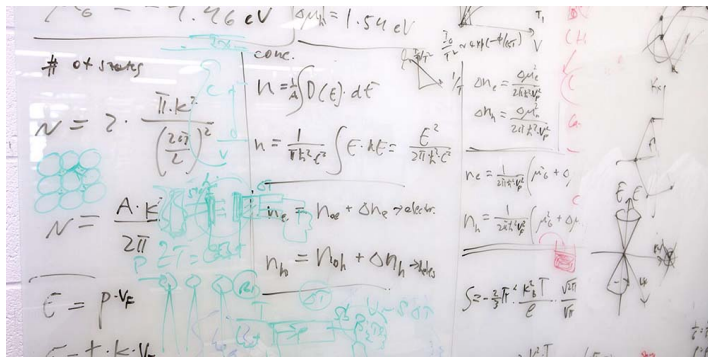


PHYSICS (BS)



This program was approved for students entering the university in the Summer 2022–Spring 2023 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 Science 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): See Track Requirements tab.

Program Information

The Bachelor of Science (BS) degree is intended as preparation for entry into graduate programs in Physics and other scientific or engineering fields. It also provides suitable training for entering the workforce in a technical position.

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 (http://catalog.louisville.edu/undergraduate/general-education-requirements/) ¹ | 31 |
| | College/School Requirements | 13-15 |
| | Program/Major Requirements ¹ | 44-45 |
| | Supporting Courses | 30-33 |
| | Track Requirements | 9-10 |
| | Minimum Total Hours | 121 |

¹ Twelve 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.

Accelerated BS/MS (Master of Science) in Physics

Physics majors who are considering pursuing a master's degree (MS) in Physics can speed up the process by applying some of their undergraduate credit hours toward a master's degree. Students accepted

into the Accelerated BS/MS take three graduate courses (9 credit hours) as an undergraduate that apply toward both the bachelor's degree and the eventual master's degree.

Interested students must apply for admission to the program in the first semester of the senior year (i.e., after completing 90 hours). Applicants must have completed at least 21 credit hours in Physics before applying to the program with at least a 3.0 GPA in Physics courses and a 3.35 university GPA. Students must also maintain a 3.0 GPA after they are admitted to the BS/MS program.

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/>).

Accelerated BS/MS (Master of Science) in Physics Program

Applicants apply for admission to the five-year accelerated program in the first semester of the senior year and must meet the following criteria:

- The applicant will have completed at least 21 credit hours in Physics before applying to the program.
- The applicant will have maintained at least a 3.0 GPA in Physics courses and a 3.35 GPA overall.

All applicants must submit an application along with GRE General test score consistent with MS in Physics program (<http://catalog.louisville.edu/graduate/programs-study/master-science-physics/>) guidelines.

General Education Requirements

| Code | Title | Hours |
|--|---|-------|
| | General Education Requirements (http://catalog.louisville.edu/undergraduate/general-education-requirements/) ¹ | 31 |
| The following courses are required by the program and should be taken to fulfill the respective General Education Requirement: | | |
| CHEM 201 | General Chemistry I - S | |
| PHYS 298 | Introductory Mechanics, Heat and Sound - S | |
| PHYS 295 | Introductory Laboratories I - SL | |
| MATH 205 | Calculus I - QR | |

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 | 6-8 |
| | Electives in Humanities or Social Sciences at 300 level or above ³ | 6 |

