PHYSICS

Associate Degree

- Physics - Associate in Science for Transfer

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: 5A, 5C 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 majoring in physics, engineering, or astronomy. 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 022 or MATH 025 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 067 or MATH 072 both with C or better or concurrrent enrollment in MATH 067 or 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 students majoring in mathematics, physical sciences, 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 subjects are discussed in class and incorporated into group projects developed along the term. A problem solving approach, using mathematical expressions and symbols, is routinely employed in lectures and homework to illustrate the laws of physics governing real world situations. (C-ID PHYS 205)

Lecture Hours: 3 Lab Hours: 3 Repeatable: No Grading: L
Prerequisite: MATH 067 or MATH 072 with C or better or concurrent enrollment in MATH 067 or 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 is the second course in the calculus-based physics sequence for students majoring in mathematics, physical sciences, engineering, and computer science. It emphasizes conceptual aspects of electricity, magnetism, circuits, and Maxwell's Laws. Practical applications of these subjects are discussed in class and incorporated into group projects developed along the term. A problem solving approach, using mathematical expressions and symbols, is routinely employed in lectures and homework to illustrate the laws of physics governing real world situations. (C-ID PHYS 210)

Lecture Hours: 3 Lab Hours: 3 Repeatable: No Grading: L
Prerequisite: (PHYS 004A or PHYS 007A) and MATH 073, all with C or better or (PHYS 004A 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 the third and last course in the calculus-based physics sequence for students majoring in mathematics, physical sciences, engineering, and computer science. Students are introduced to the general laws governing optics, modern physics, and thermodynamics using a calculus-based approach. Several technological applications of these subjects are discussed and incorporated into group projects developed along the term. A problem solving approach, using mathematical expressions and symbols, is routinely employed in lectures and homework to illustrate the laws of physics governing real world situations. (C-ID PHYS 215)

Lecture Hours: 3 Lab Hours: 3 Repeatable: No Grading: L
Prerequisite: (PHYS 004A or PHYS 007A) and MATH 073, all with C or better or (PHYS 004A 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 501 Physics for Parents of Future STEM Students I 0 Units
This is a non-credit laboratory course designed to initiate appreciation and familiarity for science and the scientific method using Physics as a subject representative of STEM. It is intended for PARENTS of children in K-2 grades and allows them to lead their children into questioning everyday physical phenomena impacting their lives like light and colors, magnetism, the use of energy, balance and stability, and others. Parents and children will explore the course content using a hands-on approach and the technology available on campus. Free textbook materials will be made available to the families.

Lecture Hours: None Lab Hours: 3 Repeatable: Yes Grading: N
Open Curriculum: No prerequisite, corequisite or levels
Transfer Status: None Degree Applicable: NC
CSU GE: None IGETC: None District GE: None

PHYS 502 Physics for Parents of Future STEM Students II 0 Units
This is a non-credit laboratory course designed to initiate appreciation and familiarity for science and the scientific method using Physics as a subject representative of STEM. It is intended for PARENTS of children in grades 3 to 5 and allows them to lead their children into questioning everyday physical phenomena impacting their lives, like machines, heat energy, sound, phases of matter, and others. Parents and children will explore the course content using a hands-on approach and the technology available on campus. Free textbook materials will be made available to the families.

Lecture Hours: None Lab Hours: 3 Repeatable: Yes Grading: N
Open Curriculum: No prerequisite, corequisite or levels
Transfer Status: None Degree Applicable: NC
CSU GE: None IGETC: None District GE: None