

BS in Physics

Program Codes:

20FT0240BS

Degree Requirements

To earn a Bachelor of Science in Physics 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.

Code	Title	Hours
Summary of Requirements		
Requirements for the Curriculum		120
Total Hours		120

Requirements for the Curriculum

The requirements for the curriculum include the courses necessary to complete the General Education and Writing-in-the-Discipline requirements described in the *College of Liberal Arts and Sciences* section.

Code	Title	Hours
Required Courses		
ENGL 160	Academic Writing I: Writing in Academic and Public Contexts ^a	3
ENGL 161	Academic Writing II: Writing for Inquiry and Research ^a	3
Foreign Language (the equivalent of two years of a single language at the college level)		0-16
Exploring World Cultures course ^b		3
Understanding the Creative Arts course ^b		3
Understanding the Individual and Society course ^b		3
Understanding the Past course ^b		3
Understanding U.S. Society course ^b		3
MATH 180	Calculus I ^{c,d}	4
MATH 181	Calculus II ^d	4
MATH 210	Calculus III ^d	3
MATH 220	Introduction to Differential Equations	3
CHEM 122	Matter and Energy ^e	3
CHEM 123	Foundations of Chemical Inquiry I ^{d,e}	2
CHEM 124	Chemical Dynamics ^e	3
CHEM 125	Foundations of Chemical Inquiry II ^{d,e}	2
PHYS 141	General Physics I (Mechanics) ^d	4
PHYS 142	General Physics II (Electricity and Magnetism) ^d	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 441	Theoretical Mechanics	4
PHYS 461	Thermal and Statistical Physics	4
PHYS 425	Modern Optics	4
or PHYS 482	Modern Experimental Physics II	
PHYS 402	Electromagnetism II ^f	4
or PHYS 412	Quantum Mechanics II	
PHYS 481	Modern Experimental Physics I ^{g,i}	4
PHYS 499	Survey of Physics Problems ^{h,i}	1
Electives		7-23
Total Hours		120

- a ENGL 160 and ENGL 161 fulfill the University Writing Requirement.
- b Students should consult the General Education section of the catalog for a list of approved courses in this category.
- c MATH 180 fulfills the LAS Quantitative Reasoning requirement.
- d This course is approved for the Analyzing the Natural World General Education category.
- e General Education credit is given for successful completion of both CHEM 122 and CHEM 123 or CHEM 124 and CHEM 125.
- f Students planning to pursue graduate studies in physics are strongly encouraged to take both of these courses.
- g PHYS 481 fulfills the LAS Writing-in-the-Discipline requirement.
- h A grade of C or better is required in PHYS 499.
- i Concurrent registration in PHYS 481 and PHYS 499 is required.

Recommended Plan of Study

Physics is a discipline that carefully builds additional knowledge on a foundation of previously learned science and mathematics. To complete the physics curriculum in four years, therefore, requires careful planning, especially because the upper-division courses are offered at most once per year and have prerequisites. A recommended typical course sequence for the BS degree is given below.

Note: Students should consult the *General Education* section of the catalog for a list of approved courses in each category.

Course	Title	Hours
Freshman Year		
Fall Semester		
ENGL 160	Academic Writing I: Writing in Academic and Public Contexts	3
MATH 180	Calculus I	4
PHYS 141	General Physics I (Mechanics)	4
Foreign Language		4
		Hours
		15
Spring Semester		
ENGL 161	Academic Writing II: Writing for Inquiry and Research	3
MATH 181	Calculus II	4
PHYS 142	General Physics II (Electricity and Magnetism)	4
Foreign Language		4
		Hours
		15

Sophomore Year**Fall Semester**

MATH 210	Calculus III	3
PHYS 215	Computational and Mathematical Methods for the Physical Sciences	4
PHYS 230	Fundamentals of Relativity	3
Foreign Language		4
Hours		14

Spring Semester

MATH 220	Introduction to Differential Equations	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
Foreign Language		4
Hours		15

Junior Year**Fall Semester**

PHYS 411	Quantum Mechanics I	4
Select one of the following:		4-5
PHYS 461	Thermal and Statistical Physics	
PHYS 481 & PHYS 499	Modern Experimental Physics I and Survey of Physics Problems	
CHEM 122 & CHEM 123	Matter and Energy and Foundations of Chemical Inquiry I	5
General Education Core course		3
Hours		16-17

Spring Semester

PHYS 412	Quantum Mechanics II (or Elective) ^a	4
PHYS 441	Theoretical Mechanics	4
CHEM 124 & CHEM 125	Chemical Dynamics and Foundations of Chemical Inquiry II	5
General Education Core course		3
Hours		16

Senior Year**Fall Semester**

PHYS 401	Electromagnetism I	4
Select one of the following:		4-5
PHYS 461	Thermal and Statistical Physics	
PHYS 481 & PHYS 499	Modern Experimental Physics I and Survey of Physics Problems	
General Education Core course		3
General Education Core course		3
Hours		14-15

Spring Semester

PHYS 402	Electromagnetism II (or Elective) ^a	4
PHYS 425 or PHYS 482	Modern Optics or Modern Experimental Physics II	4

General Education Core course	3	
Elective	3	
Hours		14
Total Hours		120

^a *The BS degree requires PHYS 402 or PHYS 412, but both are recommended for students who plan to go to graduate school in physics.*

Students who are not prepared to begin MATH 180 in their first semester may need to attend summer school or possibly take more than four years to finish their BS degree.

In addition to the degree programs shown above, there is an Engineering Physics program available through the [College of Engineering](#).