

# Physics, B.A.

Learn more about the Bachelor of Arts in Physics.

The Bachelor of Arts (B.A.) program is designed for those who are planning for a non-research career in a field which nevertheless has an important science component. Examples include patent law, environmental law enforcement, medicine or sales or management in a high-technology industry.

## Undergraduate Contact Information:

Dr. Bernd Surrow, Chair  
Science Education and Research Center, Room 406  
215-204-7736

Dr. Adrienn Ruzsinszky, Vice Chair  
Science Education and Research Center, Room 708  
215-204-8479

Dr. Zbigniew Dziembowski, Faculty Advisor  
Science Education and Research Center, Room 412  
215-204-7639  
zbig.dziembowski@temple.edu

## Bachelor of Arts

### Summary of Requirements for the Degree

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

- Students must complete all University requirements including those listed below.
- All Temple students must take a minimum of two writing-intensive courses 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

- 45 Upper Level (2000+) credits within the College of Science & Technology (CST), the College of Liberal Arts (CLA), or the College of Engineering (ENG).
- 90 credits within the College of Science & Technology (CST), the College of Liberal Arts (CLA), or the College of Engineering (ENG).
- Two (2) Upper Level (2000+) Liberal Art courses.
- Second (2nd) Level of a Foreign Language (1002).
- All students in the College of Science and Technology are required to take a one credit first year seminar. SCTC 1001 CST First Year Seminar is the appropriate course option for every entering first year CST major. Transfer students should use SCTC 2001 CST Transfer Seminar to fulfill this requirement. Other courses that fulfill this requirement may be found on the CST College Requirements page.

#### 3. Major Requirements for Bachelor of Arts (56 s.h.)

At least 7 courses required for the major must be completed at Temple. At least 5 Physics courses must be completed at Temple.

Code	Title	Credit Hours
<b>Mathematics</b>		
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

**Sequenced Science Courses**<sup>1</sup>

Select one of the following sequences:	8
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BIOL 1011 & BIOL 1012	General Biology I and General Biology II <sup>2</sup>
BIOL 1111 & BIOL 2112	Introduction to Organismal Biology and Introduction to Cellular and Molecular Biology
BIOL 1911 & BIOL 2912	Honors Introduction to Organismal Biology and Honors Introduction to Cellular and Molecular Biology
CHEM 1031 & CHEM 1033 & CHEM 1032 & CHEM 1034	General Chemistry I and General Chemistry Laboratory I and General Chemistry II and General Chemistry Laboratory II
EES 2001	Physical Geology (and a 2000+ Elective)

**Physics Courses**

PHYS 1008	Physics Seminar I	1
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Select one of the following:	4
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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
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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 2502	Mathematical Physics (S)	4
PHYS 2796	Introduction to Modern Physics (S)	4
PHYS 3301	Electricity and Magnetism (F)	4
PHYS 4796	Experimental Physics (S)	3

**Physics Electives**

Select three of the following:	9
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PHYS 1004	Introduction to Astronomy (F)
PHYS 2511 & PHYS 3511	Scientific Computing I and Scientific Computing II
PHYS 3101	Analytical Mechanics (F)
PHYS 3302	Classical Electromagnetism (S)
PHYS 3701	Introduction to Quantum Mechanics I (S)
PHYS 4101	Thermal Physics (F)
PHYS 4301	Electronics (S - odd years)
PHYS 4302	Optics (F)
PHYS 4701	Introduction to Solid State Physics (S - even years)
PHYS 4702	Introduction to Quantum Mechanics II (F)

<b>Total Credit Hours</b>	<b>56</b>
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<b>Code</b>	<b>Title</b>	<b>Credit Hours</b>
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(F) - Fall only course

(S) - Spring only course

**Note:** PHYS 3091 is not available for major credit.

- <sup>1</sup> Students are required to take a two-semester sequence of laboratory science electives not within physics. The science courses can be chosen from Biology, Chemistry, or Earth & Environmental Science.
- <sup>2</sup> BIOL 1011 is a Fall only course; BIOL 1012 is a Spring only course.

## Calculation of Major GPA

Courses listed under the major requirements for the degree will be included in the calculation of the major GPA. Courses that could not apply toward the major as an elective or required course would not be counted in the calculation of the major GPA. This would include MATH 1022, for example.

## Distinction in Major

A student who wishes to graduate with distinction in the major must complete all courses required for the physics major with a GPA of 3.5 or better, and carry out an independent study or undergraduate thesis project. Consult the undergraduate physics advisor for more details.

## Suggested Academic Plan

### Bachelor of Arts in Physics

#### Requirements for New Students starting in the 2021-2022 Academic Year

Year 1		Credit Hours
<b>Fall</b>		
MATH 1041 or 1941	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, 0812, or 0902	Analytical Reading and Writing [GW]	4
Elective		1
<b>Term Credit Hours</b>		<b>15</b>
<b>Spring</b>		
MATH 1042 or 1942	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)	
IH 0851 or 0951	Intellectual Heritage I: The Good Life [GY]	3
Elective		4
<b>Term Credit Hours</b>		<b>15</b>
<b>Year 2</b>		
<b>Fall</b>		
MATH 2043 or 2943	Calculus III	4
IH 0852 or 0952	Intellectual Heritage II: The Common Good [GZ]	3
Elective		9
<b>Term Credit Hours</b>		<b>16</b>
<b>Spring</b>		
PHYS 2502	Mathematical Physics (S)	4
PHYS 2796	Introduction to Modern Physics [WI] (S)	4
GenEd Breadth Course		3-4
Elective		4-3
<b>Term Credit Hours</b>		<b>15</b>

<b>Year 3</b>		
<b>Fall</b>		
PHYS 3301	Electricity and Magnetism (F)	4
Sequenced Science Part 1 <sup>1</sup>		4
GenEd Breadth Course		3
Elective		4
<b>Term Credit Hours</b>		<b>15</b>
<b>Spring</b>		
PHYS 2101	Classical Mechanics (S)	3
Sequenced Science Part 2 <sup>1</sup>		4
GenEd Breadth Course		3
Elective		6
<b>Term Credit Hours</b>		<b>16</b>
<b>Year 4</b>		
<b>Fall</b>		
Physics Elective <sup>2</sup>		3
Physics Elective <sup>2</sup>		3
GenEd Breadth Course		3
Elective		7
<b>Term Credit Hours</b>		<b>16</b>
<b>Spring</b>		
PHYS 4796	Experimental Physics [WI] (S)	3
Physics Elective <sup>2</sup>		3
GenEd Breadth Course		3
Elective		6
<b>Term Credit Hours</b>		<b>15</b>
<b>Total Credit Hours:</b>		<b>123</b>

<b>Code</b>	<b>Title</b>	<b>Credit Hours</b>
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(F) - Fall only course

(S) - Spring only course

<sup>1</sup> Select from the Sequenced Science Courses list under Requirements.

<sup>2</sup> Select from the Physics Electives list under Requirements.