

PHYSICS (BA)

This program was approved for students entering the university in the Summer 2025-Spring 2026 catalog year. For more information about catalog year, go to Catalog Year Information (<https://catalog.louisville.edu/undergraduate/university-wide-unit-specific-policies/catalog-year/>).

Bachelor of Arts in Physics

Unit: College of Arts and Sciences (AS) (<https://louisville.edu/artsandsciences/home/>)

Department: Physics and Astronomy (<https://louisville.edu/physics/>)
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

| Code | Title | Hours |
|------|---|----------------|
| | General Education Requirements (https://catalog.louisville.edu/undergraduate/general-education-requirements/) ¹ | 31 |
| | College/School Requirements | 22 |
| | Program/Major Requirements ¹ | 33 |
| | Supporting Courses | 35-36 |
| | Minimum Total Hours | 121-122 |

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 Change Major Request form can be found under the Academic Progress tile on ULink (<https://ulink.louisville.edu/>).

General Education Requirements

| Code | Title | Hours |
|------|---|-------|
| | General Education Requirements (https://catalog.louisville.edu/undergraduate/general-education-requirements/) ¹ | 31 |

The following courses are required by the program and can be taken to fulfill the respective General Education Requirement:

| | |
|----------|---|
| MATH 205 | Calculus I - QR (https://catalog.louisville.edu/undergraduate/general-education-requirements/) |
|----------|---|

| | |
|---|--|
| PHYS 298 | Introductory Mechanics, Heat and Sound - S (https://catalog.louisville.edu/undergraduate/general-education-requirements/) |
| PHYS 295 | Introductory Laboratories I - SL (https://catalog.louisville.edu/undergraduate/general-education-requirements/) |
| Any three credit hour Natural Science Gen Ed - S (excluding PHYS 221, PHYS 222, PHYS 223, and PHYS 224) at the 200 level or above | |

Minimum Total Hours 31

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

| Code | Title | Hours |
|---|---|-----------|
| Arts & Sciences Requirements | | |
| GEN 100 or GEN 101 | Student Success Center First Year Experience Arts & Sciences First Year Experience | 1 |
| | Foreign Language ² | 12 |
| | Electives in Humanities or Social Sciences ³ | 9 |
| | WR—two approved courses at the 300 level or above ⁴ | |
| | Minimum Total Hours | 22 |

Program/Major Requirements

| Code | Title | Hours |
|------------------------------|---|-------|
| Department of Physics | | |
| PHYS 275 | Introduction to Scientific Computing and Data Analysis | 3 |
| PHYS 295 | Introductory Laboratories I - SL (https://catalog.louisville.edu/undergraduate/general-education-requirements/) | 1 |
| PHYS 296 | Introductory Laboratories II - SL (https://catalog.louisville.edu/undergraduate/general-education-requirements/) | 1 |
| PHYS 298 | Introductory Mechanics, Heat and Sound - S (https://catalog.louisville.edu/undergraduate/general-education-requirements/) | 4 |
| PHYS 299 | Introductory Electricity, Magnetism and Light | 4 |
| PHYS 300 | Introductory Modern Physics | 3 |
| PHYS 301 | Introductory Modern Physics Laboratory | 1 |
| PHYS 350 | Differential Equations for the Physical Sciences | 4 |
| | Select one of the following courses: | 3 |
| PHYS 430 | Practicum in Physics Education - CUE (https://catalog.louisville.edu/undergraduate/general-education-requirements/) | |
| PHYS 496 | Senior Seminar in Physics - CUE (https://catalog.louisville.edu/undergraduate/general-education-requirements/), WR (https://catalog.louisville.edu/undergraduate/general-education-requirements/) | |

| | | |
|--|--|---|
| PHYS 497 | Senior Thesis in Physics - CUE (https://catalog.louisville.edu/undergraduate/general-education-requirements/), WR (https://catalog.louisville.edu/undergraduate/general-education-requirements/) | |
| PHYS 498 | Undergraduate Research - CUE (https://catalog.louisville.edu/undergraduate/general-education-requirements/) | |
| PHYS 499 | Cooperative Internship in Physics - CUE (https://catalog.louisville.edu/undergraduate/general-education-requirements/) | |
| PHYS electives at the 300 level or above | | 6 |
| Select one of the following courses: | | 3 |
| PHYS 460 | Mechanics | |
| PHYS 530 | Thermal Physics | |
| PHYS 541 | Electromagnetic Fields | |