WR—two approved courses at the 300 level or above ⁴

Minimum Total Hours 13-15

Program/Major Requirements

| Code | Title | Hours |
|---|--|-------------|
| Department of Physics | | |
| PHYS 295 | Introductory Laboratories I - SL | 1 |
| PHYS 296 | Introductory Laboratories II - SL | 1 |
| PHYS 301 | Introductory Modern Physics Laboratory | 1 |
| PHYS 298 | Introductory Mechanics, Heat and Sound - S | 4 |
| PHYS 299 | Introductory Electricity, Magnetism and Light | 4 |
| PHYS 300 | Introductory Modern Physics | 3 |
| PHYS 351 | Atomic and Nuclear Physics Laboratory | 2 |
| PHYS 350 | Differential Equations for the Physical Sciences | 4 |
| PHYS 460 | Mechanics | 3 |
| PHYS 530 | Thermal Physics | 3 |
| PHYS 541 | Electromagnetic Fields | 3 |
| PHYS 555 | Elementary Quantum Mechanics | 3 |
| Culminating Undergraduate Experience (CUE) Select one of the following: | | 3 |
| PHYS 430 | Practicum in Physics Education - CUE | |
| PHYS 496 | Senior Seminar in Physics - CUE, WR | |
| PHYS 497 | Senior Thesis in Physics - WR, CUE | |
| PHYS 499 | Cooperative Internship in Physics - CUE | |
| Professional, Astronomy and Astrophysics, Applied, Atmospheric, or Computational Physics and Data Science Track (see track tab for requirements) | | 9-10 |

Minimum Total Hours 44-45

| Code | Title | Hours |
|----------------------------------|--------------------------|--------------|
| Supporting Courses | | |
| CHEM 201 | General Chemistry I - S | 3 |
| CHEM 202 | General Chemistry II - S | 3 |
| MATH 205 | Calculus I - QR | 4 |
| MATH 206 | Calculus II | 4 |
| MATH 301 | Calculus III | 4 |
| Minimum Electives ^{1,5} | | 12-15 |
| Minimum Total Hours | | 30-33 |

Code Title Hours
Minimum Hours Required for Degree 121

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 - WR, CUE | |
| PHYS 499 | Cooperative Internship in Physics - CUE | |

- ¹ Ten (10) 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 Students who satisfy General Education Requirements by courses defined by the program will require additional electives to complete the minimum hours for the degree.

Track Requirements

Track in Applied Physics

Academic Plan Code(s): PHYSBS_APP

| Code | Title | Hours |
|--|------------------------------|-------------|
| Select one of the following: | | 1-2 |
| PHYS 308 | Observational Astronomy | |
| PHYS 356 | Optics Laboratory | |
| PHYS 546 | Advanced Optics Lab | |
| Select one of the following: | | 3 |
| PHYS 542 | Electromagnetic Radiation | |
| PHYS 545 | Advanced Optics | |
| PHYS 547 | Fundamentals of Lasers | |
| PHYS 556 | Quantum Theory of Matter | |
| PHYS 565 | Computational Physics | |
| PHYS 570 | Atomic and Molecular Physics | |
| PHYS 575 | Solid State Physics | |
| PHYS 580 | Nuclear Physics | |
| PHYS 585 | Elementary Particle Physics | |
| PHYS 589 | General Relativity | |
| PHYS 590 | Astrophysics | |
| PHYS electives: PHYS courses at 300 level or above to total nine hours beyond core | | 4-5 |
| Minimum Total Hours | | 9-10 |

Alternate choices within or outside of the department are possible with approval.

Track in Astronomy and Astrophysics

Academic Plan Code(s): PHYSBS_ASP

| Code | Title | Hours |
|----------------------------|-----------------------------------|-----------|
| PHYS 307 | Introductory Stellar Astrophysics | 3 |
| PHYS 308 | Observational Astronomy | 1 |
| PHYS 355 | Optics | 3 |
| PHYS 590 | Astrophysics | 3 |
| Minimum Total Hours | | 10 |

Track in Professional Physics (non-track)

Academic Plan Code(s): PHYSBS

| Code | Title | Hours |
|----------------------------|---------------------------|----------|
| PHYS 542 | Electromagnetic Radiation | 3 |
| PHYS 556 | Quantum Theory of Matter | 3 |
| PHYS 498 | Undergraduate Research | 3 |
| Minimum Total Hours | | 9 |

Track in Atmospheric Physics

Academic Plan Code(s): PHYSBS_ATP

| Code | Title | Hours |
|----------------------------|----------------------|----------|
| PHYS 363 | Atmospheric Physics | 3 |
| PHYS 464 | Atmospheric Dynamics | 3 |
| PHYS 517 | Physics of Climate | 3 |
| or PHYS 518 | Space Weather | |
| Minimum Total Hours | | 9 |

