

Physics BS

Overview

The **Bachelor of Science in Physics**, offered by the Department of Physics, provides strong preparation for those wishing to attend graduate school in physics or related disciplines and is recommended for those who intend to enter the scientific workforce upon completion of a bachelor's degree. Physics students learn how the natural world works. The laboratory, math and problem-solving skills they pick up are great for the job market. Physics majors teach, work on Wall Street and serve in the military. They also perform well on the admission tests for law and medical schools.

Campus Location: Main

Program Code: ST-PHYS-BS

Distinction in Major

To graduate with distinction in this major, a student must satisfy the following criteria:

- achieve a minimum 3.5 major GPA and
- carry out an independent study or undergraduate thesis project.

Consult the undergraduate physics faculty advisor for more details.

Accelerated Programs

Accelerated programs provide a pathway for students to pursue both an undergraduate degree and an advanced degree in a shorter amount of time. Below is a list of available accelerated programs for students in the BS in Physics.

- BS in Physics / MEd in Middle Grades Education with a Concentration in Science
- BS in Physics / MEd in Middle Grades Education with a Concentration in Mathematics and Science
- BS in Physics / MS in Physics

Undergraduate Contact Information

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Learn more about the Bachelor of Science in Physics.

These requirements are for students who matriculated in academic year 2023-2024. Students who matriculated prior to fall 2023 should refer to the Archives to view the requirements for their Bulletin year.

Bachelor of Science Requirements

Summary of Requirements for the Degree

1. University Requirements (123 total s.h.)

- Students must complete all University requirements including those listed below.
- All undergraduate students must complete at least two writing-intensive courses for a total of at least six credits at Temple as part of their major. The specific writing-intensive course options for this major are:

Code	Title	Credit Hours
PHYS 2796	Introduction to Modern Physics	4
PHYS 4796	Experimental Physics	3

- Students must complete the General Education (GenEd) requirements.
 - See the General Education section of the *Undergraduate Bulletin* for the GenEd curriculum.
 - Students who complete CST majors receive a waiver for 2 Science & Technology (GS) and 1 Quantitative Literacy (GQ) GenEd courses.
- Students must satisfy general Temple University residency requirements.

2. College Requirements

- A minimum of 90 total credits within the College of Science & Technology (CST), the College of Liberal Arts (CLA), and/or the College of Engineering (ENG).
 - A minimum of 45 of these credits must be upper-level (courses numbered 2000 and above).
- Complete a one-credit first-year or transfer seminar.
 - SCTC 1001 CST First Year Seminar for every entering first-year CST student.
 - SCTC 2001 CST Transfer Seminar for every entering transfer CST student.

3. Major Requirements for Bachelor of Science (72-77 s.h.)

A least 9 courses required for the major must be completed at Temple. At least 8 Physics courses must be completed at Temple.

Code	Title	Credit Hours
Mathematics		
MATH 1041 or MATH 1941	Calculus I Honors Calculus I	4
MATH 1042 or MATH 1942	Calculus II Honors Calculus II	4
MATH 2043 or MATH 2943	Calculus III Honors Calculus III	4
Select one of the following:		3-4
MATH 2041	Differential Equations I	
MATH 2045	Differential Equations with Linear Algebra	
MATH 2941	Honors Differential Equations I	
Two science or mathematics elective courses		
These two electives can be chosen from Biology, Chemistry, Engineering, Earth & Environmental Science, Mathematics or Physics in consultation with the faculty advisor.		6-8
Physics Courses		
PHYS 1008	Physics Seminar I	1
Select one of the following:		4
PHYS 1061	Elementary Classical Physics I	
PHYS 1961	Honors Elementary Classical Physics I (F)	
PHYS 2021	General Physics I	
PHYS 2921	Honors General Physics I (F)	
Select one of the following:		4
PHYS 1062	Elementary Classical Physics II	
PHYS 1962	Honors Elementary Classical Physics II (S)	
PHYS 2022	General Physics II	
PHYS 2922	Honors General Physics II (S)	
PHYS 2101	Classical Mechanics (S)	3
PHYS 2511	Scientific Computing I	1.5
PHYS 3511	Scientific Computing II	1.5
PHYS 2502	Mathematical Physics (S)	4
PHYS 2796	Introduction to Modern Physics (S)	4
PHYS 3101	Analytical Mechanics (F)	3
PHYS 3301	Electricity and Magnetism (F)	4
PHYS 3302	Classical Electromagnetism (S)	3
PHYS 3701	Introduction to Quantum Mechanics I (S)	3
PHYS 4101	Thermal Physics (F)	3
PHYS 4302	Optics (F)	3
PHYS 4796	Experimental Physics (S)	3
Select two of the following:		6-8
PHYS 1454	Observational Astronomy Through Design	
PHYS 3424	Introduction to Astrophysics	
PHYS 3702	Optical and Electronic Properties of Materials, Including Thin Films and Nanomaterials (F)	

