

Physical Science & Physics

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

Area: Science and Engineering
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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 science 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.

Physical Science

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

Corequisite: PS 300.

Advisory: MATH 100.

Course Transferable to UC/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.

Physics

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)

PHYS 431 Heat, Waves, Light and Modern Physics 4 Units

Formerly: *PHYS 4C*

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 thermodynamics and heat, statistical mechanics, waves and sound, light, quantum concepts, and nuclear physics. (CAN PHYS 14) (PHYS SEQ B Sum of CAN Phys 8,12, and 14)