the scientific development of fundamental principles through active student investigations of mechanical and electromagnetic waves, geometrical and physical optics, special relativity, particles, waves, the quantum theory of the atom, the physics of the nucleus, and elementary particle theory as time permits.

Prerequisite: PHYS& 115 (was PHYS 102) or instructor permission.

**PHYS& 221 Engr Physics I w/Lab
5 credits | NSL****Quarter(s): F**

Provides the first quarter of a three-quarter calculus-based physics sequence for majors in the physical sciences, engineering, or mathematics. The Principles of Newtonian Mechanics are introduced, progressing through kinematics, then dynamics, with applications to problems involving particle and rigid body motion. Small groups carry out supporting lab investigations that further clarify and apply these fundamental principles. Use of elementary calculus gradually increases during the quarter. Prerequisites: Completion of or concurrent enrollment in MATH& 151 or instructor permission.

**PHYS& 222 Engr Physics II w/Lab
5 credits | NSL****Quarter(s): W**

Second quarter of a three-quarter calculus-based physics sequence for majors in the physical sciences, engineering, or mathematics. Incorporates study of the mechanics of fluids, oscillatory motion, thermodynamics, electrostatics and electric current. Student labs include investigations of waves, temperature, heat flow, entropy and static electricity. The laboratory component further clarifies and applies these fundamental principles. Prerequisites: PHYS& 221, MATH& 152 or instructor permission.

**PHYS& 223 Engr Physics III w/Lab
5 credits | NSL****Quarter(s): Sp**

Third quarter of a three-quarter calculus-based physics sequence for majors in the physical sciences, engineering, or mathematics. Incorporates electromagnetism and wave physics through student investigation of magnetism, time-varying magnetic fields, DC and AC circuits, electromagnetic waves, geometrical and physical optics. The laboratory component further clarifies and applies these fundamental principles. Prerequisites: PHYS& 222 or instructor permission.

**PHYS 288 Cooperative Work
Experience
1-15 credits**

Provides work-based learning experience in a specific program of study. Individualized student outcomes are developed, focusing on behaviors that contribute to workplace success. Prerequisites: Instructor or Cooperative Education Coordinator permission. Concurrent requirements: COLL 289 or BUS 294 must be taken prior to or concurrent with this course.

**PHYS 299 Independent Study
1-10 credits**

Offers individualized learning opportunities for knowledge or skill development. Content and expectations are established between the student and instructor, and documented in an Independent Study contract. Prerequisites: By instructor permission only.