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:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIS 3296</td>
<td>Software Design</td>
<td>4</td>
</tr>
<tr>
<td>CIS 4397</td>
<td>Independent Research in Computer Science</td>
<td>3</td>
</tr>
<tr>
<td>CIS 4398</td>
<td>Projects in Computer Science</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 2796</td>
<td>Introduction to Modern Physics (S)</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 4796</td>
<td>Experimental Physics (S)</td>
<td>3</td>
</tr>
</tbody>
</table>

   • 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 the Bachelor of Science (77-78 s.h.)
   At least 11 courses required for the major must be completed at Temple. At least 4 Computer Science and 5 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><strong>Mathematics Courses</strong></td>
<td></td>
<td></td>
</tr>
<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>
</tr>
<tr>
<td><strong>Computer Science Courses</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CIS 1068</td>
<td>Program Design and Abstraction</td>
<td>4</td>
</tr>
<tr>
<td>or CIS 1968</td>
<td>Honors Program Design and Abstraction</td>
<td></td>
</tr>
<tr>
<td>CIS 1166</td>
<td>Mathematical Concepts in Computing I</td>
<td>4</td>
</tr>
<tr>
<td>or CIS 1966</td>
<td>Honors Mathematical Concepts in Computing I</td>
<td></td>
</tr>
<tr>
<td>CIS 2107</td>
<td>Computer Systems and Low-Level Programming</td>
<td>4</td>
</tr>
<tr>
<td>CIS 2166</td>
<td>Mathematical Concepts in Computing II</td>
<td>4</td>
</tr>
<tr>
<td>CIS 2168</td>
<td>Data Structures</td>
<td>4</td>
</tr>
<tr>
<td>CIS 3207</td>
<td>Introduction to Systems Programming and Operating Systems</td>
<td>4</td>
</tr>
<tr>
<td>CIS 3223</td>
<td>Data Structures and Algorithms</td>
<td>3</td>
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<tr>
<td>Select one of the following:</td>
<td>3-4</td>
<td></td>
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<tr>
<td>CIS 3296</td>
<td>Software Design 1</td>
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<tr>
<td>CIS 3000+ Elective 1,2</td>
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<td></td>
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<tr>
<td><strong>Physics Courses</strong></td>
<td></td>
<td></td>
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<tr>
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</tr>
<tr>
<td>PHYS 1061</td>
<td>Elementary Classical Physics I</td>
<td></td>
</tr>
<tr>
<td>PHYS 1961</td>
<td>Honors Elementary Classical Physics I</td>
<td></td>
</tr>
<tr>
<td>PHYS 2021</td>
<td>General Physics I</td>
<td></td>
</tr>
<tr>
<td>PHYS 2921</td>
<td>Honors General Physics I (F)</td>
<td></td>
</tr>
<tr>
<td>Select one of the following:</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>PHYS 1062</td>
<td>Elementary Classical Physics II</td>
<td></td>
</tr>
<tr>
<td>PHYS 1962</td>
<td>Honors Elementary Classical Physics II</td>
<td></td>
</tr>
<tr>
<td>PHYS 2022</td>
<td>General Physics II</td>
<td></td>
</tr>
<tr>
<td>PHYS 2922</td>
<td>Honors General Physics II (S)</td>
<td></td>
</tr>
<tr>
<td>PHYS 2101</td>
<td>Classical Mechanics (S)</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 3511</td>
<td>Scientific Computing II</td>
<td>1.5</td>
</tr>
<tr>
<td>PHYS 4511</td>
<td>Scientific Computing III</td>
<td>1.5</td>
</tr>
<tr>
<td>PHYS 2502</td>
<td>Mathematical Physics (S)</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 2796</td>
<td>Introduction to Modern Physics (S)</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 3301</td>
<td>Electricity and Magnetism (F)</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 3701</td>
<td>Introduction to Quantum Mechanics I (S)</td>
<td>3</td>
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<tr>
<td>Select one of the following:</td>
<td>3</td>
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<tr>
<td>PHYS 4101</td>
<td>Thermal Physics (F)</td>
<td></td>
</tr>
<tr>
<td>Physics Elective 2</td>
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<tr>
<td><strong>Capstone Course</strong></td>
<td></td>
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<tr>
<td>Select one of the following:</td>
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<tr>
<td>CIS 4397</td>
<td>Independent Research in Computer Science</td>
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<tr>
<td>CIS 4398</td>
<td>Projects in Computer Science 1</td>
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</table>
PHYS 4796  Experimental Physics (S)

Total Credit Hours 77-78

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

1. CIS 3296 is the prerequisite for CIS 4398 and should be taken as a 3000+ Computer & Information Science elective if you plan to take CIS 4398 as the capstone course.

2. Electives are chosen in consultation with the faculty advisor.

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 major with a GPA of 3.5 or better, and carry out an independent study or undergraduate thesis project. Consult the faculty advisor for more details.

