Computer Science and Physics BS

Overview

The **Bachelor of Science in Computer Science and Physics** is an interdisciplinary program offered by the Department of Physics in conjunction with the Department of Computer and Information Sciences. This 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.

Campus Location: Main

Program Code: ST-CSPH-BS

Distinction in Major

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

- have a minimum 3.50 major GPA and
- carry out an independent study or undergraduate thesis project.

Consult the faculty advisor for more details.

Undergraduate Contact Information

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Learn more about the Bachelor of Science in Computer Science and 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
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 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 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
Mathematics Courses		
MATH 1041	Calculus I	4
or MATH 1941	Honors Calculus I	
MATH 1042	Calculus II	4
or MATH 1942	Honors Calculus II	
MATH 2043	Calculus III	4
or MATH 2943	Honors Calculus III	
Computer Science Courses		
CIS 1068	Program Design and Abstraction	4
or CIS 1968	Honors Program Design and Abstraction	
CIS 1166	Mathematical Concepts in Computing I	4
or CIS 1966	Honors Mathematical Concepts in Computing I	
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 [1]	
CIS 3000+ Elective [1,2]		
Physics Courses		
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 [2]		
Capstone Course		
Select one of the following:		3
CIS 4397	Independent Research in Computer Science	
CIS 4398	Projects in Computer Science [1]	
PHYS 4796	Experimental Physics (S)	
Total Credit Hours		**77-78**

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

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.

Suggested Academic Plan

Bachelor of Science in Computer Science and Physics

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

Year 1		
Fall		**Credit Hours**
MATH 1041 or MATH 1941	Calculus I or Honors Calculus I	4
CIS 1068 or CIS 1968	Program Design and Abstraction or Honors 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
GenEd Breadth Course		3
	Credit Hours	**16**

Spring		
MATH 1042 or MATH 1942	Calculus II or Honors Calculus II	4
CIS 1166 or CIS 1966	Mathematical Concepts in Computing I or Honors 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)	
ENG 0802 or ENG 0812 or ENG 0902	Analytical Reading and Writing or Analytical Reading and Writing: ESL or Honors Writing About Literature	4
	Credit Hours	**16**
Year 2		
Fall		
MATH 2043 or MATH 2943	Calculus III or Honors Calculus III	4
CIS 2168	Data Structures	4
PHYS 3511	Scientific Computing II	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**
Spring		
CIS 2107	Computer Systems and Low-Level Programming	4
PHYS 2502	Mathematical Physics (S)	4
PHYS 2796	Introduction to Modern Physics (S)	4
PHYS 4511	Scientific Computing III	1.5
IH 0852 or IH 0952	Intellectual Heritage II: The Common Good or Honors Intellectual Heritage II: The Common Good	3
	Credit Hours	**16.5**
Year 3		
Fall		
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
GenEd Breadth Course		3
	Credit Hours	**15**
Spring		
CIS 3223	Data Structures and Algorithms	3
PHYS 2101	Classical Mechanics (S)	3
PHYS 3701	Introduction to Quantum Mechanics I (S)	3
GenEd Breadth Course		3
Elective		3
	Credit Hours	**15**
Year 4		
Fall		
Select one of the following:		3-4
CIS 3296	Software Design [1]	
CIS 3000+ Elective [1,2]		
Select one of the following:		3
PHYS 4101	Thermal Physics (F)	

Physics Elective [2]		
GenEd Breadth Course		4-3
Elective		3
Elective		2
	Credit Hours	**15**
Spring		
Select one of the following:		3
CIS 4397	Independent Research in Computer Science	
CIS 4398	Projects in Computer Science [1]	
PHYS 4796	Experimental Physics (S)	
GenEd Breadth Course		3
Elective		3
Elective		3
Elective		2
	Credit Hours	**14**
	Total Credit Hours	**123**

Code	Title	Credit Hours

(F) - Fall only course

(S) - Spring only course

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.