Track in Computational Physics and Data Science

Academic Plan Code(s): PHYSBS_CDS

| Code | Title | Hours |
|---|---|----------|
| Select 3 of these courses for this track: | | 9 |
| PHYS 375 | Intermediate Scientific Computing and Data Analysis (3) | |
| PHYS 390 | Introductory Computational Physics (3) | |
| PHYS 475 | Machine Learning in the Physical Sciences (3) | |
| PHYS 565 | Computational Physics (3) | |
| Minimum Total Hours | | 9 |

Flight Plan

Track in Applied Physics

| Course | Title | Hours |
|---|--|-----------|
| Year 1 | | |
| 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 | 3 |
| MATH 205 | Calculus I - QR | 4 |
| PHYS 298 | Introductory Mechanics, Heat and Sound - S | 4 |
| PHYS 295 | Introductory Laboratories I - SL | 1 |
| General Education: Cardinal Core Social & Behavioral Sciences US Diversity - SBD1 | | 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 |
| ENGL 102 | Intermediate College Writing - WC | 3 |
| Hours | | 15 |
| Year 2 | | |
| Fall | | |
| MATH 301 | Calculus III | 4 |
| PHYS 300 | Introductory Modern Physics | 3 |
| PHYS 301 | Introductory Modern Physics Laboratory | 1 |
| PHYS 350 | Differential Equations for the Physical Sciences | 4 |

| | | |
|--|---------------------------------------|-----------|
| CHEM 202 | General Chemistry II - S | 3 |
| Hours | | 15 |
| Spring | | |
| PHYS 351 | Atomic and Nuclear Physics Laboratory | 2 |
| PHYS 530 | Thermal Physics | 3 |
| PHYS 460 | Mechanics | 3 |
| General Education: Cardinal Core Arts & Humanities - AH | | 3 |
| General Education: Cardinal Core Oral Communication - OC | | 3 |
| Hours | | 14 |

Year 3

| | | |
|------------------------------|-------------------------|--------------|
| Fall | | |
| PHYS 541 | Electromagnetic Fields | 3 |
| Select one of the following: | | 1-2 |
| PHYS 308 | Observational Astronomy | |
| PHYS 356 | Optics Laboratory | |
| PHYS 546 | Advanced Optics Lab | |
| Foreign Language 1 | | 3-4 |
| General Elective | | 3 |
| General Elective | | 3 |
| General Elective | | 3 |
| Hours | | 17-18 |

Spring

| | | |
|--|--|--------------|
| Physics track course | | 3 |
| Humanities or Social Science WR elective (300 level or above) | | 3 |
| General Education: Cardinal Core Arts & Humanities Global Diversity - AHD2 | | 3 |
| General Education: Cardinal Core Social & Behavioral Sciences Historical Perspective - SBH | | 3 |
| Foreign Language 2 | | 3-4 |
| Hours | | 15-16 |

Year 4

| | | |
|---|---|----------------|
| Fall | | |
| PHYS 555 | Elementary Quantum Mechanics | 3 |
| Select one of the following: | | 3 |
| PHYS 430 | Practicum in Physics Education - CUE | |
| PHYS 496 | Senior Seminar in Physics - CUE, WR | |
| PHYS 497 | Senior Thesis in Physics - WR, CUE | |
| PHYS 499 | Cooperative Internship in Physics - CUE | |
| Physics elective (300 level or above) | | 3 |
| General elective | | 3 |
| General elective | | 3 |
| Hours | | 15 |
| Spring | | |
| General Elective | | 3 |
| Humanities or Social Science WR elective (300 level or above) | | 3 |
| General elective | | 3 |
| General elective | | 3 |
| General elective | | 3 |
| Hours | | 15 |
| Minimum Total Hours | | 122-124 |

Track in Astronomy and Astrophysics

| Course | Title | Hours |
|-----------------------|--|-------|
| Year 1 | | |
| 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 | 3 |
| MATH 205 | Calculus I - QR | 4 |
| PHYS 298 | Introductory Mechanics, Heat and Sound - S | 4 |
| PHYS 295 | Introductory Laboratories I - SL | 1 |

