**PHYSICS (PHYS)**

**PHYS 101 Elements of Physics 3 Credit Hour(s)**
A study of the basic concepts of physics for non-science majors. Included topics: Mechanics (motion, energy, simple machines, momentum, gravity), heat and thermodynamics, electricity and magnetism, sound and light, history and methodology of science.
Offered: Resident and Online

**PHYS 103 Elements of Physics Lab 1 Credit Hour(s)**
An optional lab to accompany PHYS 101. Attention will be given to laboratory procedures of physics, safety, mathematics, measurement, and data manipulation and everyday uses of physics.
Offered: Resident and Online

**PHYS 201 General Physics I 4 Credit Hour(s)**
Prerequisite: MATH 121 or MATH 122 or MATH 126 or MATH 128 or MATH 131
A study of mechanics, gravitation, waves, sound, heat, light, electricity and magnetism, optics and modern physics from a non-calculus perspective.
Note: Includes lab
Offered: Resident and Online

**PHYS 201L General Physics Lab I 0 Credit Hour(s)**
Prerequisite: (MATH 121 or MATH 122 or MATH 126 or MATH 128 or MATH 131) and PHYS 201 (may be taken concurrently)
Offered: Resident and Online

**PHYS 202 General Physics II 4 Credit Hour(s)**
Resident Prerequisite: PHYS 201
A continuation of PHYS 201.
Offered: Resident

**PHYS 202L General Physics Lab II 0 Credit Hour(s)**
Prerequisite: PHYS 201 and PHYS 202 (may be taken concurrently)
Offered: Resident

**PHYS 231 University Physics I 4 Credit Hour(s)**
Resident Prerequisite: (MATH 131 or ENGR 131) and MATH 132 (may be taken concurrently)
Online Prerequisite: MATH 132
A calculus-based study of mechanics, gravitation, waves, and heat.
Offered: Resident and Online

**PHYS 231L University Physics Lab I 0 Credit Hour(s)**
Prerequisite: (MATH 131 (may be taken concurrently) or ENGR 131 (may be taken concurrently)) and MATH 132 (may be taken concurrently) and PHYS 231 (may be taken concurrently)
Offered: Resident

**PHYS 232 University Physics II 4 Credit Hour(s)**
Prerequisite: PHYS 231
A continuation of PHYS 231. Calculus-based study of electromagnetism, optics and select topics in modern physics.
Offered: Resident and Online

**PHYS 232L University Physics Lab II 0 Credit Hour(s)**
Prerequisite: PHYS 231 and PHYS 232 (may be taken concurrently)
Offered: Resident

**PHYS 305 Introduction to Modern Physics 3 Credit Hour(s)**
Online Prerequisite: PHYS 232 and (MATH 231 or MATH 430)
Introduces special theory of relativity, quantum theory, atomic structure, nuclear structure, wave properties of matter, and statistical physics.
Offered: Online

**PHYS 310 Numerical Methods Physics 3 Credit Hour(s)**
The use of numerical and computational methods to solve physics problems without analytical solutions. The course introduces and uses MATLAB programming language.
Offered: Online

**PHYS 320 Thermodynamics 3 Credit Hour(s)**
Prerequisite: PHYS 231 and MATH 231
A study of the laws of thermodynamics, equations of state, kinetic theory, chemical equilibrium and phase changes.
Offered: Resident

**PHYS 321 Mechanics 3 Credit Hour(s)**
Online Prerequisite: PHYS 231 and (MATH 231 or MATH 430)
An introduction to analytical mechanics as applied to particles and rigid bodies.
Offered: Online

**PHYS 331 Electricity and Magnetism 3 Credit Hour(s)**
Online Prerequisite: PHYS 232 and (MATH 231 or MATH 430)
A continuation of topics on electric and magnetic fields, including scalar and vector potentials, boundary conditions, and waves.
Offered: Online

**PHYS 432 Thermodynamics and Statistical Mechanics 3 Credit Hour(s)**
Online Prerequisite: PHYS 305 and PHYS 321
Overview of topics in thermodynamics and statistical mechanics.
Offered: Online

**PHYS 433 Quantum Physics 3 Credit Hour(s)**
Online Prerequisite: PHYS 305 and PHYS 321
The concepts, historical development, and mathematical methods of quantum mechanics.
Offered: Online

**PHYS 440 Wave Optics 4 Credit Hour(s)**
Online Prerequisite: PHYS 331
Wave properties of light, interference, diffraction, scattering, and interaction with matter. Includes lab.
Offered: Online

**PHYS 491 Physics Capstone 3 Credit Hour(s)**
Integration of previous physics coursework for research and vocational application. Emphasis placed on Christian worldview and a Biblical approach to the field of Physics.
Offered: Online

**PHYS 495 Directed Research 1-3 Credit Hour(s)**
PHYS 495 - Directed Research (1 to 3 hours)
Offered: Resident

**PHYS 497 Special Topics in Physics 1-3 Credit Hour(s)**
Topics will vary from term to term. Course may be repeated for credit as topics vary.
Offered: Online