Minimum Total Hours **33**

| Code | Title | Hours |
|------|-------|-------|
|------|-------|-------|

Supporting Courses

| | | |
|----------|---|---|
| MATH 205 | Calculus I - QR (https://catalog.louisville.edu/undergraduate/general-education-requirements/) | 4 |
| MATH 206 | Calculus II | 4 |

Select one from the following courses: 3-4

| | | |
|----------|--|--|
| MATH 301 | Calculus III | |
| MATH 360 | Statistical Data Analysis - WR (https://catalog.louisville.edu/undergraduate/general-education-requirements/) | |
| PHYS 375 | Intermediate Scientific Computing and Data Analysis | |

STEM Electives (excluding PHYS 221, PHYS 222, PHYS 223, and PHYS 224) at the 200 level or above ⁵ 12

STEM Electives at the 300 level or above ⁵ 6

General Electives at the 200 level or above 6

Minimum Total Hours **35-36**

| Code | Title | Hours |
|------|-------|-------|
|------|-------|-------|

Minimum Hours Required for Degree **121-122**

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 (https://catalog.louisville.edu/undergraduate/general-education-requirements/) | |
| PHYS 496 | Senior Seminar in Physics - CUE (https://catalog.louisville.edu/undergraduate/general-education-requirements/), WR (https://catalog.louisville.edu/undergraduate/general-education-requirements/) | |

| | | |
|----------|--|--|
| PHYS 497 | Senior Thesis in Physics - CUE (https://catalog.louisville.edu/undergraduate/general-education-requirements/), WR (https://catalog.louisville.edu/undergraduate/general-education-requirements/) | |
| PHYS 498 | Undergraduate Research - CUE (https://catalog.louisville.edu/undergraduate/general-education-requirements/) | |
| PHYS 499 | Cooperative Internship in Physics - CUE (https://catalog.louisville.edu/undergraduate/general-education-requirements/) | |

- ¹ 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.
- ² Completion of the intermediate level of a single foreign language.
- ³ In addition to courses counted toward General Education, 6 hours must be at the 300 level or above.
- ⁴ May be incorporated into other degree requirements.
- ⁵ STEM electives refer to courses from Natural Sciences, Social Sciences, Engineering & CSE. Classes that meet the 12 hours for STEM electives at the 200+ level: CHEM 201, CHEM 202, CHEM 207, CHEM 208, CHEM 209, BIOL 240, BIOL 241, BIOL 242, and BIOL 243. Additional classes that meet the 6 hours for STEM electives at the 300+ level: CHEM 341, CHEM 342, CHEM 445, BIOL 540, and BIOL 329.

General Flight Plan

| Year 1 | | Hours |
|--|--|-----------|
| Fall | | |
| GEN 100 or GEN 101 | Student Success Center First Year Experience or Arts & Sciences First Year Experience | 1 |
| ENGL 101 | Introduction to College Writing - WC (https://catalog.louisville.edu/undergraduate/general-education-requirements/) | 3 |
| MATH 205 | Calculus I - QR (https://catalog.louisville.edu/undergraduate/general-education-requirements/) | 4 |
| PHYS 295 | Introductory Laboratories I - SL (https://catalog.louisville.edu/undergraduate/general-education-requirements/) | 1 |
| PHYS 298 | Introductory Mechanics, Heat and Sound - S (https://catalog.louisville.edu/undergraduate/general-education-requirements/) | 4 |
| General Education: Cardinal Core Oral Communication - OC | | 3 |
| Hours | | 16 |

| Spring | | Hours |
|---|---|-----------|
| ENGL 102 | Intermediate College Writing - WC (https://catalog.louisville.edu/undergraduate/general-education-requirements/) | 3 |
| MATH 206 | Calculus II | 4 |
| PHYS 296 | Introductory Laboratories II - SL (https://catalog.louisville.edu/undergraduate/general-education-requirements/) | 1 |
| PHYS 299 | Introductory Electricity, Magnetism and Light | 4 |
| Elective in the Humanities or Social Sciences | | 3 |
| Hours | | 15 |

| Year 2 | | Hours |
|---|--|-------|
| Fall | | |
| PHYS 275 | Introduction to Scientific Computing and Data Analysis | 3 |
| General Education: Cardinal Natural Sciences - S | | 3 |
| General Education: Cardinal Core Arts & Humanities - AH | | 3 |
| Foreign Language 1 | | 4 |