| | |
|--|--|
| General Education: Cardinal Core Social & Behavioral Sciences US Diversity - SBD1 | 3 |
| Hours | 16 |
| Spring | |
| MATH 206 | Calculus II 4 |
| PHYS 299 | Introductory Electricity, Magnetism and Light 4 |
| PHYS 296 | Introductory Laboratories II - SL 1 |
| ENGL 102 | Intermediate College Writing - WC 3 |
| General Education: Cardinal Core Oral Communication - OC | 3 |
| Hours | 15 |
| Year 2 | |
| Fall | |
| MATH 301 | Calculus III 4 |
| PHYS 300 | Introductory Modern Physics 3 |
| PHYS 301 | Introductory Modern Physics Laboratory 1 |
| PHYS 350 | Differential Equations for the Physical Sciences 4 |
| CHEM 201 | General Chemistry I - S 3 |
| Hours | 15 |
| Spring | |
| PHYS 351 | Atomic and Nuclear Physics Laboratory 2 |
| PHYS 460 | Mechanics 3 |
| CHEM 202 | General Chemistry II - S 3 |
| General Education: Cardinal Core Arts & Humanities - AH | 3 |
| General Education: Cardinal Core Social & Behavioral Sciences Historical Perspective - SBH | 3 |
| General Elective | 3 |
| Hours | 17 |
| Year 3 | |
| Fall | |
| PHYS 307 | Introductory Stellar Astrophysics 3 |
| PHYS 308 | Observational Astronomy 1 |
| PHYS 355 | Optics 3 |
| General Education: Cardinal Core Arts & Humanities Global Diversity - AHD2 | 3 |
| Humanities or Social Science WR Elective (300 level or above) | 3 |
| Foreign Language 1 | 3-4 |
| Hours | 16-17 |
| Spring | |
| PHYS 590 | Astrophysics 3 |
| PHYS 530 | Thermal Physics 3 |
| General Elective | 3 |
| General Elective | 3 |
| Foreign Language 2 | 3-4 |
| Hours | 15-16 |
| Year 4 | |
| Fall | |
| PHYS 541 | Electromagnetic Fields 3 |
| PHYS 555 | Elementary Quantum Mechanics 3 |
| Select one of the following: | 3 |
| PHYS 430 | Practicum in Physics Education - CUE |
| PHYS 496 | Senior Seminar in Physics - CUE, WR |
| PHYS 497 | Senior Thesis in Physics - WR, CUE |
| PHYS 499 | Cooperative Internship in Physics - CUE |
| General Elective | 3 |
| General Elective | 2-3 |
| Hours | 14-15 |
| Spring | |
| Humanities or Social Science WR elective (300 level or above) | 3 |
| General Elective (300 level or above) | 3 |
| General Elective (300 level or above) | 3 |
| General Elective (300 level or above) | 3 |

| | |
|----------------------------|----------------|
| General Elective | 1-2 |
| Hours | 13-14 |
| Minimum Total Hours | 121-125 |

Track in Atmospheric Physics

| Course | Title | Hours |
|--|--|--------------|
| Year 1 | | |
| 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 | 3 |
| MATH 205 | Calculus I - QR | 4 |
| PHYS 220 or ENVS 220 | Introduction to Weather and Climate - S or Introduction to Weather and Climate - S | 3 |
| PHYS 298 | Introductory Mechanics, Heat and Sound - S | 4 |
| PHYS 295 | Introductory Laboratories I - SL | 1 |
| Hours | | 16 |
| Spring | | |
| ENGL 102 | Intermediate College Writing - WC | 3 |
| MATH 206 | Calculus II | 4 |
| PHYS 299 | Introductory Electricity, Magnetism and Light | 4 |
| PHYS 296 | Introductory Laboratories II - SL | 1 |
| General Education: Cardinal Core Oral Communication - OC | | 3 |
| Hours | | 15 |
| Year 2 | | |
| Fall | | |
| CHEM 201 | General Chemistry I - S | 3 |
| MATH 301 | Calculus III | 4 |
| PHYS 300 | Introductory Modern Physics | 3 |
| PHYS 301 | Introductory Modern Physics Laboratory | 1 |
| PHYS 350 | Differential Equations for the Physical Sciences | 4 |
| Hours | | 15 |
| Spring | | |
| CHEM 202 | General Chemistry II - S | 3 |
| PHYS 351 | Atomic and Nuclear Physics Laboratory | 2 |
| PHYS 460 | Mechanics | 3 |
| General Education: Cardinal Core Arts & Humanities - AH | | 3 |
| General Education: Cardinal Core Social & Behavioral Sciences Historical Perspective - SBH | | 3 |
| General Education: Cardinal Core Social & Behavioral Sciences US Diversity - SBD1 | | 3 |
| Hours | | 17 |
| Year 3 | | |
| Fall | | |
| PHYS 363 | Atmospheric Physics | 3 |
| General Education: Cardinal Core Arts & Humanities Global Diversity - AHD2 | | 3 |
| Humanities or Social Science WR Elective (300 level or above) | | 3 |
| Foreign Language 1 | | 3-4 |
| General Elective | | 3 |
| Hours | | 15-16 |
| Spring | | |
| PHYS 464 | Atmospheric Dynamics | 3 |
| PHYS 530 | Thermal Physics | 3 |
| Foreign Language 2 | | 3-4 |
| General Elective | | 3 |
| General Elective | | 3 |
| Hours | | 15-16 |
| Year 4 | | |
| Fall | | |
| PHYS 541 | Electromagnetic Fields | 3 |
| PHYS 555 | Elementary Quantum Mechanics | 3 |
| Select one of the following: | | 3 |

