PHYSICS (SCIENCES AND LETTERS)

https://physics.illinois.edu/academics/undergraduates/curricula-and-programs

For the Degree of Bachelor of Science in Liberal Arts and Sciences

Major in Physics (Sciences and Letters)

E-mail: undergrad-info@physics.illinois.edu

Minimum required major and supporting course work normally equates to 65-73 hours

General education: Students must complete the Campus General Education (https://courses.illinois.edu) requirements including the campus general education language requirement.

Twelve hours of 300- and 400-level courses in the major must be taken on this campus.

A Major Plan of Study Form must be completed and submitted to the LAS Student Affairs Office before the end of the fifth semester (60-75 hours). Please see your adviser.

Minimum hours required for graduation: 120 hours

Departmental distinction: Graduation with distinction is awarded to students who complete 8 additional hours of 300- or 400- or 500-level physics courses or advanced courses in closely related technical subjects, and who have attained cumulative grade point averages as follows: distinction, 3.5; high distinction, 3.8; highest distinction, 3.8 plus acknowledgement of truly outstanding work/research.

The Physics Major (Sciences and Letters) is a flexible program for students who plan to pursue technical or professional careers in areas requiring a sound grounding in physical science and mathematics. Students can use the concentration to prepare for employment immediately upon graduation or for continuing on to graduate study in a wide variety of fields. Students who are certain that they want to go on to graduate study in physics or in a closely allied field should also consider the LAS Specialized Curriculum in Physics. In some cases, however, the greater flexibility of the Science and Letters Curriculum may make it a better choice for graduate school preparation for those who want to pursue a combined major and minor, a double major, or double degrees. Students in the major must maintain an overall grade point average of at least 2.0 and also a grade point average of at least 2.0 in all required physics and mathematics courses. To be permitted to enroll in advanced physics courses in this major a student must maintain at least a 2.0 average in all attempts at science and mathematics courses taken at the University of Illinois.

Students in this major must choose an approved elective technical or professional option no later than the end of the second semester of the sophomore year. A set of pre-approved options is available via the departmental web site (http://physics.illinois.edu/undergrad/lassl-flexcore.asp), and from the departmental undergraduate studies office. Students may also design and follow a "custom option" subject to departmental approval. Students completing the Astrophysics option will earn a minor in Astronomy, if appropriate Minor form is filed.

Entering freshmen typically take calculus, chemistry, rhetoric, and PHYS 110 during the first semester and begin the general physics sequence in the second semester. Students with advanced placement in mathematics should begin the general physics sequence in the first semester. All students are strongly encouraged to take a Freshman Discovery Seminar during the first year fall semester and plan ahead to allow space in their programs for undergraduate research.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>PHYS 110</td>
<td>Physics Careers</td>
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<tr>
<td>PHYS 211</td>
<td>University Physics: Mechanics</td>
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<tr>
<td>PHYS 212</td>
<td>University Physics: Elec &amp; Mag</td>
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<tr>
<td>PHYS 213</td>
<td>Univ Physics: Thermal Physics</td>
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<tr>
<td>PHYS 214</td>
<td>Univ Physics: Quantum Physics</td>
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<tr>
<td>PHYS 225</td>
<td>Relativity &amp; Math Applications</td>
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<tr>
<td>PHYS 325</td>
<td>Classical Mechanics I</td>
<td></td>
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<tr>
<td>PHYS 435</td>
<td>Electromagnetic Fields I</td>
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<tr>
<td>PHYS 486</td>
<td>Quantum Physics I or PHYS Atomic Phys &amp; Quantum Theory</td>
<td>9-15</td>
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Flexible physics core electives. Choose three courses from a departmentally approved list, with at least one being PHYS 401, PHYS 403, PHYS 404, or PHYS 406. The number of hours varies depending upon the courses chosen. (http://physics.illinois.edu/undergrad/lassl-flexcore.asp)

Supporting Technical Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>MATH 221</td>
<td>Calculus I 1</td>
<td>21-22</td>
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<tr>
<td>MATH 231</td>
<td>Calculus II</td>
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<tr>
<td>MATH 241</td>
<td>Calculus III</td>
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<tr>
<td>MATH 285</td>
<td>Intro Differential Equations or MATH Intro to Differential Eq Plus</td>
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<tr>
<td>CHEM 102</td>
<td>General Chemistry I</td>
<td></td>
</tr>
<tr>
<td>CHEM 103</td>
<td>General Chemistry Lab I</td>
<td></td>
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<tr>
<td>CS 101</td>
<td>Intro Computing: Engrg &amp; Sci</td>
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Elective Technical or Professional Option

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A set of technical or professional courses that addresses an intellectually coherent body of knowledge. At least 9 hours should be at the 200-level or higher. Required courses may not be included in the set. Students may select from a list of pre-approved options or design a custom option, subject to departmental approval.

1 MATH 220 may be substituted with four of the five credit hours applying toward the degree. MATH 220 is appropriate for students with no background in calculus.

Information listed in this catalog is current as of 10/2018