

# Computer Science & Physics, B.S.

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Learn more about the Bachelor of Science in Computer Science and Physics (<https://www.temple.edu/academics/degree-programs/computer-science-and-physics-major-st-csph-bs>).

This interdisciplinary program is intended for students with dual interests in physics and computer science who wish to complete the essential courses for both majors within their normal four-year career. The program will prepare students for a career in a computer related field and/or physics research.

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## Department of Computer and Information Sciences

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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:

Code	Title	Credit Hours
CIS 3296	Software Design	4
CIS 4397	Independent Research in Computer Science	3
CIS 4398	Projects in Computer Science	3
PHYS 2796	Introduction to Modern Physics (S)	4
PHYS 4796	Experimental Physics (S)	3

- Students must complete the General Education (GenEd) requirements.
  - See the General Education (<http://bulletin.temple.edu/undergraduate/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 (<http://bulletin.temple.edu/undergraduate/academic-policies/academic-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 (<http://bulletin.temple.edu/undergraduate/science-technology/#collegerequirementstext>) 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.

Code	Title	Credit Hours
<b>Mathematics Courses</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
<b>Computer Science Courses</b>		
CIS 1068 or CIS 1968	Program Design and Abstraction Honors Program Design and Abstraction	4
CIS 1166 or CIS 1966	Mathematical Concepts in Computing I Honors Mathematical Concepts in Computing I	4
CIS 2107	Computer Systems and Low-Level Programming	4
CIS 2166	Mathematical Concepts in Computing II	4
CIS 2168	Data Structures	4
CIS 3207	Introduction to Systems Programming and Operating Systems	4
CIS 3223	Data Structures and Algorithms	3
Select one of the following:		3-4
CIS 3296	Software Design <sup>1</sup>	
CIS 3000+ Elective <sup>1,2</sup>		
<b>Physics Courses</b>		
Select one of the following:		4
PHYS 1061	Elementary Classical Physics I	
PHYS 1961	Honors Elementary Classical Physics I	
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	
PHYS 2022	General Physics II	
PHYS 2922	Honors General Physics II (S)	
PHYS 2101	Classical Mechanics (S)	3
PHYS 3511	Scientific Computing II	1.5
PHYS 4511	Scientific Computing III	1.5
PHYS 2502	Mathematical Physics (S)	4
PHYS 2796	Introduction to Modern Physics (S)	4
PHYS 3301	Electricity and Magnetism (F)	4
PHYS 3701	Introduction to Quantum Mechanics I (S)	3
Select one of the following:		3
PHYS 4101	Thermal Physics (F)	
Physics Elective <sup>2</sup>		
<b>Capstone Course</b>		

Select one of the following:	3
CIS 4397	Independent Research in Computer Science
CIS 4398	Projects in Computer Science <sup>1</sup>
PHYS 4796	Experimental Physics (S)

Total Credit Hours	77-78
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Code	Title	Credit Hours
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(F) - Fall only course

(S) - Spring only course

<sup>1</sup> 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.

<sup>2</sup> 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 2019-2020 Academic Year

Year 1		Credit Hours
<b>Fall</b>		
MATH 1041 or 1941	Calculus I	4
CIS 1068 or 1968	Program Design and Abstraction	4
Select one of the following:		4
PHYS 1061	Elementary Classical Physics I	
PHYS 1961	Honors Elementary Classical Physics I	
PHYS 2021	General Physics I	
PHYS 2921	Honors General Physics I (F)	
SCTC 1001	CST First Year Seminar	1
General Education/Elective Credits		3
Term Credit Hours		16
<b>Spring</b>		
MATH 1042 or 1942	Calculus II	4
CIS 1166 or 1966	Mathematical Concepts in Computing I	4
Select one of the following:		4
PHYS 1062	Elementary Classical Physics II	
PHYS 1962	Honors Elementary Classical Physics II	
PHYS 2022	General Physics II	
PHYS 2922	Honors General Physics II (S)	
General Education/Elective Credits		4
Term Credit Hours		16
<b>Year 2</b>		
<b>Fall</b>		
MATH 2043 or 2943	Calculus III	4
CIS 2168	Data Structures	4

PHYS 3511	Scientific Computing II	1.5
General Education/Elective Credits		6
Term Credit Hours		15.5
<b>Spring</b>		
CIS 2107	Computer Systems and Low-Level Programming	4
PHYS 2502	Mathematical Physics (S)	4
PHYS 2796	Introduction to Modern Physics [WI] (S)	4
PHYS 4511	Scientific Computing III	1.5
Elective Credits		2
Term Credit Hours		15.5
<b>Year 3</b>		
<b>Fall</b>		
CIS 3207	Introduction to Systems Programming and Operating Systems	4
CIS 2166	Mathematical Concepts in Computing II	4
PHYS 3301	Electricity and Magnetism (F)	4
General Education/Elective Credits		3
Term Credit Hours		15
<b>Spring</b>		
CIS 3223	Data Structures and Algorithms	3
PHYS 2101	Classical Mechanics (S)	3
PHYS 3701	Introduction to Quantum Mechanics I (S)	3
General Education/Elective Credits		6
Term Credit Hours		15
<b>Year 4</b>		
<b>Fall</b>		
Select one of the following:		3-4
CIS 3296	Software Design [WI] <sup>1</sup>	
CIS 3000+ Elective <sup>1,2</sup>		
Select one of the following:		3
PHYS 4101	Thermal Physics (F)	
Physics Elective <sup>2</sup>		
General Education/Elective Credits		9-8
Term Credit Hours		15
<b>Spring</b>		
Select one of the following:		3
CIS 4397	Independent Research in Computer Science [WI]	
CIS 4398	Projects in Computer Science [WI] <sup>1</sup>	
PHYS 4796	Experimental Physics [WI] (S)	
CIS Elective <sup>2</sup>		4
General Education/Elective Credits		8
Term Credit Hours		15
Total Credit Hours:		123

Code	Title	Credit Hours
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(F) - Fall only course

(S) - Spring only course

<sup>1</sup> 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.

<sup>2</sup> Electives are chosen in consultation with the faculty advisor.