

NATURAL SCIENCES EMPHASIS (AA DEGREE A8988)

Natural Sciences Division A8988

An emphasis in Natural Sciences provides the student with an understanding of living and non-living systems and promotes an appreciation of the methodologies and tools of science. Students may select courses that focus on a specific major and then select complementary courses to strengthen their selected focus or they may select courses that strengthen and broaden their overall understanding of the Natural Sciences.

This degree requires the completion of General Education coursework plus the following:

Required Courses

Course Prefix	Course Name	Units
Choose a minimum of 18 units from the following with at least one GE lab from each group:		18-22

Group 1A: Physical Science Lecture Courses

(May take one or more courses from Group 1A)

ASTR 5	Introduction to Astronomy	
or ASTR 5H	Introduction to Astronomy - Honors	
ASTR 7	Geology of the Solar System	
ASTR 8	Introduction to Stars, Galaxies, and the Universe	
ASTR 11	Introduction to Astrophysics	
CHEM 9	Chemistry of Everyday Life	
GEOG 1	Physical Geography	
or GEOG 1H	Physical Geography - Honors	
GEOL 7	Geology of California	
GEOL 8	Earth Science	
or GEOL 8H	Earth Science - Honors	
GEOL 9	Environmental Geology	
GEOL 10	Natural Disasters	
GEOL 30	Global Climate Change	
METO 3	Weather and the Atmospheric Environment	
OCEA 10	Introduction to Oceanography	
or OCEA 10H	Introduction to Oceanography - Honors	

Group 1B: Physical Science Lab Courses

(Must take at least one course from either Group 1B or 1C)

ASTR 5L	Astronomical Observing Laboratory	
GEOG 1L	Physical Geography Laboratory	
or GEOG 1LH	Physical Geography Laboratory - Honors	
GEOL 8L	Earth Science Laboratory	
GEOL 9L	Environmental Geology Laboratory	
METO 3L	Weather and Atmospheric Environment Laboratory	
OCEA 10L	Introduction to Oceanography Laboratory	

Group 1C: Physical Science Lecture-Lab Courses

(Must take at least one course from either Group 1B or 1C)

CHEM 10	Chemistry for Allied Health Majors	
CHEM 20	Introductory Organic and Biochemistry	
CHEM 40	Introduction to General Chemistry	
CHEM 50	General Chemistry I	
or CHEM 50H	General Chemistry I - Honors	

CHEM 51	General Chemistry II	
or CHEM 51H	General Chemistry II - Honors	
CHEM 55	Chemistry for Engineers	
CHEM 80	Organic Chemistry I	
CHEM 81	Organic Chemistry II	
ENGR 1	Introduction to Engineering	
ENGR 1C	Engineering Critical Thinking	
ENGR 6	Introduction to Engineering Programming Concepts and Methodologies	
ENGR 8	Properties of Materials	
GEOL 1	Physical Geology	
GEOL 24	Geologic Field Studies: Central California	
or GEOL 25	Geologic Field Studies: Southern California	
GEOL 29	Special Topics in Field Geology	
PHSC 3	Energy Science	
PHSC 9	Physical Science	
PHYS 1	Physics	
PHYS 2AG	General Physics	
PHYS 2BG	General Physics	
PHYS 4A	Engineering Physics	
PHYS 4B	Engineering Physics	
PHYS 4C	Engineering Physics	
PHYS 6A	General Physics with Calculus	
PHYS 6B	General Physics with Calculus	
Group 2A: Life Sciences Lecture Courses		
(May take one or more courses from Group 2A)		
ANTH 1	Biological Anthropology	
or ANTH 1H	Biological Anthropology - Honors	
BIOL 6	Humans and the Environment	
BIOL 17	Neurobiology and Behavior	
BIOL 20	Marine Biology	
BIOL 34	Fundamentals of Genetics	
MICR 26	Introduction to Immunology	
Group 2B: Life Science Lab Courses		
(Must take at least one course from either Group 2B or 2C)		
Choose at least one from the following:		
ANTH 1L	Biological Anthropology Laboratory	
BIOL 6L	Humans and the Environment Laboratory	
BIOL 21	Marine Biology Laboratory	
BIOL 34L	Fundamentals of Genetics Laboratory	
Group 2C: Life Science Lecture-Lab Courses		
(Must take at least one course from either Group 2B or 2C)		
BIOL 1	General Biology	
BIOL 2	Plant and Animal Biology	
BIOL 3	Ecology and Field Biology	
BIOL 4	Biology for Majors	
or BIOL 4H	Biology for Majors - Honors	
BIOL 8	Cell and Molecular Biology	
BTNY 3	Plant Structures, Functions, and Diversity	
MICR 1	Principles of Microbiology	
or MICR 22	Microbiology	

Total Units

18-22

Natural Sciences Division Website (<http://www.mtsac.edu/sciences/>)

Program Learning Outcomes

Upon successful completion of this program, a student will be able to:

- Analyze and model chemical, physical, or biological systems using scientific and/or mathematical methods.
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- Critically read, interpret, and analyze a range of complex text and data to make connections and draw meaningful conclusions.
- Identify and model the professional and ethical responsibilities of a scientist.
- Communicate scientific principles and applications effectively, both verbally and in writing.
- Describe the impact of humans and our technology in an environmental and societal context.
- Pursue further study or life-long learning in the sciences.
- Work collaboratively to reach a common goal or solve a problem.

Review Student Learning Outcomes (SLOs) (<http://www.mtsac.edu/instruction/outcomes/sloinfo.html>) for this program.