

PHYSICS (PHYS)

PHYS 1111. Introductory Physics I (3)

An introductory course which will include mechanics (kinematics, dynamics, work and energy, momentum and collisions, and rotational motion and statics), and may also include thermodynamics and waves. Elementary algebra and trigonometry will be used.

Prerequisites: PHYS 1111L (may be taken concurrently) and (MATH 1112A or MATH 1112 or MATH 1113 or MATH 1501)

PHYS 1111L. Introductory Physics Lab I (1)

Laboratory accompanying PHYS 1111.

Prerequisites: PHYS 1111 (may be taken concurrently)

PHYS 1112. Introductory Physics II (3)

An introductory course which will include electrostatics, electric current and circuits, and electromagnetism, and may also include optics and modern physics. Elementary algebra and trigonometry will be used.

Prerequisites: (PHYS 1111 PHYS 1112L (may be taken concurrently) and PHYS 1111L)

PHYS 1112L. Introductory Physics Lab II (1)

Laboratory accompanying PHYS 1112. This laboratory is required only for students majoring in the following disciplines: agriculture, biology, and physical therapy. Pre-medical students following an applied biology track, and veterinary students are also required to take this laboratory course.

Prerequisites: PHYS 1112 (may be taken concurrently)

PHYS 2211. Principles of Physics I (3)

An introductory course which will include mechanics (kinematics, dynamics, work and energy, momentum and collisions, and rotational motion and statics), and may also include thermodynamics and waves. Elementary calculus will be used.

Prerequisites: PHYS 2211L (may be taken concurrently) and MATH 2502 (may be taken concurrently)

PHYS 2211K. Principles of Physics & LAB (4)

An introductory course which will include material from mechanics, thermodynamics and waves. Elementary differential calculus will be used. This course has a laboratory component that requires a lab kit.

Prerequisites: (MATH 1501 and ECOR with a score of C)

PHYS 2211L. Principles of Physics Lab I (1)

Laboratory accompanying PHYS 2211.

Prerequisites: PHYS 2211 (may be taken concurrently)

PHYS 2212. Principles of Physics II (3)

An introductory course which will include electrostatics, electric current and circuits, and electromagnetism, and may also include optics and modern physics. Elementary calculus will be used.

Prerequisites: PHYS 2212L (may be taken concurrently) and (PHYS 2211 and PHYS 2211L) or PHYS 251

PHYS 2212K. Principles of Physics II (4)

An introductory course that will include material from electromagnetism, optics, and modern physics. Elementary differential and integral calculus will be used. This course has a laboratory component that requires a lab kit.

Prerequisites: MATH 1151 and PHYS 2211K

PHYS 2212L. Principles of Physics Lab II (1)

Laboratory accompanying PHYS 2212.

Prerequisites: PHYS 2212 (may be taken concurrently) and PHYS 2211L and (PHYS 2211 or PHYS 251)

PHYS 2454. Statics (3)

This is a pre-engineering/applied mathematics course that will cover the following topics: forces, moments, couples, equilibrium, equipollent systems, resultants, distributed forces, equilibrium analysis, free-body diagrams, practical examples, trusses, methods of joint and sections, multi-force members, shear-force and bending-moment diagrams, statics and structural design, coulomb friction, centroids and center-of-mass.

Prerequisites: PHYS 2211

PHYS 3141. Thermodynamics (3)

Introduction to the basic ideas and principles of thermodynamics such as thermodynamic properties, energy and mass conservation, entropy and the second law. Second-law applications to the analysis of thermodynamic systems, gas cycles and vapor cycles are discussed.

Prerequisites: PHYS 2211

PHYS 3213. Prin of Physics III - Modern (3)

A survey of twentieth century physics. Topics include Special Theory of Relativity, Planck's Theory of Radiation, particle/wave duality, Schrodinger equation solution for simple potentials, and properties of one-electron atom. Applications of quantum principles to multi-electron atoms, molecular, and nuclear structures may also be discussed.

Prerequisites: (PHYS 2212 and PHYS 3650L (may be taken concurrently) and MATH 3303 (may be taken concurrently))

PHYS 3214. Classical Mechanics (3)

A review of vectors algebra, Newtonian mechanics, many body systems, motion in central fields, small oscillations, rotation of rigid bodies, Lagrangian equations, and non-inertial reference frames.

Prerequisites: (PHYS 2212 and MATH 3303 and MATH 2503 (may be taken concurrently))

PHYS 3220. On-Campus Internship I (3)

This is an internship program for selected students who will perform supervised work related to physics and/or pedagogy in conjunction with physics faculty at Clayton State University. Students will be assigned a grade for this course based on an evaluation by the faculty supervisor.

Prerequisites: (PHYS 1112 and PHYS 1112L) or (PHYS 2212 and PHYS 2212L)

PHYS 3221. On-Campus Internship II (3)

This is an internship program for selected students who will perform supervised work related to physics and/or pedagogy in conjunction with physics faculty at Clayton State University. Students will be assigned a grade for this course based on an evaluation by the faculty supervisor.