PHYS 4801	Atomic, Molecular and Optical Physics
PHYS 4301	Electronics (S (odd years))
PHYS 4701	Introduction to Solid State Physics (S (even years))
PHYS 4702	Introduction to Quantum Mechanics II (F)

Total Credit Hours **72-77**

Note: PHYS 3091 is not available for major credit.

Code	Title	Credit Hours
(F) - Fall only course		
(S) - Spring only course		

Suggested Academic Plan

Bachelor of Science in Physics

Suggested Plan for New Students Starting in the 2023-2024 Academic Year

Year 1		Credit Hours
Fall		
MATH 1041 or MATH 1941	Calculus I or Honors Calculus I	4
PHYS 1008	Physics Seminar I	1
Select one of the following:		4
PHYS 1061	Elementary Classical Physics I	
PHYS 1961	Honors Elementary Classical Physics I (F)	
PHYS 2021	General Physics I	
PHYS 2921	Honors General Physics I (F)	
SCTC 1001	CST First Year Seminar	1
ENG 0802 or ENG 0812 or ENG 0902	Analytical Reading and Writing or Analytical Reading and Writing: ESL or Honors Writing About Literature	4
Elective		1
Credit Hours		15
Spring		
MATH 1042 or MATH 1942	Calculus II or Honors Calculus II	4
Select one of the following:		4
PHYS 1062	Elementary Classical Physics II	
PHYS 1962	Honors Elementary Classical Physics II (S)	
PHYS 2022	General Physics II	
PHYS 2922	Honors General Physics II (S)	
PHYS 2511	Scientific Computing I	1.5
IH 0851 or IH 0951	Intellectual Heritage I: The Good Life or Honors Intellectual Heritage I: The Good Life	3
Elective		3
Credit Hours		15.5
Year 2		
Fall		
MATH 2043 or MATH 2943	Calculus III or Honors Calculus III	4
Select one of the following:		3-4
MATH 2041	Differential Equations I	
MATH 2045	Differential Equations with Linear Algebra	
MATH 2941	Honors Differential Equations I	

PHYS 2796	Introduction to Modern Physics	4
IH 0852 or IH 0952	Intellectual Heritage II: The Common Good or Honors Intellectual Heritage II: The Common Good	3
Elective		4-3
Credit Hours		18
Spring		
PHYS 2101	Classical Mechanics (S)	3
PHYS 2502	Mathematical Physics (S)	4
GenEd Breadth Course		3-4
Elective		6-5
Credit Hours		16
Year 3		
Fall		
PHYS 3101	Analytical Mechanics (F)	3
PHYS 3301	Electricity and Magnetism (F)	4
PHYS 3511	Scientific Computing II	1.5
Science Elective ¹		3-4
GenEd Breadth Course		3
Elective		2-1
Credit Hours		16.5
Spring		
PHYS 3302	Classical Electromagnetism (S)	3
PHYS 3701	Introduction to Quantum Mechanics I (S)	3
Science Elective ¹		3-4
GenEd Breadth Course		3
Elective		3-2
Credit Hours		15
Year 4		
Fall		
PHYS 4101	Thermal Physics (F)	3
PHYS 4302	Optics (F)	3
Physics Elective ^{2,3}		3-4
GenEd Breadth Course		3
Elective		3-2
Credit Hours		15
Spring		
PHYS 4796	Experimental Physics (S)	3
Physics Elective ^{2,3}		3-4
GenEd Breadth Course		3
Elective		3-2
Credit Hours		12
Total Credit Hours		123

Code	Title	Credit Hours
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(F) - Fall only course

(S) - Spring only course

1

The elective can be chosen from Biology, Chemistry, Engineering, Earth & Environmental Science, Mathematics or Physics in consultation with the faculty advisor.

2

Complete two of the seven courses listed: PHYS 1454, PHYS 3424, PHYS 3702, PHYS 4301, PHYS 4701, PHYS 4702, PHYS 4801.

3

PHYS 3424 and PHYS 4701 are offered in even-numbered years. PHYS 3702 and PHYS 4301 are offered in odd-numbered years.