| | | |
|---|--|----------------|
| PHYS 517 | Physics of Climate | |
| or General Elective | | |
| Select one of the following: | | 1-3 |
| PHYS 430 | Practicum in Physics Education - CUE | |
| or | or Senior Seminar in Physics - CUE, WR | |
| PHYS 496 | or Senior Thesis in Physics - WR, CUE | |
| or | or Cooperative Internship in Physics - CUE | |
| PHYS 497 | | |
| or | | |
| PHYS 499 | | |
| General Elective | | 3 |
| Hours | | 13-15 |
| Spring | | |
| Select one of the following: | | 3 |
| PHYS 518 | Space Weather | |
| or General Elective | | |
| Humanities or Social Science WR elective (300 level or above) | | 3 |
| General Elective (300 level or above) | | 3 |
| General Elective (300 level or above) | | 3 |
| General Elective (300 level or above) | | 3 |
| Hours | | 15 |
| Minimum Total Hours | | 121-125 |

Track in Professional Physics

| Course | Title | Hours |
|---|--|-----------|
| Year 1 | | |
| 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 | 3 |
| MATH 205 | Calculus I - QR | 4 |
| PHYS 298 | Introductory Mechanics, Heat and Sound - S | 4 |
| PHYS 295 | Introductory Laboratories I - SL | 1 |
| General Elective | | 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 |
| ENGL 102 | Intermediate College Writing - WC | 3 |
| Hours | | 15 |
| Year 2 | | |
| Fall | | |
| MATH 301 | Calculus III | 4 |
| PHYS 300 | Introductory Modern Physics | 3 |
| PHYS 301 | Introductory Modern Physics Laboratory | 1 |
| PHYS 350 | Differential Equations for the Physical Sciences | 4 |
| CHEM 202 | General Chemistry II - S | 3 |
| Hours | | 15 |
| Spring | | |
| PHYS 351 | Atomic and Nuclear Physics Laboratory | 2 |
| PHYS 460 | Mechanics | 3 |
| Humanities or Social Science WR elective (300 level or above) | | 3 |
| General Education: Cardinal Core Social & Behavioral Sciences US Diversity - SBD1 | | 3 |
| General Education: Cardinal Core Oral Communication - OC | | 3 |
| Hours | | 14 |
| Year 3 | | |
| Fall | | |
| PHYS 541 | Electromagnetic Fields | 3 |
| General Education: Cardinal Core Arts & Humanities Global Diversity - AHD2 | | 3 |

| | | |
|--|---------------------------|--------------|
| General Education: Cardinal Core Social & Behavioral Sciences Historical Perspective - SBH | | 3 |
| General Education: Cardinal Core Arts & Humanities - AH | | 3 |
| Foreign Language 1 | | 3-4 |
| Hours | | 16 |
| Spring | | |
| PHYS 530 | Thermal Physics | 3 |
| PHYS 542 | Electromagnetic Radiation | 3 |
| Foreign Language 2 | | 3-4 |
| General Elective | | 3 |
| General Elective | | 3 |
| Hours | | 15-16 |