| | |
|--|------------|
| 300+ Elective | 3 |
| Hours | 16 |
| Spring | |
| PHYS 300 Introductory Modern Physics | 3 |
| PHYS 301 Introductory Modern Physics Laboratory | 1 |
| 200+ STEM Elective | 3 |
| 200+ STEM Elective | 3 |
| Foreign Language 2 | 4 |
| Hours | 14 |
| Year 3 | |
| Fall | |
| PHYS 350 Differential Equations for the Physical Sciences | 4 |
| Foreign Language 3 | 4 |
| General Education: Cardinal Core Social & Behavioral Sciences Historical Perspective - SBH | 3 |
| 200+ STEM Elective | 3 |
| 200+ STEM Elective | 3 |
| Hours | 17 |
| Spring | |
| PHYS 375 Intermediate Scientific Computing and Data Analysis or MATH 301 or Calculus III or MATH 360 or Statistical Data Analysis - WR (https://catalog.louisville.edu/undergraduate/general-education-requirements/) | 3 |
| PHYS 460 Mechanics | 3 |
| General Education: Cardinal Core Arts & Humanities Global Diversity - AHD2 | 3 |
| Humanities or Social Science WR Elective (300 level or above) | 3 |
| Foreign Language 4 (if needed) or 300+ Elective | 3 |
| Hours | 15 |
| Year 4 | |
| Fall | |
| Select one of the following courses: | 3 |
| PHYS 430 Practicum in Physics Education - CUE (https://catalog.louisville.edu/undergraduate/general-education-requirements/) | |
| PHYS 496 Senior Seminar in Physics - CUE (https://catalog.louisville.edu/undergraduate/general-education-requirements/), WR (https://catalog.louisville.edu/undergraduate/general-education-requirements/) | |
| PHYS 497 Senior Thesis in Physics - CUE (https://catalog.louisville.edu/undergraduate/general-education-requirements/), WR (https://catalog.louisville.edu/undergraduate/general-education-requirements/) | |
| PHYS 498 Undergraduate Research - CUE (https://catalog.louisville.edu/undergraduate/general-education-requirements/) | |
| PHYS 499 Cooperative Internship in Physics - CUE (https://catalog.louisville.edu/undergraduate/general-education-requirements/) | |
| PHYS 300+ elective | 3 |
| General Education: Cardinal Core Social & Behavioral Sciences US Diversity - SBD1 | 3 |
| 300+ General Elective | 3 |
| 300+ STEM Elective | 3 |
| Hours | 15 |
| Spring | |
| PHYS 300+ elective | 3 |
| Humanities or Social Science WR Elective (300 level or above) | 3 |
| 300+ Elective | 3 |
| 300+ Elective | 3 |
| 300+ Elective | 3 |
| Hours | 15 |
| Minimum Total Hours | 123 |

Pre-Med Flight Plan

| | | |
|---|--|--------------|
| Year 1 | | |
| Fall | | Hours |
| GEN 100 Student Success Center First Year Experience or GEN 101 or Arts & Sciences First Year Experience | | 1 |
| ENGL 101 Introduction to College Writing - WC (https://catalog.louisville.edu/undergraduate/general-education-requirements/) | | 3 |
| MATH 205 Calculus I - QR (https://catalog.louisville.edu/undergraduate/general-education-requirements/) | | 4 |
| PHYS 298 Introductory Mechanics, Heat and Sound - S (https://catalog.louisville.edu/undergraduate/general-education-requirements/) | | 4 |
| PHYS 295 Introductory Laboratories I - SL (https://catalog.louisville.edu/undergraduate/general-education-requirements/) | | 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 (https://catalog.louisville.edu/undergraduate/general-education-requirements/) | | 1 |
| CHEM 201 General Chemistry I - S (https://catalog.louisville.edu/undergraduate/general-education-requirements/) | | 3 |
| CHEM 207 Introduction to Chemical Analysis I - SL (https://catalog.louisville.edu/undergraduate/general-education-requirements/) | | 1 |
| CHEM 208 Introduction to Chemical Analysis II - SL (https://catalog.louisville.edu/undergraduate/general-education-requirements/) | | 1 |
| ENGL 102 Intermediate College Writing - WC (https://catalog.louisville.edu/undergraduate/general-education-requirements/) | | 3 |
| Hours | | 17 |
| Year 2 | | |
| Fall | | |
| PHYS 275 Introduction to Scientific Computing and Data Analysis | | 3 |
| CHEM 202 General Chemistry II - S (https://catalog.louisville.edu/undergraduate/general-education-requirements/) | | 3 |
| CHEM 209 Introduction to Chemical Analysis III | | 1 |
| BIOL 240 Unity of Life - S (https://catalog.louisville.edu/undergraduate/general-education-requirements/) | | 3 |
| BIOL 241 Experimental Biology I: Molecules and Cells - SL (https://catalog.louisville.edu/undergraduate/general-education-requirements/) | | 1 |
| Foreign Language 1 | | 4 |
| Hours | | 15 |
| Spring | | |
| PHYS 300 Introductory Modern Physics | | 3 |
| PHYS 301 Introductory Modern Physics Laboratory | | 1 |
| CHEM 341 Organic Chemistry I | | 3 |
| BIOL 242 Diversity of Life - S (https://catalog.louisville.edu/undergraduate/general-education-requirements/) | | 3 |
| BIOL 243 Experimental Biology II: Organismal Biology - SL (https://catalog.louisville.edu/undergraduate/general-education-requirements/) | | 1 |
| Foreign Language 2 | | 4 |
| Hours | | 15 |
| Year 3 | | |
| Fall | | |
| PHYS 350 Differential Equations for the Physical Sciences | | 4 |
| CHEM 342 Organic Chemistry II | | 3 |
| BIOL 329 Cellular and Molecular Biology | | 3 |

