PHYSICAL SCIENCE

The physical science major is designed to give students working toward a bachelor’s degree a well-balanced, lower division program. The curriculum emphasizes fundamental concepts and problem solving. The degree requirements are typical of what four-year colleges and universities require; see www.assist.org for requirements of specific transfer institution.

Program Learning Outcomes

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

• Analyze how astronomers obtain information about stars, what information can be obtained and how the information is used.
• Predict periodic trends in ionization energy, atomic size, electron affinity and acid-base properties.
• Calculate changes in enthalpy, entropy, and free energy for chemical reactions, phase changes, solution processes, and elementary molecular processes using tables of thermodynamic data.
• Write systematic names for carbon based compounds.
• Working knowledge of the Theory of Plate Tectonics as it relates to sea floor spreading, subduction, continental drift and the evolution of ocean basins, continents and mountains.
• Evaluate derivatives of algebraic, trigonometric, logarithmic and exponential functions.
• Evaluate integrals using appropriate techniques (such as: by parts, trig substitution, etc.)
• Apply Green’s, Stokes’ and Gauss’ Theorems.
• Use conservation of energy and conservation of momentum concepts.
• Use Maxwell’s Equations to solve problems in electricity and magnetism.
• Use the basic concepts of modern physics: special relativity, photon behavior, matter waves, the uncertainty principle, quantum mechanics in one and three dimensions, statistical physics and nuclear physics.

CAREER OPPORTUNITIES

This degree program trains students for a wide variety of diverse professions such as technical administration in industry and government, legal work with patents, scientific librarianship, scientific journalism, and physical science teacher.

* Astronomer
  Cartographic Technician
* Chemist
  Geodetic Technician
* Geologist
* Meteorologist
  Meteorological Technician
* Oceanographer
* Patent Lawyer
* Physical Science Teacher
  Physical Science Technician
* Physicist
  Range Technician
  Soil Conservation Technician
* Bachelor Degree or higher required

Associate in Science Degree Requirements:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
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<tbody>
<tr>
<td>ASTR 110</td>
<td>Descriptive Astronomy</td>
<td>3</td>
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<tr>
<td>CHEM 141</td>
<td>General Chemistry I</td>
<td>5</td>
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<tr>
<td>CHEM 142</td>
<td>General Chemistry II</td>
<td>5</td>
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<tr>
<td>CHEM 231</td>
<td>Organic Chemistry I</td>
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<td>GEOL 110</td>
<td>General Geology</td>
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<td>MATH 180</td>
<td>Analytical Geometry and Calculus I</td>
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<td>MATH 280</td>
<td>Analytical Geometry and Calculus II</td>
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<td>MATH 281</td>
<td>Multivariable Calculus</td>
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<td>PHYC 190</td>
<td>Mechanics and Heat</td>
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<td>PHYC 200</td>
<td>Electricity and Magnetism</td>
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</tr>
<tr>
<td>PHYC 210</td>
<td>Wave Motion and Modern Physics</td>
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Total Required 49

Plus General Education Requirements