

Mathematics and Computer Science BS

Overview

Science and technology are the foundations of our future. The Department of Computer and Information Sciences (CIS) is focused on the understanding of fundamental scientific principles and the application of these principles to solving complex problems, using computing technology.

The **Bachelor of Science in Mathematics and Computer Science** is intended for students who are interested in computer science and mathematical computing. It provides a solid knowledge of theoretical computer science and its mathematical foundations and compares favorably with other theoretically-oriented computer science programs. The program is particularly recommended to those students who are interested in pursuing a graduate degree in computer science or computational mathematics.

Campus Location: Main

Program Code: ST-MACS-BS

Distinction in Major

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

- achieve a minimum 3.50 cumulative GPA
- achieve a minimum 3.50 GPA in the 3000-level and above Computer Science courses required for the major
- achieve a minimum 3.50 GPA in the 3000-level and above Mathematics courses required for the major
- successfully complete MATH 3098 and one of the following two-semester analysis sequences
 - MATH 3043 and MATH 3044
 - MATH 3131 and MATH 3151
 - MATH 3131 and MATH 3132

Undergraduate Contact Information

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Learn more about the Bachelor of Science in Mathematics and Computer Science.

These requirements are for students who matriculated in academic year 2025-2026. Students who matriculated prior to fall 2025 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 | |
| CIS 4397 | Independent Research in Computer Science | |
| CIS 4398 | Projects in Computer Science | |
| MATH 3096 or MATH 3098 | Introduction to Modern Algebra Modern Algebra | |
| MATH 4096 | Senior Problem Solving | |

- 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 Bachelor of Science (74 s.h.)

At least 10 courses required for the major must be completed at Temple. At least 5 Math and 4 Computer Science courses must be completed at Temple.

| Code | Title | Credit Hours |
|---|---|--------------|
| Computer & Information Science courses | | |
| 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: | | 4 |
| CIS 3296 3000+ CIS Elective ² | Software Design (WI) ¹ | |
| Mathematics courses | | |
| 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 |

| | | |
|-----------|------------------------|---|
| MATH 2101 | Linear Algebra | 3 |
| MATH 2111 | Basic Concepts of Math | 4 |
| MATH 3031 | Probability Theory | 3 |

Select one of the following: 4

| | | |
|---------------------------|---|---|
| MATH 3043 | Numerical Analysis I (F) | |
| MATH 3131 | Real Analysis ³ | |
| MATH 3096 or MATH 3098 | Introduction to Modern Algebra (WI) Modern Algebra | 3 |

Select one of the following: 3

| | | |
|----------------------------------|------------------|--|
| MATH 3151 | Complex Analysis | |
| 3000+ MATH Elective ⁴ | | |

Science courses

Select one of the following sequences: 8

| | | |
|--|--|--|
| CHEM 1031 & CHEM 1033 & CHEM 1032 & CHEM 1034 | General Chemistry I and General Chemistry Laboratory I and General Chemistry II and General Chemistry Laboratory II | |
| CHEM 1951 & CHEM 1953 & CHEM 1952 & CHEM 1954 | Honors General Chemical Science I and Honors Chemical Science Laboratory I and Honors General Chemical Science II and Honors Chemical Science Laboratory II | |
| PHYS 1061 & PHYS 1062 | Elementary Classical Physics I and Elementary Classical Physics II | |
| PHYS 1961 & PHYS 1962 | Honors Elementary Classical Physics I and Honors Elementary Classical Physics II | |
| PHYS 2021 & PHYS 2022 | General Physics I and General Physics II | |
| PHYS 2921 & PHYS 2922 | Honors General Physics I and Honors General Physics II | |

Capstone course

Select one of the following: 3

| | | |
|-----------|--|--|
| CIS 4397 | Independent Research in Computer Science (WI) | |
| CIS 4398 | Projects in Computer Science (WI) ¹ | |
| MATH 4096 | Senior Problem Solving (WI) ³ | |

Total Credit Hours 74

| Code | Title | Credit Hours |
|------|-------|--------------|
|------|-------|--------------|

(F) - Fall only course

(S) - Spring only course

- ¹ CIS 3296 is a 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 Must be approved by Computer & Information Science faculty advisor.
- ³ MATH 3131 is a prerequisite for MATH 4096 and should either be selected instead of MATH 3043 or be taken as a 3000+ Math elective if you plan to take MATH 4096 as the capstone course.
- ⁴ Must be approved by Mathematics faculty advisor. Students may take MATH 2121 to fulfill this requirement.

