

NATURAL SCIENCES – ASSOCIATE IN SCIENCE DEGREE

Top Code:

4902.00

This area of emphasis is a local program that serves as transfer preparation. As such, the Natural Sciences AS offers a broad and interdisciplinary foundation in the sciences; readying students for continued training at the upper division (or advanced) level for many bachelor's degree programs in the natural sciences; including biology, chemistry, environmental science, geology, mathematics, plant science, physics, and many others. It is a starting point for students who are preparing for careers in health sciences, medicine, business (e.g., resource management, consulting), agriculture, research, and education; where scientific and technical skills are in great demand in both the public (e.g., government and academic) and private (commercial) sectors.

An Associate in Science Degree (AS) in Natural Sciences is accessible to all interested students, regardless of background (academic preparedness or otherwise). This degree is welcoming to all students interested in developing a better understanding of our natural world and possibly pursuing a career in the natural sciences.

PLEASE NOTE: The courses that universities and colleges require for transfer vary. When selecting courses for transfer purposes, students should consult with Counseling Services to determine the particular transfer requirements of specific transfer institutions. Further, we encourage students to seek discipline-specific guidance from the dean, department chairs, faculty, and STEM Centers of the Natural Sciences Division.

For students intending to transfer, courses identified for the area of emphasis fulfill major preparation requirements as demonstrated through ASSIST.org articulation. Select courses are based on ASSIST.org data for major preparation articulation with selected transfer institutions. Consult with a Counselor for specific information regarding the intended major at the college the student is choosing. Courses used to complete a student's area of emphasis can double count for general education just as they may for any other major. Although the associate degree recognizes the completion of lower division general education requirements, it does not guarantee admission to a specific campus in the CSU or UC system, nor does it guarantee admission to a specific major or a specific community college program. Some majors and schools require a higher GPA than is necessary for the associate degree. Students should meet with a Counselor to determine the lower division major preparation coursework in addition to which general education pattern is required for transfer or for community college programs.

Program Outcomes

- Examine and explain major fundamental concepts of the natural sciences.

- Collect and analyze data related to the natural world from various sources such as field sites, databases, collections, and laboratories.
- Apply the scientific method to solve problems.

Requirements for the Area of Emphasis

Courses must be completed with a grade of C or better. All courses must be numbered 001–099. Students must complete 18 units with at least 3 units in three of the areas listed below.

Code	Title	Units
Biological Sciences		
AGPS 004	PLANT SCIENCE	3
AGPS 008	PLANT MATERIALS AND USAGE I	3
or ENVS 012	PLANT MATERIALS AND USAGE I	
ANTH 001	BIOLOGICAL ANTHROPOLOGY	3
or ANTH 001H	HONORS BIOLOGICAL ANTHROPOLOGY	
ANTH 001L	LABORATORY IN BIOLOGICAL ANTHROPOLOGY	1
ANAT 025	HUMAN ANATOMY	4
BIOL 003	HUMAN BIOLOGY	4
BIOL 004	BOTANY/PLANT DIVERSITY AND ECOLOGY	4
BIOL 010A	CELLULAR BIOLOGY, GENETICS AND EVOLUTION	5
BIOL 010B	THE DIVERSITY OF LIFE ON EARTH: STRUCTURE, FUNCTION AND ECOLOGY	4
BIOL 010C	GENETICS	3
BIOL 011	GENERAL BIOLOGY	4
or BIOL 011H	HONORS GENERAL BIOLOGY	
BIOL 016	MARINE BIOLOGY	4
BIOL 039	MODERN HUMAN GENETICS	4
ENVS 010	ENVIRONMENTAL HORTICULTURE	3
ENVS 011	SOIL SCIENCE	3
MICR 002	MICROBIOLOGY	4
PYSO 001	HUMAN PHYSIOLOGY	4
PSYC 002	INTRODUCTORY BIOLOGICAL PSYCHOLOGY	3
Chemistry		
CHEM 001A	GENERAL CHEMISTRY AND CHEMICAL ANALYSIS I	5
CHEM 001B	GENERAL CHEMISTRY AND CHEMICAL ANALYSIS	5
CHEM 002A	CHEMISTRY - GENERAL, ORGANIC AND BIOCHEMISTRY I	4
CHEM 002B	CHEMISTRY--GENERAL, ORGANIC AND BIOCHEMISTRY II	4
CHEM 008A	ORGANIC CHEMISTRY I	5
CHEM 008B	ORGANIC CHEMISTRY II	5
CHEM 022	INTRODUCTORY CHEMISTRY	4
Environmental Sciences		
ENVS 001	INTRODUCTION TO ENVIRONMENTAL SCIENCE	4
ENVS 002	HUMAN IMPACT ON THE ENVIRONMENT	3
ENVS 003	CHEMISTRY AND THE ENVIRONMENT	4
Geosciences		
GEOG 001	PHYSICAL GEOGRAPHY	3

