

# PHYSICAL AND EARTH SCIENCES

## BACHELOR OF SCIENCE IN PHYSICS

The physics curriculum is designed to serve the needs of students in the fields of engineering, medicine, and other sciences. The junior and senior courses are tailored for students who desire a concentration in physics for a bachelor of science degree in physical science and/or wish to pursue graduate study in areas such as physics, meteorology, and astronomy.

To qualify for a bachelor of science degree in physical science, the student must take eight hours in chemistry, three hours in computer and information science, 25 hours in mathematics, and a minimum of 30 hours in physics. Twenty-two semester hours in these courses must be at the 3000 or 4000 level. A minimum of 38 hours must be taken in the Department of Physical Sciences

### Curriculum

The matrix below is a sample plan for all coursework required for this program.

#### Freshman

Fall	Credits
ENGL 1013 Composition I <sup>1</sup>	3
COMS 1011 Programming I Lab and COMS 1013 Programming I	4
MATH 2914 Calculus I	4
PHSC 1001 Orientation to Physical Science	1
CHEM 2124 General Chemistry I and CHEM 2120 General Chemistry I Lab	4
<b>Total Hours</b>	<b>16</b>

Spring	Credits
ENGL 1023 Composition II <sup>1</sup>	3
MATH 2924 Calculus II	4
PHYS 2114 Calculus-Based Physics I and PHYS 2000 Physics Laboratory I	4
PHSC 1011 Orientation to Physical Science II	1
CHEM 2134 General Chemistry II and CHEM 2130 General Chemistry II Lab	4
<b>Total Hours</b>	<b>16</b>

#### Sophomore

Fall	Credits
SS 1XXX Social Science Courses <sup>1</sup>	3
PHYS 2124 Calculus-Based Physics II and PHYS 2010 Physics Laboratory II	4
MATH 2934 Calculus III	4
BIOL XXXX	4
<b>Total Hours</b>	<b>15</b>

Spring	Credits
USHG 1XXX U S HISTORY & GOVERNMENT <sup>1</sup>	3
ELEG 2103 Electric Circuits I	3
PHYS 3213 Modern Physics	3
MATH 3243 Differential Equations I	3
Elective <sup>3</sup>	3
<b>Total Hours</b>	<b>15</b>

**Junior**

Fall	Credits
FAH 1XXX Fine Arts and Humanities Courses <sup>1</sup>	3
PHYS 3023 Mechanics or PHYS 4013 Quantum Mechanics	3
ELEG 2113 Electric Circuits II	3
ELEG 2111 Electric Circuits Laboratory	1
PHYS 3133 Theory of Electricity and Magnetism or PHYS 4023 Computational Physics	3
STAT 2304 Programming Languages for Data Science	4
<b>Total Hours</b>	<b>17</b>

Spring	Credits
FAH 1XXX Fine Arts and Humanities Courses <sup>1</sup>	3
PHYS 3003 Optics or PHYS 4113 Advanced Physics Laboratory	3
(PHYS 4213 Advanced Topics in Physics and Astronomy or an upper division Mathematics course) or PHYS 4003 Thermodynamics and Statistical Mechanics	3
Elective (3000-4000 level) <sup>3</sup>	3
Electives <sup>3</sup>	1
<b>Total Hours</b>	<b>13</b>

**Senior**

Fall	Credits
SS 1XXX Social Science Courses <sup>1</sup>	3
PHYS 3023 Mechanics or PHYS 4013 Quantum Mechanics	3
PHYS 3133 Theory of Electricity and Magnetism or PHYS 4023 Computational Physics	3
MATH 4003 Linear Algebra I	3
Elective (3000-4000 level) <sup>3</sup>	3
<b>Total Hours</b>	<b>15</b>

Spring	Credits
SFHS 1XXX Social Sciences/Fine Arts/Humanities/Communication Courses <sup>1</sup>	3
PHYS 3003 Optics or PHYS 4113 Advanced Physics Laboratory	3
(PHYS 4213 Advanced Topics in Physics and Astronomy or an upper division Mathematics course) or PHYS 4003 Thermodynamics and Statistical Mechanics	3
PHYS 4951 Undergraduate Research in Physics	1
Electives (3000-4000 level) <sup>3</sup>	3
<b>Total Hours</b>	<b>13</b>

<sup>1</sup>See appropriate alternatives or substitutions in "General Education Requirements". A specific general education core course does not have to be taken in the semester listed, any other part of the general education core at any time is acceptable as well.

<sup>2</sup>Excluding MATH 3003 Foundations of Advanced Mathematics, MATH 3033 Methods of Teaching Elementary Mathematics, and MATH 4113 History of Mathematics.

<sup>3</sup>Seven hours of electives must be from physical sciences, biology, engineering, computer science.

<sup>4</sup>Must complete both the PHYS 4113 Advanced Physics Laboratory and 3 hours PHYS electives (PHYS course offered in alternating years).