| | | |
|---|---|-----------|
| Year 4 | | |
| Fall | | |
| PHYS 498 | Undergraduate Research | 1-3 |
| PHYS 555 | Elementary Quantum Mechanics | 3 |
| Select one of the following: | | 3 |
| PHYS 430 | Practicum in Physics Education - CUE | |
| PHYS 496 | Senior Seminar in Physics - CUE, WR | |
| PHYS 497 | Senior Thesis in Physics - WR, CUE | |
| 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 | | 15 |

| | | |
|---------------------------------------|--------------------------|----------------|
| Spring | | |
| PHYS 556 | Quantum Theory of Matter | 3 |
| General Elective (300 level or above) | | 3 |
| General Elective (300 level or above) | | 3 |
| General Elective | | 3 |
| General Elective | | 3 |
| Hours | | 15 |
| Minimum Total Hours | | 121-122 |

Track in Computational Physics and Data Science

| Course | Title | Hours |
|--|--|-----------|
| Year 1 | | |
| 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 | 3 |
| MATH 205 | Calculus I - QR | 4 |
| PHYS 298 | Introductory Mechanics, Heat and Sound - S | 4 |
| PHYS 295 | Introductory Laboratories I - SL | 1 |
| General Education: Cardinal Core Social & Behavioral US Diversity - SBD1 | | 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 |
| ENGL 102 | Intermediate College Writing - WC | 3 |
| Hours | | 15 |
| Year 2 | | |
| Fall | | |
| MATH 301 | Calculus III | 4 |
| PHYS 275 | Introduction to Scientific Computing and Data Analysis | 3 |
| PHYS 300 | Introductory Modern Physics | 3 |
| PHYS 301 | Introductory Modern Physics Laboratory | 1 |
| PHYS 350 | Differential Equations for the Physical Sciences | 4 |
| Hours | | 15 |

| | | |
|--|---|------------|
| Spring | | |
| PHYS 351 | Atomic and Nuclear Physics Laboratory | 2 |
| PHYS 460 | Mechanics | 3 |
| CHEM 202 | General Chemistry II - S | 3 |
| General Education: Cardinal Core Social & Behavioral Sciences Historical Perspective - SBH | | 3 |
| General Education: Cardinal Core Arts and Humanities -AH | | 3 |
| General Elective | | 3 |
| Hours | | 17 |
| Year 3 | | |
| Fall | | |
| Select one of the following | | 3 |
| PHYS 375 or PHYS 390 | Intermediate Scientific Computing and Data Analysis or Introductory Computational Physics | |
| General Education: Cardinal Core Arts & Humanities Global Diversity - AHD2 | | 3 |
| Humanities or Social Science WR Elective (300 level or above) | | 3 |
| Foreign Language 1 | | 4 |
| General Elective | | 3 |
| Hours | | 16 |
| Spring | | |
| PHYS 475 | Machine Learning in the Physical Sciences | 3 |
| PHYS 530 | Thermal Physics | 3 |
| PHYS 565 | Computational Physics | 3 |
| Foreign Language 2 | | 4 |
| General Education: Oral Communication - OC | | 3 |
| Hours | | 16 |
| Year 4 | | |
| Fall | | |
| PHYS 541 | Electromagnetic Fields | 3 |
| PHYS 555 | Elementary Quantum Mechanics | 3 |
| Select one of the following: | | 3 |
| PHYS 430 or PHYS 496 or PHYS 497 or PHYS 499 | Practicum in Physics Education - CUE or Senior Seminar in Physics - CUE, WR or Senior Thesis in Physics - WR, CUE or Cooperative Internship in Physics - CUE | |
| General Elective | | 3 |
| General Elective | | 3 |
| Hours | | 15 |
| Spring | | |
| Humanities or Social Science WR Elective (300 level or above) | | 3 |
| General Elective (300 level or above) | | 3 |
| General Elective (300 level or above) | | 3 |
| General Elective (300 level or above) | | 3 |
| Hours | | 12 |
| Minimum Total Hours | | 122 |

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.

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 Academic Progress tile.
3. Next, click on "View my Degree Audit" to run a Degree Audit report in the Undergraduate Advising area.