GEOG 001L	PHYSICAL GEOGRAPHY LABORATORY	1
GEOG 004	WEATHER AND CLIMATE	3
GEOG 011	INTRODUCTION TO GEOGRAPHIC INFORMATION SYSTEMS	3
GEOG 012	MAP INTERPRETATION AND SPATIAL ANALYSIS	3
GEOL 001	PHYSICAL GEOLOGY	4
GEOL 001F	PHYSICAL GEOLOGY FIELD STUDIES	1
GEOL 002	HISTORICAL GEOLOGY	4
GEOL 002F	HISTORICAL GEOLOGY FIELD STUDIES	1
GEOL 003	EARTH AND SPACE SCIENCE	4
GEOL 003F	EARTH AND SPACE SCIENCE FIELD LABORATORY	1
GEOL 004	GEOLOGY OF CALIFORNIA	3
GEOL 006	MINERALOGY	4
GEOL 012	PHYSICAL OCEANOGRAPHY	3
GEOL 012L	PHYSICAL OCEANOGRAPHY LABORATORY	1
GEOL 022	THE AGE OF DINOSAURS	3
GEOL 023	NATURAL DISASTERS	3

Mathematics & Statistics

MATH 003	COLLEGE ALGEBRA FOR STEM	5
MATH 005A	SINGLE VARIABLE CALCULUS I	5
	or MATH 005A ^H HONORS SINGLE VARIABLE CALCULUS I	
MATH 005B	SINGLE VARIABLE CALCULUS II	5
	or MATH 005B ^H HONORS SINGLE VARIABLE CALCULUS II	
MATH 005C	MULTIVARIABLE CALCULUS	5
	or MATH 005C ^H HONORS MULTIVARIABLE CALCULUS	
MATH 006A	CALCULUS FOR LIFE SCIENCES I	3
MATH 008	PRECALCULUS TRIGONOMETRY	4
MATH 009	PRECALCULUS MATHEMATICS	6
MATH 010	LINEAR ALGEBRA AND APPLICATIONS	4
	or MATH 010 ^H HONORS LINEAR ALGEBRA AND APPLICATIONS	
MATH 055	DIFFERENTIAL EQUATIONS	4
	or MATH 055 ^H HONORS DIFFERENTIAL EQUATIONS	
STAT 050	ELEMENTARY STATISTICS	4
	or STAT 050 ^H HONORS ELEMENTARY STATISTICS	

Physics & Physical Sciences

ASTR 001	ELEMENTARY ASTRONOMY	4
ASTR 012	DESCRIPTIVE INTRODUCTION TO ASTRONOMY	3
PHSC 003	PHYSICAL SCIENCES	3
PHSC 003L	LABORATORY FOR PHYSICAL SCIENCE	1
PHYS 001A		5
PHYS 001B		5
PHYS 001C		5
PHYS 001D		5
PHYS 002A	GENERAL PHYSICS	4
PHYS 002B	GENERAL PHYSICS	4
PHYS 008A	PHYSICS FOR SCIENTISTS AND ENGINEERS I: MECHANICS	5
PHYS 008B	PHYSICS FOR SCIENTISTS AND ENGINEERS II: WAVES, ELECTRICITY & MAGNETISM	5

PHYS 008C	PHYSICS FOR SCIENTISTS AND ENGINEERS III: THERMODYNAMICS, OPTICS, AND MODERN PHYSICS	5
PHYS 010	DESCRIPTIVE INTRODUCTION TO PHYSICS	3
PHYS 010L	DESCRIPTIVE PHYSICS IN THE LABORATORY	1
PHYS 031A	CALCULUS-BASED COLLEGE PHYSICS I	5
PHYS 031B	CALCULUS-BASED COLLEGE PHYSICS II	5

General Education Requirements for the Associate in Science Degree

- General Information (<https://curriculum.pasadena.edu/academic-programs-leading-degree-certificate/>)
- PCC Local Gen Ed (<https://curriculum.pasadena.edu/academic-programs-leading-degree-certificate/#pcclocaltext>)
- CSU Breadth (<https://curriculum.pasadena.edu/academic-programs-leading-degree-certificate/#csubreadthtext>)
- IGETC (<https://curriculum.pasadena.edu/academic-programs-leading-degree-certificate/#igetctext>)

Visit the Program Mapper (<https://pasadena-city.programmapper.ws/academics/programs/0ec6df98-9f92-550a-dd1b-7175f60b46e5/>) for a suggested sequence of courses.