PHYSICS (BA)

This program was approved for students entering the university in the Summer 2019—Spring 2020 catalog year. For more information about catalog year, go to Catalog Year Information (http://catalog.louisville.edu/undergraduate/university-wide-unit-specific-policies/catalog-year).

Bachelor of Arts in Physics
Unit: College of Arts and Sciences (AS) (http://www.louisville.edu/a-s)
Department: Physics and Astronomy (http://www.physics.louisville.edu)
Academic Plan Code(s): PHYSBA

Program Information
The Bachelor of Arts (BA) degree in Physics is designed for substantial pre-professional education for such fields as medicine, patent law, teaching, technical writing, and technical sales. Students preparing for secondary school science teaching may choose electives to help fulfill teaching certification requirements.

Completion of this degree requires work to be submitted for the department's Learning Outcomes Measurement. For details, contact the department.

Degree Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>General Education Requirements (<a href="http://catalog.louisville.edu/undergraduate/general-education-requirements">http://catalog.louisville.edu/undergraduate/general-education-requirements</a>)</td>
<td>31</td>
</tr>
<tr>
<td></td>
<td>College/School Requirements</td>
<td>22</td>
</tr>
<tr>
<td></td>
<td>Program/Major Requirements</td>
<td>68</td>
</tr>
<tr>
<td></td>
<td>Minimum Total Hours</td>
<td>121</td>
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</tbody>
</table>

1 Some credit hours from the General Education Requirements may be satisfied by courses defined by the program, in which case additional electives will be required to complete the minimum hours for the degree. See the Degree Requirements tab for specific coursework.

Specific coursework information can be found on the Degree Requirements tab.

Departmental Admission Requirements
There are no specific admission requirements for this degree plan.

The Application for Major form can be found on the Arts & Sciences Advising Center website (http://louisville.edu/artsandsciences/advising/apply).

General Education Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>General Education Requirements</td>
<td>31</td>
</tr>
<tr>
<td></td>
<td>The following courses are required by the program and can be taken to fulfill the respective General Education Requirement:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CHEM 201 General Chemistry I - S or BIOL 240 Unity of Life - S</td>
<td></td>
</tr>
<tr>
<td></td>
<td>MATH 205 Calculus I - QR</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PHYS 298 Introductory Mechanics, Heat and Sound - S</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PHYS 295 Introductory Laboratories I - SL</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Minimum Total Hours</td>
<td>31</td>
</tr>
</tbody>
</table>

All degrees require the completion of the University-wide General Education Program (link provided above). Some General Education requirements may be met in the requirements for the major or supporting coursework, in which case additional electives may be required to complete the minimum hours for the degree.

College/School Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Arts &amp; Sciences Requirements</td>
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<tr>
<td>GEN 100</td>
<td>Student Success Center Orientation</td>
<td>1</td>
</tr>
<tr>
<td>or GEN 101</td>
<td>Arts and Sciences Orientation</td>
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</tr>
<tr>
<td>Foreign Language</td>
<td>2 Electives in Humanities or Social Sciences</td>
<td>9</td>
</tr>
<tr>
<td>WR—two approved courses at the 300 level or above</td>
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</tr>
<tr>
<td></td>
<td>Minimum Total Hours</td>
<td>22</td>
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</table>

Program/Major Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td></td>
<td>Department of Physics</td>
<td></td>
</tr>
<tr>
<td>PHYS 295</td>
<td>Introductory Laboratories I - SL</td>
<td>1</td>
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<tr>
<td>PHYS 296</td>
<td>Introductory Laboratories II - SL</td>
<td>1</td>
</tr>
<tr>
<td>PHYS 301</td>
<td>Introductory Modern Physics Laboratory</td>
<td>1</td>
</tr>
<tr>
<td>PHYS 298</td>
<td>Introductory Mechanics, Heat and Sound - S</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 299</td>
<td>Introductory Electricity, Magnetism and Light</td>
<td>4</td>
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<tr>
<td>PHYS 300</td>
<td>Introductory Modern Physics</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 350</td>
<td>Differential Equations for the Physical Sciences</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 460</td>
<td>Mechanics</td>
<td>3</td>
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<tr>
<td>PHYS 530</td>
<td>Thermal Physics</td>
<td>3</td>
</tr>
<tr>
<td>Select one of the following:</td>
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<td>3</td>
</tr>
<tr>
<td>PHYS 430</td>
<td>Practicum in Physics Education - CUE</td>
<td></td>
</tr>
<tr>
<td>PHYS 496</td>
<td>Senior Seminar in Physics - CUE, WR</td>
<td></td>
</tr>
<tr>
<td>PHYS 497</td>
<td>Senior Thesis in Physics - CUE, WR</td>
<td></td>
</tr>
<tr>
<td>PHYS 499</td>
<td>Cooperative Internship in Physics - CUE</td>
<td></td>
</tr>
<tr>
<td>PHYS electives at the 300 level or above</td>
<td>6</td>
<td></td>
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</tbody>
</table>

Supporting Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>MATH 205</td>
<td>Calculus I - QR</td>
<td>4</td>
</tr>
<tr>
<td>MATH 206</td>
<td>Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>MATH 301</td>
<td>Calculus III</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 201</td>
<td>General Chemistry I - S</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 202</td>
<td>General Chemistry II - S</td>
<td>3</td>
</tr>
</tbody>
</table>
CHEM 207  Introduction to Chemical Analysis I - SL  1
CHEM 208  Introduction to Chemical Analysis II - SL  1
CHEM 209  Introduction to Chemical Analysis III  1
BIOL 240  Unity of Life - S  5
& BIOL 244  Principles of Biology Laboratory - SL  3
GEOS 301  Geology for Scientists and Engineers  3
Minimum Electives  6
Minimum Total Hours  68

Code  Title  Hours

Minimum Hours Required for Degree  121

Only 40 hours in the major department may be applied toward the Bachelor of Arts Degree.