| | |
|--|------------|
| General Education: Cardinal Core Arts & Humanities - AH | 3 |
| Foreign Language 3 | 4 |
| Hours | 17 |
| Spring | |
| PHYS 460 Mechanics | 3 |
| PHYS 375 Intermediate Scientific Computing and Data Analysis | 3 |
| CHEM 445 Survey of Biochemistry or BIOL 540 or Metabolic Biochemistry | 3 |
| General Education: Cardinal Core Social & Behavioral Sciences Historical Perspective - SBH | 3 |
| Foreign Language 4 (if needed) or General Elective | 3 |
| Hours | 15 |
| Year 4 | |
| Fall | |
| Select one of the following courses: | 3 |
| PHYS 430 Practicum in Physics Education - CUE (https://catalog.louisville.edu/undergraduate/general-education-requirements/) | |
| PHYS 496 Senior Seminar in Physics - CUE (https://catalog.louisville.edu/undergraduate/general-education-requirements/), WR (https://catalog.louisville.edu/undergraduate/general-education-requirements/) | |
| PHYS 497 Senior Thesis in Physics - CUE (https://catalog.louisville.edu/undergraduate/general-education-requirements/), WR (https://catalog.louisville.edu/undergraduate/general-education-requirements/) | |
| PHYS 498 Undergraduate Research - CUE (https://catalog.louisville.edu/undergraduate/general-education-requirements/) | |
| PHYS 499 Cooperative Internship in Physics - CUE (https://catalog.louisville.edu/undergraduate/general-education-requirements/) | |
| PHYS 300+ elective | 3 |
| Humanities or Social Science WR Elective (300 level or above) | 3 |
| General Education: Cardinal Core Social & Behavioral Sciences US Diversity - SBD1 | 3 |
| General Elective | 3 |
| Hours | 15 |
| Spring | |
| PHYS 300+ elective | 3 |
| Humanities or Social Science WR Elective (300 level or above) | 3 |
| General Education: Cardinal Core Arts & Humanities Global Diversity - AHD2 | 3 |
| Humanities or Social Science Elective | 3 |
| Hours | 12 |
| Minimum Total Hours | 122 |

and can help you adjust it to ensure you remain on track to graduate in a timely manner.

To create these reports:

1. Log into your ULink account.
2. Click on the Academic Progress tile.
3. Select the appropriate report.
 - a. To run a Degree Audit report, click on "View my Degree Audit."
 - b. To create a What-if report, click on "What-if Advisement Report."
 - c. To run a Flight Planner report, click on "Use My Flight Planner."

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

The Flight Plan outlined above is intended to demonstrate one possible path to completing the degree within four years. Course selection and placement within the program may vary depending on course offerings and schedule, elective preferences, and other factors (study abroad, internship availability, etc.). Please consult your advisor for additional information about building a flight plan that works for you.

Degree Audit Report

Degree Audit reports illustrate how your completed courses fulfill the requirements of your academic plan, and which requirements are still outstanding. Degree audits also take transfer credits and test credits into account. "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.

Flight Planner

The Flight Planner tool is available for you to create a personalized Flight Plan to graduation. Advisors have access to review your Flight Planner