Prerequisites: (PHYS 1112 and PHYS 1112L) or (PHYS 2212 and PHYS 2212L)

PHYS 3223. On-Campus Internship (3)

This is an internship program for selected students who will perform supervised work related to physics and/or pedagogy in conjunction with physics faculty at Clayton State University. Students will be assigned a grade for this course based on an evaluation by the faculty supervisor.

Prerequisites: (PHYS 1112 and PHYS 1112L) or (PHYS 2212 and PHYS 2212L)

PHYS 3224. Introductory Research (3)

This course is a supervised introductory research experience with Biology faculty at Clayton State University. Students must articulate clear project goals and objectives. Students will learn to demonstrate use of scientific literature, and document their progress using a research notebook.

The project will be summarized in a written research paper and an oral presentation to the department faculty. Students will be assigned a grade for this course based on evaluation by the supervisor and other Clayton State University faculty.

Prerequisites: (PHYS 1112 and PHYS 1112L) or (PHYS 2212 and PHYS 2212L)

PHYS 3230. Introductory Research I (3)

This course is a supervised introductory research experience with Physics faculty at Clayton State University. Students must articulate clear project goals and objectives. Students will learn to demonstrate use of scientific literature, and document their progress using a research notebook. The project will be summarized in a written research paper and an oral presentation to the department faculty. Students will be assigned a grade for this course based on evaluation by the supervisor and other Clayton State University faculty.

Prerequisites: (PHYS 1112 and PHYS 1112L) or (PHYS 2212 and PHYS 2212L)

PHYS 3231. Introductory Research II (3)

This course is a supervised introductory research experience with Physics faculty at Clayton State University. Students must articulate clear project goals and objectives. Students will learn to demonstrate use of scientific literature, and document their progress using a research notebook. The project will be summarized in a written research paper and an oral presentation to the department faculty. Students will be assigned a grade for this course based on evaluation by the supervisor and other Clayton State University faculty.

Prerequisites: (PHYS 1112 and PHYS 1112L) or (PHYS 2212 and PHYS 2212L)

PHYS 3454. Statics (3)

This is a pre-engineering/applied mathematics course that will cover the following topics: forces, moments, couples, equilibrium, equipollent systems, resultants, distributed forces, equilibrium analysis, free-body diagrams, practical examples, trusses, methods of joint and sections, multi-force members, shear-force and bending-moment diagrams, statics and structural design, coulomb friction, centroids and center-of-mass.

Prerequisites: PHYS 2211

PHYS 3455. Dynamics-Particles & Bodies (3)

Topics include kinematics and kinetics of particles and rigid bodies using force, energy and momentum methods in one, two, and three dimensions.

Prerequisites: PHYS 3454

PHYS 3650. Modern Physics (3)

An introductory course which includes material from relativity, quantum mechanics, models of the atom, lasers, solid state physics, nuclear physics, and elementary particles. Study is focused on contemporary applications including those to biology and medicine.

Prerequisites: (PHYS 1112 or PHYS 132)

PHYS 3650L. Modern Physics Laboratory (1)

This is a laboratory accompanying PHYS 3650.

Prerequisites: PHYS 3650 (may be taken concurrently)

PHYS 4215. Electricity and Magnetism I (3)

A survey of electro and magnetostatics. Topics include Coulomb's Law, Ampere's Law, scalar and vector potentials, and Laplace's equation.

Prerequisites: (PHYS 2212 and MATH 2503)

PHYS 4216. Methods of Mathematical Phys (3)

A survey of the mathematical techniques required for the description of physical systems.

Prerequisites: (PHYS 2212 and MATH 2503 and MATH 3303)

PHYS 4217. Quantum Mechanics Introduction (3)

Introduction to the fundamentals of quantum mechanics. Topics covered are Schrodinger's formulation of quantum mechanics and its application to simple systems, perturbation theory, one-electron atoms, spin, identical particles, multi-electron atoms and introduction to operators.

Prerequisites: PHYS 3231 and PHYS 3214

PHYS 4222. Physics Research Practicum (3)

Research experience for students in Physics. Practicum assignments must be approved by the student's major advisor and the Physics faculty.

Prerequisites: (PHYS 1112 and PHYS 1112L) or (PHYS 2212 and PHYS 2212L)

PHYS 4230. Physics Research Practicum I (3)

Research experience for students in Physics. Practicum assignments must be approved by the student's major advisor and the Physics faculty.

Prerequisites: (PHYS 1112 and PHYS 1112L) or (PHYS 2212 and PHYS 2212L)

PHYS 4231. Physics Research Practicum II (3)

Research experience for students in Physics. Practicum assignments must be approved by the student's major advisor and the Physics faculty.

Prerequisites: (PHYS 1112 and PHYS 1112L) or (PHYS 2212 and PHYS 2212L)