Physics, B.S.

Learn more about the Bachelor of Science in Physics.

The Bachelor of Science in 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.

Undergraduate Contact Information:

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Bachelor of Science

Summary of Requirements for the Degree

1. University Requirements (123 total s.h.)
   - MATH 0701 (4 s.h.) and/or ENG 0701 (4 s.h.), if required by placement testing.
   - All Temple students must take a minimum of two writing-intensive courses at Temple as part of their major. Following is a list of courses that can be used to satisfy the writing-intensive requirement: PHYS 2796 and PHYS 4796.
   - 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 typically 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
   - 90 credits within the College of Science & Technology (CST) or the College of Liberal Arts (CLA).
   - 45 Upper Level (2000+) credits within the College of Science & Technology (CST) or the College of Liberal Arts (CLA).
   - First Year Seminar Requirement: All students in the College of Science & Technology (CST) are required to take a 1 credit first year seminar course, SCTC 1001 CST First Year Seminar. Other courses that fulfill this requirement may be found on the CST College Requirements page. Only one course in this category may count towards graduation.

3. Major Requirements for Bachelor of Science (72-74 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.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 1041</td>
<td>Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>or MATH 1941</td>
<td>Honors Calculus I</td>
<td></td>
</tr>
<tr>
<td>MATH 1042</td>
<td>Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>or MATH 1942</td>
<td>Honors Calculus II</td>
<td></td>
</tr>
<tr>
<td>MATH 2043</td>
<td>Calculus III</td>
<td>4</td>
</tr>
<tr>
<td>or MATH 2943</td>
<td>Honors Calculus III</td>
<td></td>
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</tbody>
</table>

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.

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 2063  Wave Physics  3
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
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  72-74

Note: PHYS 3091 is not available for major credit.

<table>
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<tr>
<th>Code</th>
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<th>Credit Hours</th>
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<tbody>
<tr>
<td>(F) - Fall only course</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(S) - Spring only course</td>
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</table>

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 Science in Physics

Requirements for New Students starting in the 2020-2021 Academic Year

Year 1
Fall
<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td>MATH 1041 or 1941</td>
<td>Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 1008</td>
<td>Physics Seminar I</td>
<td>1</td>
</tr>
</tbody>
</table>
Select one of the following:  
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  
General Education/Elective Credits  

<table>
<thead>
<tr>
<th>Term Credit Hours</th>
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<tbody>
<tr>
<td>15</td>
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</table>

**Spring**

MATH 1042 or 1942  Calculus II  
Select one of the following:  
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  
General Education/Elective Credits  

<table>
<thead>
<tr>
<th>Term Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
</tr>
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</table>

**Year 2**

**Fall**

MATH 2043 or 2943  Calculus III  
PHYS 2063  Wave Physics  
PHYS 3511  Scientific Computing II  
General Education/Elective Credits  

<table>
<thead>
<tr>
<th>Term Credit Hours</th>
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<tbody>
<tr>
<td>15.5</td>
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</tbody>
</table>

**Spring**

PHYS 2101  Classical Mechanics (S)  
PHYS 2502  Mathematical Physics (S)  
PHYS 2796  Introduction to Modern Physics [WI] (S)  
General Education/Elective Credits  

<table>
<thead>
<tr>
<th>Term Credit Hours</th>
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</thead>
<tbody>
<tr>
<td>15</td>
</tr>
</tbody>
</table>

**Year 3**

**Fall**

PHYS 3101  Analytical Mechanics (F)  
PHYS 3301  Electricity and Magnetism (F)  
Science Elective  
General Education/Elective Credits  

<table>
<thead>
<tr>
<th>Term Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
</tr>
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</table>

**Spring**

PHYS 3302  Classical Electromagnetism (S)  
PHYS 3701  Introduction to Quantum Mechanics I (S)  
Science Elective  
General Education/Elective Credits  

<table>
<thead>
<tr>
<th>Term Credit Hours</th>
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</thead>
<tbody>
<tr>
<td>15</td>
</tr>
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</table>

**Year 4**

**Fall**

PHYS 4101  Thermal Physics (F)  
PHYS 4702  Introduction to Quantum Mechanics II (F)  
PHYS 4302  Optics (F)  
General Education/Elective Credits  

<table>
<thead>
<tr>
<th>Term Credit Hours</th>
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<tbody>
<tr>
<td>15</td>
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</table>

**Spring**
**Physics, B.S.**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 4701 or 4301</td>
<td>Introduction to Solid State Physics (S)&lt;sup&gt;2,3&lt;/sup&gt;</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 4796</td>
<td>Experimental Physics [WI] (S)</td>
<td>3</td>
</tr>
</tbody>
</table>

**General Education/Elective Credits**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Term Credit Hours</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>Total Credit Hours:</td>
<td>123</td>
</tr>
</tbody>
</table>

(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 three courses listed: PHYS 4301, PHYS 4701, PHYS 4702.
3. PHYS 4701 is offered in even-numbered years. PHYS 4301 is offered in odd-numbered years.