

# PHYSICS (PHYS)

## PHYS 001 Introductory Physics 3 Units

PHYS 001 is an introductory investigation into the topics of physics for non-science majors. Topics include the fundamentals of the scientific method, mechanics, forces, conservation of momentum and energy, rotational motion, gravity, atomic physics, thermodynamics, waves (sound and EM), electricity and magnetism, optics, relativity and nuclear physics. The course content incorporates hands-on laboratory activities, in-class physical demonstrations, journaling, outdoor activities, homework, and a group project.

Lecture Hours: 2 Lab Hours: 3 Repeatable: No Grading: L  
Prerequisite: MATH 013 with C or better, or equivalent, or placement by multiple measures  
Advisory Level: Read: 3 Write: 3 Math: None  
Transfer Status: CSU/UC Degree Applicable: AA/AS  
CSU GE: B1, B3 IGETC: None District GE: B1, B3

## PHYS 002A Algebra/Trigonometry-Based Physics I 4 Units

This is the first of a two-semester course in general physics for students not needing calculus based physics. Students will study basic principles of Mechanics and Thermodynamics such as Newton's laws of motion, work, and the conservation principles of energy and momentum; heat transfer, calorimetry, and the fundamental laws of thermodynamics. (C-ID PHYS 105)

Lecture Hours: 3 Lab Hours: 3 Repeatable: No Grading: L  
Prerequisite: MATH 013 with C or better  
Advisory Level: Read: 3 Write: 3 Math: None  
Transfer Status: CSU/UC Degree Applicable: AA/AS  
CSU GE: B1, B3 IGETC: 5A, 5C District GE: B1, B3

## PHYS 002B Algebra/Trigonometry-Based Physics II 4 Units

This is the second algebra-based course in general physics for students not majoring in physics, engineering, or astronomy. The basic principles of vector operation, Newton's laws of motion, and conservation of momentum and energy covered in PHYS 002A are applied to topics in electricity, magnetism, optics, and modern physics. (C-ID PHYS 110)

Lecture Hours: 3 Lab Hours: 3 Repeatable: No Grading: L  
Prerequisite: PHYS 002A with C or better  
Advisory Level: Read: 3 Write: 3 Math: 4  
Transfer Status: CSU/UC Degree Applicable: AA/AS  
CSU GE: B1, B3 IGETC: 5A, 5C District GE: B1, B3

## PHYS 004A General Physics 5 Units

This is the first course in the calculus-based physics sequence for majors in physical sciences, mathematics, engineering, and computer science. Specific topics include kinematics, Newton's laws of motion, work and energy, momentum, rotation, simple harmonic motion, universal gravitation, fluids, and mechanical waves. Practical applications of these principles are discussed. A problem solving approach emphasizing both conceptual understanding and basic mathematical modeling is used. (C-ID PHYS 205)

Lecture Hours: 4 Lab Hours: 3 Repeatable: No Grading: L  
Prerequisite: MATH 072 with C or better or equivalent or concurrent enrollment in MATH 072  
Advisory Level: Read: 3 Write: 3 Math: None  
Transfer Status: CSU/UC Degree Applicable: AA/AS  
CSU GE: B1, B3 IGETC: 5A, 5C District GE: B1, B3

## PHYS 004B General Physics 5 Units

This course is one of a three-semester series in calculus-based general physics, serving students majoring in engineering, chemistry, physics, mathematics and other sciences. It emphasizes conceptual aspects of electricity, magnetism, circuits, and Maxwell's equations, and requires quantitative analysis of real world situations. (C-ID PHYS 210)

Lecture Hours: 4 Lab Hours: 3 Repeatable: No Grading: L  
Prerequisite: PHYS 004A and MATH 073 with C or better, or PHYS 004A and concurrent enrollment in MATH 073  
Advisory Level: Read: 3 Write: 3 Math: None  
Transfer Status: CSU/UC Degree Applicable: AA/AS  
CSU GE: B1, B3 IGETC: 5A, 5C District GE: B1, B3