At least 50 of the total minimum hours required must be at the 300 level or above.

Code  Title  Hours

Culminating Undergraduate Experience (Graduation requirement)

Requirement fulfilled by completing one of the following:

PHYS 430  Practicum in Physics Education - CUE
PHYS 496  Senior Seminar in Physics - CUE, WR
PHYS 497  Senior Thesis in Physics - CUE, WR
PHYS 499  Cooperative Internship in Physics - CUE

Ten credit hours from the General Education Requirements may be satisfied by courses defined by the program, in which case additional electives will be required to complete the minimum hours for the degree.

Completion of the intermediate level of a single foreign language.
In addition to courses counted toward General Education, 6 hours must be at the 300 level or above.

May be incorporated into other degree requirements.

Flight Plan

Course  Title  Hours

Year 1 Fall
GEN 100  Student Success Center Orientation  1
or GEN 101  or Arts and Sciences Orientation
ENGL 101  Introduction to College Writing - WC  3
MATH 205  Calculus I - QR  4
PHYS 298  Introductory Mechanics, Heat and Sound - S  4
PHYS 299  Introductory Laboratories I - SL  1
General Education: Cardinal Core Oral Communication - OC  3

Hours  16

Spring
MATH 206  Calculus II  4
PHYS 299  Introductory Electricity, Magnetism and Light  4
PHYS 296  Introductory Laboratories II - SL  1
CHEM 201  General Chemistry I - S  3
CHEM 207  Introduction to Chemical Analysis I - SL  1
CHEM 208  Introduction to Chemical Analysis II - SL  1
ENGL 102  Intermediate College Writing - WC  3

Hours  17

Year 2 Fall
MATH 301  Calculus III  4

PHYS 300  Introductory Modern Physics  3
PHYS 301  Introductory Modern Physics Laboratory  1
CHEM 202  General Chemistry II - S  3
CHEM 209  Introduction to Chemical Analysis III  1
Foreign Language 4  3

Hours  16

Spring
BIOL 240  Unity of Life - S  3
General Education: Cardinal Core Social & Behavioral Sciences US Diversity - SBD1  3
General Education: Cardinal Core Arts & Humanities - AH  3
General Elective (300 level or above)  3
Foreign Language 2  4

Hours  16

Year 3 Fall
PHYS 350  Differential Equations for the Physical Sciences  4
Physics Elective (300 level or above)  3
Foreign Language 3  4
General Education: Cardinal Core Social & Behavioral Sciences Historical Perspective - SBH  3
Humanities or Social Science Elective (300 level or above)  3
BIOL 244  Principles of Biology Laboratory - SL  2

Hours  19

Spring
GEOS 301  Geology for Scientists and Engineers  3
PHYS 460  Mechanics  3
Foreign Language 4 (if needed) or General Elective  3
Physics Elective (300 level or above)  3
Humanities or Social Science WR elective (300 level or above)  3

Hours  15

Year 4 Fall
PHYS 451  Electromagnetic Fields  3
Select one of the following:
PHYS 430  Practicum in Physics Education - CUE
PHYS 496  Senior Seminar in Physics - CUE, WR
PHYS 497  Senior Thesis in Physics - CUE, WR
PHYS 499  Cooperative Internship in Physics - CUE
Humanities or Social Science WR elective (300 level or above)  3
General Elective (300 level or above)  3

Hours  12

Spring
General Education: Cardinal Core Arts & Humanities Global Diversity - AHD02  3
General Elective  3
General Elective (300 level or above)  2
General Elective (300 level or above)  3
PHYS 530  Thermal Physics  3

Hours  14

Minimum Total Hours  125

Degree Audit Report

Degree Audit reports illustrate how your completed courses fulfill the requirements of your academic plan. What-if reports allow you to compare the courses you have completed in your current academic plan to the courses required in another academic plan. Should you have questions about either report, please consult with your academic advisor.

To create either report:
1. Log into your ULink account.
2. Click on the Student Services tab.
3. Next, click on "View my Academic Advisement Report" to run a Degree Audit report in the Undergraduate Advising area.

4. To create a What-if report, click on "Create a What-if Advisement Report."

Click here to run a Degree Audit report, or create a What-if report. (https://ulink.louisville.edu)

**Flight Planner**

Based on your major, the Flight Planner tool may be available for you to create a personalized Flight Plan. The Flight Planner can be found in the ULink Student Center. Consult with your advisor for assistance with the Flight Planner.