

Computer Science, B.A.

Learn more about the Bachelor of Arts in Computer Science.

Temple's B.A. in Computer Science provides an in-depth study of the science of computing, including mathematical/theoretical foundations as well as systems and application software development. Students are prepared (but not required) to take electives in topics such as artificial intelligence, machine learning, robotics, computer vision, graphics, game programming, bioinformatics, databases, big data, mobile and web application development, cloud computing, high performance computing, wireless and sensor networks, network and information security, and digital forensics. Students who select the B.A. in Computer Science can often have a second major and still be able to graduate within four years. This program is for students with an interest in the fundamentals of computing, who want to apply their computer science knowledge to a second area of interest and/or contribute to innovative research and product development. Our students have careers in software development, systems analysis, and consulting; they are also prepared for graduate study and research in Computer and Information Sciences.

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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
Students MUST take:		
CIS 3296	Software Design	4
The second writing intensive course can be chosen from:		
CIS 4397	Independent Research in Computer Science	3
CIS 4398	Projects in Computer Science	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 (55 s.h.)

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

Code	Title	Credit Hours
Computer & Information Science courses		
CIS 1001	Introduction to Academics in Computer Science	1
CIS 1051 or CIS 1057	Introduction to Problem Solving and Programming in Python Computer Programming in C	4
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
CIS 3296	Software Design	4
CIS 4397 or CIS 4398	Independent Research in Computer Science Projects in Computer Science	3
Mathematics courses		
MATH 1041 or MATH 1941	Calculus I Honors Calculus I	4
MATH 1042 or MATH 1942	Calculus II Honors Calculus II	4
Laboratory Science courses		
Two (2) laboratory science courses ¹		8
Total Credit Hours		55

¹ Must select one Lab Science Sequence from the options listed below. Lab Science A and Lab Science B must be taken from the same department.

Sequenced Computer Science BA Laboratory Science Requirements

Code	Title	Credit Hours
Biology Sequence		
Select one Biology Lab Science A:		
BIOL 1011	General Biology I	
BIOL 1111	Introduction to Organismal Biology	
BIOL 1911	Honors Introduction to Organismal Biology (S)	
Select one Biology Lab Science B:		
BIOL 1012	General Biology II	
BIOL 2112	Introduction to Cellular and Molecular Biology	
BIOL 2912	Honors Introduction to Cellular and Molecular Biology (F)	
Chemistry Sequence ¹		
Select one Chemistry Lab Science A:		
CHEM 1021 & CHEM 1023	Introduction to Chemistry I and Introduction to Chemistry Laboratory I	
CHEM 1031 & CHEM 1033	General Chemistry I and General Chemistry Laboratory I	
CHEM 1951 & CHEM 1953	Honors General Chemical Science I and Honors Chemical Science Laboratory I (F)	
Select one Chemistry Lab Science B:		
CHEM 1022 & CHEM 1024	Introduction to Chemistry II and Introduction to Chemistry Laboratory II	

CHEM 1032 & CHEM 1034	General Chemistry II and General Chemistry Laboratory II
CHEM 1952 & CHEM 1954	Honors General Chemical Science II and Honors Chemical Science Laboratory II (S)

Earth & Environmental Science Sequence ²**Select this Lab Science A:**

EES 2001	Physical Geology
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Select one Lab Science B:

EES 2011	Mineralogy I (with CHEM 1031 prerequisite)
EES 2021	Sedimentary Environments (no CHEM 1031 prerequisite)
EES 2061	Introduction to Geochemistry (with CHEM 1031 prerequisite)

Physics Sequence ³**Select one Physics Lab Science A:**

PHYS 1021	Introduction to General Physics I
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 Physics Lab Science B:

PHYS 1022	Introduction to General Physics II
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)

- ¹ Students can choose to mix-and-match the Chemistry Sequence A and B courses. However, they must take at least 1 course from Chemistry Sequence A and 1 from Chemistry Sequence B. Note: Chemistry courses consist of a three-credit lecture plus a one-credit lab.
- ² For the EES Sequence, two of the three Lab Science B options require students to take CHEM 1031 as a prerequisite, but EES 2021 does not.
- ³ Students can choose to mix-and-match the Physics Sequence A and B courses. However, they must take at least 1 course from Physics Sequence A and 1 from Physics Sequence B.

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 CIS 1056, for example.

Distinction in Major

To graduate with Distinction in Major, students are required to have a 3.50 or higher grade point average (GPA) both in the major and overall, as well as be recommended by the department of Computer & Information Sciences.

Suggested Academic Plan

Bachelor of Arts in Computer Science

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

Year 1		Credit Hours
Fall		
CIS 1001	Introduction to Academics in Computer Science	1
Select one of the following:		4
CIS 1051	Introduction to Problem Solving and Programming in Python	
CIS 1057	Computer Programming in C	
MATH 1041 or 1941	Calculus I	4
SCTC 1001	CST First Year Seminar	1
ENG 0802, 0812, or 0902	Analytical Reading and Writing [GW]	4
Elective		1
Term Credit Hours		15

Spring		
CIS 1166 or 1966	Mathematical Concepts in Computing I	4
CIS 1068 or 1968	Program Design and Abstraction	4
MATH 1042 or 1942	Calculus II	4
IH 0851 or 0951	Intellectual Heritage I: The Good Life [GY]	3
Term Credit Hours		15
Year 2		
Fall		
CIS 2168	Data Structures	4
IH 0852 or 0952	Intellectual Heritage II: The Common Good [GZ]	3
GenEd Breadth Course		3
Elective		3
Elective		3
Term Credit Hours		16
Spring		
CIS 2107	Computer Systems and Low-Level Programming	4
CIS 2166	Mathematical Concepts in Computing II	4
GenEd Breadth Course		3-4
GenEd Breadth Course		3
Elective		1-0
Term Credit Hours		15
Year 3		
Fall		
CIS 3207	Introduction to Systems Programming and Operating Systems	4
CS BA Laboratory Science A		4
GenEd Breadth Course		3
Elective		3
Elective		1
Term Credit Hours		15
Spring		
CIS 3223	Data Structures and Algorithms	3
CS BA Laboratory Science B		4
GenEd Breadth Course		3
Elective		3
Elective		3
Term Credit Hours		16
Year 4		
Fall		
CIS 3296	Software Design [WI]	4
Elective		3
Elective		3
Elective		3
Elective		3
Term Credit Hours		16
Spring		
Select one of the following:		3
CIS 4397	Independent Research in Computer Science [WI] (Capstone course)	
CIS 4398	Projects in Computer Science [WI]	
Elective		3
Elective		3
Elective		3

Elective	3
Term Credit Hours	15
Total Credit Hours:	123