## PHYS 004C General Physics 5 Units

This is one of a three-semester series of courses in calculus-based general physics, serving students majoring in engineering, chemistry, physics, mathematics and other sciences. Students are introduced to general principles of optics and thermodynamics at a calculus-based level. Several technological applications of these principles are discussed. Topics include waves, geometric optics, wave optics (including interference, diffraction, and polarization), heat, thermal properties of matter, and thermodynamics and its laws. Other topics include special relativity and modern physics. A problem solving approach is used, emphasizing both conceptual understanding and basic mathematical modeling. (C-ID PHYS 215)

Lecture Hours: 4 Lab Hours: 3 Repeatable: No Grading: L  
Prerequisite: PHYS 004A and MATH 073 with C or better, or PHYS 004A and concurrent enrollment in MATH 073  
Advisory Level: Read: 3 Write: 3 Math: None  
Transfer Status: CSU/UC Degree Applicable: AA/AS  
CSU GE: B1, B3 IGETC: 5A, 5C District GE: B1, B3

## PHYS 007A Calculus-Based General Physics for Scientists and Engineers - I 4 Units

This is the first course in the calculus-based physics sequence for majors in math, science, and engineering. Specific topics include kinematics, Newton's laws of motion, work and energy, momentum, rotation, simple harmonic motion, universal gravitation, fluids, and mechanical waves. Practical applications of these principles are discussed. A problem solving approach emphasizing both conceptual understanding and basic mathematical modeling is used. (C-ID PHYS 205)

Lecture Hours: 3 Lab Hours: 3 Repeatable: No Grading: L  
Prerequisite: MATH 072 with C or better or concurrent enrollment in MATH 072  
Advisory Level: Read: 3 Write: 3 Math: None  
Transfer Status: CSU/UC Degree Applicable: AA/AS  
CSU GE: B1, B2 IGETC: 5A, 5C District GE: B1, B3

**PHYS 007B Calculus-Based General Physics for Scientists and Engineers - II 4 Units**

This course is one of a three-semester series in calculus-based general physics, serving students majoring in engineering, chemistry, physics, mathematics and other sciences. It emphasizes conceptual aspects of electricity, magnetism, circuits, and Maxwell's equations, and requires quantitative analysis of real world situations. (C-ID PHYS 210)

Lecture Hours: 3 Lab Hours: 3 Repeatable: No Grading: L  
Prerequisite: PHYS 007A and MATH 073, both with C or better or PHYS 007A and concurrent enrollment in MATH 073  
Advisory Level: Read: 3 Write: 3 Math: None  
Transfer Status: CSU/UC Degree Applicable: AA/AS  
CSU GE: B1, B3 IGETC: 5A, 5C District GE: B1, B3

**PHYS 007C Calculus-Based General Physics for Scientists and Engineers - III 4 Units**

This is one of a three-semester series of courses in calculus-based general physics, serving students majoring in engineering, chemistry, physics, mathematics and other sciences. Students are introduced to general principles of optics and thermodynamics at a calculus-based level. Several technological applications of these principles are discussed. Topics include waves, geometric optics, wave optics (including interference, diffraction, and polarization), heat, thermal properties of matter, and thermodynamics and its laws. Other topics include special relativity and modern physics. A problem solving approach is used, emphasizing both conceptual understanding and basic mathematical modeling. (C-ID PHYS 215)

Lecture Hours: 3 Lab Hours: 3 Repeatable: No Grading: L  
Prerequisite: PHYS 007A and MATH 073, both with C or better or PHYS 007A and concurrent enrollment in MATH 073  
Advisory Level: Read: 3 Write: 3 Math: None  
Transfer Status: CSU/UC Degree Applicable: AA/AS  
CSU GE: B1, B3 IGETC: 5A, 5C District GE: B1, B3