Physics

Program Description
The focus of this program is on developing an understanding of and appreciation for the basic laws of our physical universe. This is done largely through the development of conceptual understanding, problem solving skills, and laboratory investigations.

Associate in Science Degree
The Associate in Science Degree can be obtained by completing a total of 60 units, including the 35 - 39-unit major listed below, the general education requirements, and electives. All courses for this major must be completed with a grade of C or better or a P if the course is taken on a Pass/No Pass basis.

Program Outcomes
Students who complete an Associate Degree will be able to:
1. Demonstrate analytical and problem solving skills.
2. Carry out experiments and critically assess their data.
3. Learn the roles of hypotheses, measurement and analysis in the development of scientific theory as evidenced by laboratory reports.
4. Write a laboratory report or give an oral presentation.

REQUIRED COURSES ............................ Units
PHYS 006 Physics for Science and Engineering ........ 5
PHYS 007 Physics for Science and Engineering ........ 5
PHYS 008 Physics for Science and Engineering ........ 5
MATH 020 Analytic Geometry and Calculus I ........ 5
MATH 021 Analytic Geometry and Calculus II ........ 5
MATH 023 Differential Equations .................... 4

Biological Science
Course selected from the following list .............. 3 - 5
Biological Science:
BIO 001, 002, 005, 006, 012, 014, 015, 016, 018

Physical Science
Course selected from the following list ............. 3 - 5
Physical Science:
ASTR 010, 020, 030, 040
CHEM 001, 002, 003, 004, 010, 011
GEOG 001, 001L
GEOL 001, 002, 005
PHSC 012

Total Units ................................. 35 - 39
# Physics

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Units</th>
<th>Course Title</th>
<th>Prerequisites</th>
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<tbody>
<tr>
<td>PHYS 002</td>
<td>5</td>
<td>General Physics (Non-calculus)</td>
<td>Prerequisite: MATH 051 or MATH 004 with a grade of C or better. Course Advisory: Eligibility for ENGL 001. PHYS 002 &amp; 004, a two-semester sequence in introductory physics using math through trigonometry, is recommended for teachers, technicians, pre-dentistry, pre-medical, and biology majors, and others who need a general physics course. It covers the study of motion, energy, momentum, gravitation, solids, fluids, thermodynamics and the gaseous state, vibration, wave motion, and sound. Experiments relating to the topics covered will be performed and students will analyze the experiments. Field trip may be required. Four hours lecture/discussion, three hours lab.</td>
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<tr>
<td>PHYS 004</td>
<td>5</td>
<td>General Physics (Non-calculus)</td>
<td>Prerequisite: PHYS 002 with a grade of C or better. Course Advisory: Eligibility for ENGL 001. PHYS 002 &amp; 004, a two-semester sequence in introductory physics using math through trigonometry, is recommended for teachers, technicians, pre-dentistry, pre-medical, and biology majors, and others who need a general physics course. A study of electricity, magnetism, light and optics, and modern physics. Students learn to analyze and solve problems appropriate for this level in these topics. Experiments relating to the topics covered will be performed and students will analyze the experiments. Field trip may be required. Four hours lecture, three hours lab.</td>
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<tr>
<td>PHYS 006</td>
<td>5</td>
<td>Physics for Science and Engineering</td>
<td>Prerequisite: MATH 021 (may be taken concurrently). Course Advisory: Eligibility for ENGL 001 and High School Physics, or PHYS 002 with a grade of C or better. The Physics 006,007,008 sequence is a three-semester offering in introductory physics requiring math through calculus. This sequence satisfies the lower division physics requirement for majors in physics, chemistry, geology or other physical sciences, and engineering. A study of mechanics, gravitation, vibration and fluids. Students will learn to analyze and solve problems appropriate for this level in these topics. Experiments relating to the topics covered will be performed. Four hours lecture, three hours lab.</td>
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<tr>
<td>PHYS 007</td>
<td>5</td>
<td>Physics for Science and Engineering</td>
<td>Prerequisite: A grade of C or better in both PHYS 006 and MATH 021. Course Advisory: Eligibility for ENGL 001. The PHYS 006, 007, 008 sequence is a three-semester offering in introductory physics requiring math through calculus. This sequence satisfies the lower division physics requirement for majors in physics, chemistry, geology or other physical sciences, and engineering. A continuation of PHYS 006, covering the topics of electricity, magnetism, wave motion, and sound. Students will learn to analyze and solve problems appropriate for this level in these topics. Experiments relating to the topics covered will be performed. Four hours lecture, three hours lab.</td>
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<tr>
<td>PHYS 008</td>
<td>5</td>
<td>Physics for Science and Engineering</td>
<td>Prerequisite: A grade of C or better in both PHYS 006 and MATH 021. Course Advisory: Eligibility for ENGL 001. The Physics 006, 007, 008 sequence is a three-semester offering in introductory physics requiring math through calculus. This sequence satisfies the lower division physics requirement for majors in physics, chemistry, geology or other physical sciences, and engineering. A continuation of PHYS 006 and PHYS 007, covering heat, optics, relativity, and modern physics. Students will learn to analyze and solve problems appropriate for this level in these topics. Experiments relating to the topics covered will be performed and students will analyze the experiments. Field trip may be required. Four hours lecture, three hours lab.</td>
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<tr>
<td>PHYS 010</td>
<td>3</td>
<td>Descriptive Physics</td>
<td>Course Advisory: SCC minimum English standard; MATH 330 or MATH 330B. An introductory physics course for both the non-science and the beginning science student. Includes topics such as nuclear physics, relativity, mechanics, properties of matter, quantum physics, heat, light, electricity, and magnetism. Written assignments, tests, and a comprehensive final exam will be used to evaluate student success. Field trip may be required. Three hours lecture.</td>
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