BA with a Major in Physics

Program Codes:
20FT0240BA

Degree Requirements
To earn a Bachelor of Arts in Liberal Arts and Sciences degree from UIC, students must complete university, college, and department degree requirements. The Department of Physics degree requirements are outlined below. Students should consult the College of Liberal Arts and Sciences section for additional degree requirements and college academic policies.

Summary of Requirements
Required Prerequisite and Collateral Courses 24
Major Requirements 40
General Education and Electives to reach minimum Total Hours 56
Total Hours 120

General Education
See General Education and Writing-in-the-Discipline in the College of Liberal Arts and Sciences section for information on meeting these requirements. Students should consult the course lists below and their advisors to determine which courses may be counted toward the General Education and Writing-in-the-Discipline requirements.

Required Prerequisite and Collateral Courses

Required Courses
MATH 180  Calculus I  a,b  4
MATH 181  Calculus II  a  4
MATH 210  Calculus III  a  3
MATH 220  Introduction to Differential Equations  3
CHEM 122  General Chemistry I Lecture  4
CHEM 123  General Chemistry Laboratory I  ac  1
CHEM 124  General Chemistry II Lecture  4
CHEM 125  General Chemistry Laboratory II  ac  1
Total Hours 24

a  This course is approved for the Analyzing the Natural World General Education category.
b  MATH 180 fulfills the LAS Quantitative Reasoning requirement.
c  General Education credit is given for successful completion of both CHEM 122 and CHEM 123 or CHEM 124 and CHEM 125.

Major Requirements

Required Courses
PHYS 141  General Physics I (Mechanics)  a  4
PHYS 142  General Physics II (Electricity and Magnetism)  a  4
PHYS 215  Computational and Mathematical Methods for the Physical Sciences  4
PHYS 230  Fundamentals of Relativity  3
PHYS 240  Fundamentals of Modern Quantum Theory  3
PHYS 241  Experiments in Modern Physics  1
PHYS 245  Introduction to Vibrations, Waves, and Thermal Physics  4
PHYS 401  Electromagnetism I  4
PHYS 411  Quantum Mechanics I  4
PHYS 461  Thermal and Statistical Physics  4
PHYS 481  Modern Experimental Physics I  bd  4
PHYS 499  Survey of Physics Problems  cd  1
Total Hours 40

a  This course is approved for the Analyzing the Natural World General Education category.
b  PHYS 481 fulfills the Writing-in-the-Discipline requirement.
c  Students must achieve a grade of C or better in PHYS 499.
d  Concurrent registration in PHYS 481 and PHYS 499 is required.

Recommended Plan of Study

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td><strong>First Year</strong></td>
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<tr>
<td>Fall Semester</td>
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<tr>
<td>ENGL 160</td>
<td>Academic Writing I: Writing in Academic and Public Contexts  a</td>
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<tr>
<td>MATH 180</td>
<td>Calculus I  b</td>
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<tr>
<td>PHYS 141</td>
<td>General Physics I (Mechanics)  a</td>
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<td>Foreign Language</td>
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<td><strong>Spring Semester</strong></td>
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<tr>
<td>ENGL 161</td>
<td>Academic Writing II: Writing for Inquiry and Research  a</td>
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<tr>
<td>MATH 181</td>
<td>Calculus II</td>
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<tr>
<td>PHYS 142</td>
<td>General Physics II (Electricity and Magnetism)  c</td>
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<td>Foreign Language</td>
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<tr>
<td><strong>Second Year</strong></td>
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<td>Fall Semester</td>
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<tr>
<td>MATH 210</td>
<td>Calculus III</td>
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<tr>
<td>PHYS 215</td>
<td>Computational and Mathematical Methods for the Physical Sciences</td>
<td>4</td>
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<td>PHYS 230</td>
<td>Fundamentals of Relativity</td>
<td>3</td>
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<td>Foreign Language</td>
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<td>4</td>
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<td><strong>Total Hours</strong></td>
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<tr>
<td><strong>Spring Semester</strong></td>
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<td>Introduction to Differential Equations</td>
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<td>Foreign Language</td>
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<tr>
<td><strong>Total Hours</strong></td>
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### Third Year
#### Fall Semester
- **PHYS 411** Quantum Mechanics I 4
- **PHYS 461** Thermal and Statistical Physics 4
- **CHEM 122** General Chemistry I Lecture 4
- **CHEM 123** General Chemistry Laboratory I c,f 1
- General Education Requirement course 3

**Hours** 16

#### Spring Semester
- **CHEM 124** General Chemistry II Lecture 4
- **CHEM 125** General Chemistry Laboratory II c,f 1
- General Education Requirement course 3
- Elective d,e 4
- Elective e 3

**Hours** 15

### Fourth Year
#### Fall Semester
- **PHYS 401** Electromagnetism I 4
- **PHYS 481** Modern Experimental Physics I 5
  & **PHYS 499** or **PHYS 461**
  or Thermal and Statistical Physics
- Elective e 3
- General Education Requirement course 3

**Hours** 15

#### Spring Semester
- Elective d,e 3
- Elective d,e 3
- Elective d,e 3
- General Education Requirement course 3
- General Education Requirement course 3

**Hours** 15

**Total Hours** 120

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- **a** Satisfies University Writing Requirement.
- **b** Satisfies the LAS Quantitative Reasoning requirement when a grade of C or better is earned.
- **c** Is approved for General Education credit as a laboratory course in Analyzing the Natural World.
- **d** Among other elective courses, the student is encouraged to consider PHYS 441, then PHYS 402 or PHYS 412.
- **e** Elective hours as needed to reach minimum 120 total hours for graduation.

**Note:** PHYS 141 and PHYS 142 are offered every semester (including summer session). All other physics courses are offered only in the semester indicated.

**Note:** Students must earn at least 40 advanced hours at a four-year college or university. These hours may include hours in the major.

**Note:** The UIC General Education Requirement is nine courses: Two laboratory courses from Analyzing the Natural World, one course from each of Understanding the Individual and Society, Understanding the Past, Understanding the Creative Arts, Exploring World Cultures, and Understanding U.S. Society. The two remaining GenEd courses can be taken from any category. For example, taking CHEM 122, CHEM 123, CHEM 124, CHEM 125 and PHYS 141, PHYS 142 fulfills four of nine GenEd courses and the Analyzing the Natural World category.