Suggested Academic Plan

Bachelor of Science in Computer Science & Physics

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

Year 1

Fall

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credit Hours</th>
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<tbody>
<tr>
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<tr>
<td>PHYS 1961</td>
<td>Honors Elementary Classical Physics I</td>
<td></td>
</tr>
<tr>
<td>PHYS 2021</td>
<td>General Physics I</td>
<td></td>
</tr>
<tr>
<td>PHYS 2921</td>
<td>Honors General Physics I (F)</td>
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<tr>
<td>SCTC 1001</td>
<td>CST First Year Seminar</td>
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<tr>
<td>GenEd Breadth Course</td>
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</table>

Term Credit Hours 16

Spring

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>MATH 1042</td>
<td>Calculus II</td>
<td>4</td>
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<tr>
<td>CIS 1166</td>
<td>Mathematical Concepts in Computing I</td>
<td>4</td>
</tr>
<tr>
<td>Select one of the following:</td>
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<td>4</td>
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<td>PHYS 1062</td>
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<tr>
<td>PHYS 2022</td>
<td>General Physics II</td>
<td></td>
</tr>
<tr>
<td>PHYS 2922</td>
<td>Honors General Physics II (S)</td>
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</tr>
<tr>
<td>ENG 0802, 0812, or 0902</td>
<td>Analytical Reading and Writing [GW]</td>
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Term Credit Hours 16

Year 2

Fall

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<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>MATH 2043</td>
<td>Calculus III</td>
<td>4</td>
</tr>
<tr>
<td>CIS 2168</td>
<td>Data Structures</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 3511</td>
<td>Scientific Computing II</td>
<td>1.5</td>
</tr>
<tr>
<td>IH 0851 or 0951</td>
<td>Intellectual Heritage I: The Good Life [GY]</td>
<td>3</td>
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### Elective

<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>3</td>
</tr>
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### Spring

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIS 2107</td>
<td>Computer Systems and Low-Level Programming</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 2502</td>
<td>Mathematical Physics (S)</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 2796</td>
<td>Introduction to Modern Physics [WI] (S)</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 4511</td>
<td>Scientific Computing III</td>
<td>1.5</td>
</tr>
<tr>
<td>IH 0852 or 0952</td>
<td>Intellectual Heritage II: The Common Good [GZ]</td>
<td>3</td>
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</tbody>
</table>

| Term Credit Hours | 15.5 |

### Year 3

#### Fall

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIS 3207</td>
<td>Introduction to Systems Programming and Operating Systems</td>
<td>4</td>
</tr>
<tr>
<td>CIS 2166</td>
<td>Mathematical Concepts in Computing II</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 3301</td>
<td>Electricity and Magnetism (F)</td>
<td>4</td>
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<tr>
<td>GenEd Breadth Course</td>
<td></td>
<td>3</td>
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</table>

| Term Credit Hours | 16.5 |

#### Spring

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIS 3223</td>
<td>Data Structures and Algorithms</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 2101</td>
<td>Classical Mechanics (S)</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 3701</td>
<td>Introduction to Quantum Mechanics I (S)</td>
<td>3</td>
</tr>
<tr>
<td>GenEd Breadth Course</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Elective</td>
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<td>3</td>
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</table>

| Term Credit Hours | 15 |

### Year 4

#### Fall

Select one of the following:
- CIS 3296
- CIS 3000+ Elective

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIS 3296</td>
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<td>3</td>
</tr>
<tr>
<td>CIS 3000+ Elective</td>
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<td>1-2</td>
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</table>

Select one of the following:
- PHYS 4101

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 4101</td>
<td></td>
<td>3</td>
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</table>

Thermal Physics (F)

| GenEd Breadth Course |                                      | 4-3          |
| Elective            |                                        | 3            |
| Elective            |                                        | 2            |

| Term Credit Hours | 15 |

#### Spring

Select one of the following:
- CIS 4397
- CIS 4398
- PHYS 4796

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIS 4397</td>
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<td>3</td>
</tr>
<tr>
<td>CIS 4398</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>PHYS 4796</td>
<td></td>
<td>3</td>
</tr>
</tbody>
</table>

Independent Research in Computer Science [WI]¹
Projects in Computer Science [WI]¹
Experimental Physics [WI] (S)

| GenEd Breadth Course |                                      | 3            |
| Elective            |                                        | 3            |
| Elective            |                                        | 3            |
| Elective            |                                        | 2            |

| Term Credit Hours | 14 |

| Total Credit Hours | 123 |

---

**Code**  
(F) - Fall only course  
(S) - Spring only course
CIS 3296 is the prerequisite for CIS 4398 and should be taken as a 3000+ Computer & Information Science elective if you plan to take CIS 4398 as the capstone course.

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