### PHYSICS - PHY

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Offered</th>
<th>Prerequisite</th>
<th>Corequisite</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHY 104</td>
<td>Seminar for Physics and Pre-engineering Majors</td>
<td>0</td>
<td>every fall &amp; spring</td>
<td>None.</td>
<td>None.</td>
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<tr>
<td>PHY 129</td>
<td>Introduction to Astronomy</td>
<td>3</td>
<td>once a year</td>
<td>MAT 110 or MAT 111</td>
<td>None.</td>
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<tr>
<td>PHY 130</td>
<td>Introductory Geology</td>
<td>3</td>
<td>occasionally</td>
<td>PHY 201</td>
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<td>PHY 131</td>
<td>Earthquakes: Seismology and Society</td>
<td>3</td>
<td>once a year</td>
<td>PHY 201</td>
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<td>PHY 201L</td>
<td>University Physics I Laboratory</td>
<td>1</td>
<td>every fall</td>
<td>MAT 110 or MAT 111</td>
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<td>PHY 202</td>
<td>College Physics II</td>
<td>3</td>
<td>every fall</td>
<td>None.</td>
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<td>PHY 202L</td>
<td>University Physics II Laboratory</td>
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<td>spring</td>
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<td>PHY 223</td>
<td>General Physics for Physical Science Majors I</td>
<td>3</td>
<td>every fall</td>
<td>MAT 110 or MAT 111</td>
<td>PHY 223L</td>
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<td>PHY 224</td>
<td>General Physics for Physical Science Majors II</td>
<td>3</td>
<td>every fall</td>
<td>None.</td>
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<td>PHY 225</td>
<td>General Physics for Physical Science Majors III</td>
<td>3</td>
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<td>PHY 226</td>
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<td>PHY 225L</td>
<td>General Physics for Physical Science Majors III Laboratory</td>
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<td>PHY 226L</td>
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<td>PHY 226</td>
<td>Basic Electronics</td>
<td>3</td>
<td>every spring</td>
<td>PHY 225L</td>
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<td>PHY 330</td>
<td>Electrodynamics I</td>
<td>3</td>
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<td>PHY 331</td>
<td>Electrodynamics II</td>
<td>3</td>
<td>fall of odd-numbered years</td>
<td>PHY 330</td>
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<td>PHY 332</td>
<td>Statistical and Thermal Physics</td>
<td>3</td>
<td>spring of odd-numbered years</td>
<td>PHY 225</td>
<td>None.</td>
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</table>
PHY 335 Mathematical Analysis for Physicists 4 Credits
Theory and applications of infinite series, Fourier series, Green’s functions, Fourier integrals, vector calculus, linear algebra, partial differential equations, and complex variable.
Prerequisite: MAT 222 or permission of instructor.
Offered: fall of odd-numbered years.

PHY 350 Modern Physics Laboratory 1 Credit
This course covers the basic principles of 20th century modern physics. The topics include blackbody radiation, particle/wave duality, x-ray diffraction, Bohr’s model of the atom, quantum tunneling, and the Schrodinger equation.
Prerequisite: PHY 225.
Fulfills College Core: Advanced Writing-Intensive
Offered: every fall.

PHY 351 Advanced Laboratory 1 Credit
This course emphasizes advanced experiments and experimental technique. Topics include, but are not restricted to, dosimetry, radiation detection, gamma-ray spectroscopy, Rutherford scattering, atomic spectroscopy, thin-film deposition, and magnetic resonance.
Prerequisite: PHY 225.
Fulfills College Core: Oral Communication
Offered: every spring.

PHY 443 Classical Mechanics 3 Credits
One, two, and three dimensional motion of a particle, non-inertial systems, classical scattering, rigid-body motion. Lagrange and Hamilton equations, calculus of variations, oscillations.
Prerequisite: PHY 225 & MAT 222.
Offered: fall of even-numbered years.

PHY 445 Special Topics in Physics 1 Credit
This course will cover model formation and development using archival journal articles in physics. The subject material will rotate by semester among topics such as astrophysics, quantum theory, and thermodynamics. Students will be expected to read and critique journal articles, lead discussions on journal articles, and trace the development of an area of physics through assigned readings.
Prerequisite: permission of instructor. Restriction: must be physics major or minor with senior standing.
Offered: spring of odd-numbered years.

PHY 446 Quantum Mechanics I 4 Credits
Corequisite: PHY 225 & MAT 222.
Offered: fall of even-numbered years.

PHY 447 Quantum Mechanics II 3 Credits
Application of Schrodinger’s equation, Hamiltonian mechanics, angular momentum, intrinsic spin, parity, and time-dependent quantum mechanics. PHY 446 is highly recommended.
Prerequisite: PHY 446.
Offered: spring of odd-numbered years.

PHY 449 Nuclear Physics Lab 1 Credit
Introduction to experimental nuclear physics. Experiments study nuclear instrumentation, characteristics of radiation and nuclear spectra.
Prerequisite: PHY 446.
Fulfills College Core: Advanced Writing-Intensive
Offered: occasionally.

PHY 498 Senior Project 1-3 Credits
A one-semester research project done under the supervision of a faculty member.
Prerequisite: permission of department chair. Restriction: senior standing in physics.
Offered: spring.

PHY 499 Independent Study 1-3 Credits
An independent study with a faculty member of the Physics Department. Independent studies require an application and approval by the associate dean.
Prerequisite: permission of the instructor, department chair, & associate dean. Restriction: permission of the chair.
Offered: fall & spring.