Physical Science & Physics

Degree: A.S. - Mathematics & Physical Science
A.S. - General Science

Area: Science and Engineering
Dean: Dr. Pam Walker
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ARC offers a program of broad study in the field of mathematics and physical sciences.

Mathematics - Physical Science

Requirements for Degree Major
18 units of transfer level course work in addition to other graduation requirements Courses may be selected from astronomy, chemistry, engineering, geology, mathematics, physical geography, physical science, physics and statistics. See graduation requirements.

General Science

Requirements for Degree Major
18 units of transfer level course work in addition to other graduation requirements. Two laboratory courses must be included, one in a physical science and one in a biological. Courses may be selected from anatomy, astronomy, bacteriology, biology, botany, chemistry, geology, physical anthropology, physical geography, physical science, physiology, physics and zoology. See ARC graduation requirements.

Physics

PS 200  Physics and Chemistry of Transportation Technology 3 Units
Formerly: PS 53
Prerequisite: None
Course Not Transferable UC or CSU
Hours: 54 hours LEC
This introductory course applies general principles of physics and chemistry to topics in transportation technology and provides an understanding of fundamental scientific principles and integration with practical mechanics. Topics include electrical measurement, batteries, electric motors, electric vehicles, magnetic levitation trains, internal combustion engines, alternative fuels, heat and temperature, air conditioning, tires, and brakes. AA/AS area 3A.

PS 300  Introduction to Physical Science 3 Units
Formerly: PS 1
Prerequisite: None
Advisory: MATH 32.
Course Transferable to UC/CSU
Hours: 54 hours LEC

This course covers the fundamental concepts of astronomy, geology, physics, chemistry and meteorology. It is designed for the student with little or no science background. It is not open to science, mathematics or engineering majors. AA/AS area 3A; CSU area B1; IGETC area 5.

PS 301  Physical Science Laboratory 1 Unit
Formerly: PS 2
Prerequisite: None
Course Not Transferable UC or CSU
Hours: 54 hours LAB
This is a laboratory class to supplement and complement PS 300. Students will perform experiments in the several disciplines in the physical sciences. Study of geologic, weather and topographic maps, star charts and use of tools, equipment and methods of science are also covered. AA/AS area 3A; CSU area B1; IGETC area 5.

PHYS 305  Basic Concepts in Physics 3 Units
Formerly: PHYS 7
Prerequisite: MATH 120 with a grade of "C" or better or placement through assessment.
Course Transferable to UC/CSU
Hours: 36 hours LEC; 54 hours LAB
This course is a quantitative introduction to the concepts of motion, force, matter and energy. An integrated lab/lecture course which emphasizes both conceptual and quantitative solutions to physics problems. It is designed for liberal studies majors intending to get an elementary school teacher credential. AA/AS area 3A; CSU area B1.

PHYS 310  Conceptual Physics 3 Units
Formerly: PHYS 10
Prerequisite: None
Advisory: MATH 100.
Course Transferable to UC/CSU
Hours: 54 hours LEC
This is a survey course for liberal arts majors and students who have not taken a course in physics. It includes selected topics in motion, gravity, heat, sound, electricity, magnetism, light, atomic and nuclear physics. AA/AS area 3A; CSU area B1; IGETC area 5.
PHYS 311  Basic Physics  3 Units
Formerly: PHYS 11
Prerequisite: MATH 330.
Course Transferable to UC/CSU
Hours: 54 hours LEC
This is a survey course for science majors who have had no previous course in physics and who plan to continue with Physics 350 or 410. Emphasis is on problem solving. Students who have taken PHYS 310 cannot get transfer credit for Physics 311. AA/AS area 3A; CSU area B1; IGETC area 5.

PHYS 312  Conceptual Physics Laboratory  1 Unit
Formerly: PHYS 10L
Prerequisite: None
Corequisite: PHYS 310.
Course Transferable to UC/CSU
Hours: 54 hours LAB
This laboratory course complements PHYS 310. Together with PHYS 310, this course satisfies the UC and CSU general education science lab requirement. Emphasis is placed on the nature of scientific observation and measurement and their relationship to general physical concepts. Students will be given a concrete, hands-on sense of observing and interpreting data from a variety of experimental environments. AA/AS area 3A; CSU area B1; IGETC area 5

PHYS 350  General Physics  4 Units
Formerly: PHYS 5A
Prerequisite: MATH 330 with a grade of "C" or better or placement through assessment.
Advisory: PHYS 311.
Course Transferable to UC/CSU
Hours: 54 hours LEC; 54 hours LAB
This course deals with mechanics, heat and sound. It satisfies partial requirements in pre-medical courses and in other technical courses except physics and engineering. (CAN PHYS 2) AA/AS area 3A; CSU area B1; IGETC area 5. (PHYS SEQ A Sum of CAN Phys 2 and Phys 4)

PHYS 360  General Physics  4 Units
Formerly: PHYS 5B
Prerequisite: PHYS 350.
Course Transferable to UC/CSU
Hours: 54 hours LEC; 54 hours LAB
This course deals with electricity, magnetism, light and atomic physics. It satisfies the requirements for pre-medical courses and in other technical courses, except physics and engineering. (CAN PHYS 4) (PHYS SEQ A Sum of CAN Phys 2 and Phys 4)

PHYS 410  Mechanics of Solids and Fluids  5 Units
Formerly: PHYS 4A
Prerequisite: MATH 400 with a grade of "C" or better.
Corequisite: MATH 401.
Advisory: PHYS 311.
Course Transferable to UC/CSU
Hours: 72 hours LEC; 54 hours LAB
This course covers mechanics of particles, rigid bodies and fluids. The Physics 410-421-431 sequence is required for majors in physics, chemistry or engineering. The class includes lecture, laboratory and problem discussion sections. (CAN PHYS 8) AA/AS area 3A; CSU area B1; IGETC area 5 (PHYS SEQ B Sum of CAN Phys 8,12, and 14)

PHYS 421  Electricity and Magnetism  4 Units
Formerly: PHYS 4B
Prerequisite: PHYS 410 with a grade of "C" or better.
Advisory: MATH 402.
Course Transferable to UC/CSU
Hours: 54 hours LEC; 54 hours LAB
This course covers an in-depth treatment of electricity and magnetism. It involves problem solving with emphasis on utilization of integral calculus. (CAN PHYS 12) (PHYS SEQ B Sum of CAN Phys 8,12, and 14)