PHYS 102 - General Physics II (4)

This noncalculus-based course includes electrostatics, DC and AC circuits, magnetism, electromagnetic waves, optics, and an introduction to atomic and nuclear physics. Lecture and laboratory. 7 contact hours.

General Education Category: Advanced Quantitative/Scientific Reasoning.

Prerequisite: PHYS 101.

Offered: Spring, Summer.

PHYS 110 - Introductory Physics (4)

This algebra-based course includes vectors, statics, Newton’s Laws, work and energy, electrostatics, DC circuits, magnetism, electromagnetic waves, nuclear radiation, and topics in modern physics. Lecture and Laboratory. 7 contact hours.

General Education Category: Natural Science.

Prerequisite: MATH 120 or appropriate score on the math placement exam..

Offered: Spring, Fall, Summer.

PHYS 118 - Fundamentals of Physics I (4)

This noncalculus-based course includes vectors, statics, kinematics, Newton’s laws, energy, momentum, fluids, thermodynamics and wave motion. Lecture and laboratory.

Offered: As needed.

PHYS 119 - Fundamentals of Physics II (4)

This noncalculus-based course  includes electrostatics, DC and AC circuits, magnetism, electromagnetic waves, optics, and an introduction to atomic and nuclear physics. Lecture and laboratory.

Prerequisite: PHYS 118.

Offered: As needed.

PHYS 120 - The Extraordinary Physics of Ordinary Things (4)

Students will learn about physical principles governing everyday applications and phenomena such as sports, musical instruments, computers, etc. Students will see how various physical principles work together in these technologies.

General Education Category: Advanced Quantitative/Scientific Reasoning (AQSR)

Prerequisite: Completion of any mathematics general education distribution.

Offered: Spring.

PHYS 200 - Mechanics (4)

This calculus-based course includes vectors, statics, kinematics, momentum, energy, rotational motion, small oscillations, and fluid mechanics. Lecture and laboratory. 7 contact hours.

General Education Category: Natural Science.

Prerequisite: Successful completion of or concurrent enrollment in MATH 212, or consent of department chair.

Offered: Fall.

PHYS 201 - Electricity and Magnetism (4)

This calculus-based course includes electrostatics in a vacuum and in the presence of matter, DC and AC circuits, electromagnetism, and an introduction to optics. Lecture and laboratory. 7 contact hours.

General Education Category: Advanced Quantitative/Scientific Reasoning.

Prerequisite: PHYS 200 and prior or concurrent enrollment in MATH 213, or consent of department chair.

Offered: Spring.

PHYS 307 - Quantum Mechanics I (4)

Topics include relativistic mechanics, the failures of classical physics, the structure of the atom, and the wave description of matter, including the Schrödinger Equation, the hydrogen atom, angular momentum and spin. Lecture

Prerequisite: PHYS 201.

Offered: Fall (even years).

PHYS 309 - Nanoscience and Nanotechnology (4)

This course will introduce the basic physics of nanoscience, describe how properties change at the nanoscale and relate this basic science to new nanotechnologies**.**

General Education Category: Advanced Quantitative/Scientific Reasoning

Prerequisite: Any Natural Science General Education course.

Offered: Fall (odd years).

PHYS 311 - Thermodynamics (4)

This is an introduction to the laws of thermodynamics and its application to equilibrium systems, such as ideal gases, phase transformations, solutions and chemical reactions, and elementary statistical mechanics. Lecture.

Prerequisite: PHYS 200 and successful completion of or concurrent enrollment in MATH 213, or consent of department chair.

Offered: Fall (odd years).

PHYS 312 - Mathematical Methods in Physics (3)

Topics include curvilinear coordinates, complex variables, integral transforms, vectors and matrices, special functions, differential equations, and numerical methods as applied to physics. Lecture.

Prerequisite: MATH 314.

Offered: Spring.

PHYS 313 - Junior Laboratory (3)

Intermediate-level experiments are performed in all areas of physics. Students also learn research skills, such as data analysis, literature review, and communication skills. Laboratory. 6 contact hours.

Prerequisite: PHYS 201 and PHYS 307.

Offered: Spring.

PHYS 315 - Optics (4)

This course covers electromagnetic waves, geometric optics, and physical optics. Topics include: mirrors, lenses, optical