Suggested Academic Plan

Bachelor of Science in Mathematics and Computer Science

Suggested Plan for New Students Starting in the 2025-2026 Academic Year

| Year 1 | | Credit Hours |
|--|---|--------------|
| Fall | | |
| CIS 1068 or CIS 1968 | Program Design and Abstraction or Honors Program Design and Abstraction | 4 |
| MATH 1041 or MATH 1941 | Calculus I or Honors Calculus I | 4 |
| SCTC 1001 | CST First-Year Seminar | 1 |
| ENG 0802 or ENG 0812 or ENG 0902 | Analytical Reading and Writing [GW] or Analytical Reading and Writing: ESL [GW] or Honors Analytical Reading and Writing [GW] | 4 |
| GenEd Breadth Course | | 3 |
| Credit Hours | | 16 |
| Spring | | |
| CIS 1166 or CIS 1966 | Mathematical Concepts in Computing I or Honors Mathematical Concepts in Computing I | 4 |
| MATH 1042 or MATH 1942 | Calculus II or Honors Calculus II | 4 |
| IH 0851 or IH 0951 | Intellectual Heritage I: The Good Life [GY] or Honors Intellectual Heritage I: The Good Life [GY] | 3 |
| GenEd Breadth Course | | 3 |
| Elective | | 1 |
| Credit Hours | | 15 |
| Year 2 | | |
| Fall | | |
| CIS 2168 | Data Structures | 4 |
| MATH 2043 or MATH 2943 | Calculus III or Honors Calculus III | 4 |
| MATH 2101 | Linear Algebra | 3 |
| IH 0852 or IH 0952 | Intellectual Heritage II: The Common Good [GZ] or Honors Intellectual Heritage II: The Common Good [GZ] | 3 |
| Elective | | 1 |
| Credit Hours | | 15 |
| Spring | | |
| CIS 2107 | Computer Systems and Low-Level Programming | 4 |
| CIS 2166 | Mathematical Concepts in Computing II | 4 |
| MATH 2111 | Basic Concepts of Math | 4 |
| GenEd Breadth Course | | 3 |
| Elective | | 1 |
| Credit Hours | | 16 |
| Year 3 | | |
| Fall | | |
| CIS 3207 | Introduction to Systems Programming and Operating Systems | 4 |
| Select one of the following | | 4 |
| MATH 3043 | Numerical Analysis I | |
| MATH 3131 | Real Analysis ¹ | |
| Select one of the following: | | 4 |
| 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 | |
| PHYS 1061 | Elementary Classical Physics I | |
| PHYS 1961 | Honors Elementary Classical Physics I (F) | |
| PHYS 2021 | General Physics I (F) | |
| PHYS 2921 | Honors General Physics I (F) | |
| GenEd Breadth Course | | 3 |
| Credit Hours | | 15 |
| Spring | | |
| CIS 3223 | Data Structures and Algorithms | 3 |
| Select one of the following: | | 3 |
| MATH 3151 | Complex Analysis | |
| 3000+ Math Elective ² | | |
| Select one of the following: | | 4 |
| 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 | |
| PHYS 1062 | Elementary Classical Physics II | |
| PHYS 1962 | Honors Elementary Classical Physics II (S) | |
| PHYS 2022 | General Physics II (S) | |
| PHYS 2922 | Honors General Physics II (S) | |
| GenEd Breadth Course | | 3 |
| Elective | | 3 |
| Credit Hours | | 16 |
| Year 4 | | |
| Fall | | |
| Select one of the following: | | 4 |
| CIS 3296 | Software Design [WI] ³ | |
| 3000+ CIS Elective ⁴ | | |
| MATH 3031 | Probability Theory | 3 |
| Select one of the following: | | 3 |
| MATH 3096 | Introduction to Modern Algebra [WI] | |
| MATH 3098 | Modern Algebra [WI] | |
| Elective | | 3 |
| Elective | | 2 |
| Credit Hours | | 15 |
| Spring | | |
| Select one of the following: | | 3 |
| CIS 4397 | Independent Research in Computer Science [WI] | |
| CIS 4398 | Projects in Computer Science [WI] ³ | |
| MATH 4096 | Senior Problem Solving [WI] ¹ | |
| Elective | | 3 |
| Elective | | 3 |
| Elective | | 3 |
| Elective | | 3 |
| Credit Hours | | 15 |
| Total Credit Hours | | 123 |

| Code | Title | Credit Hours |
|--------------------------|---|--------------|
| (F) - Fall only course | | |
| (S) - Spring only course | | |
| 1 | MATH 3131 is a prerequisite for MATH 4096 and should either be selected instead of MATH 3043 or be taken as a 3000+ Math elective if you plan to take MATH 4096 as the capstone course. | |
| 2 | Mathematics electives must be 3000 or higher, and they must be approved by the Mathematics faculty advisor. Students may take MATH 2121 to fulfill this requirement. | |
| 3 | CIS 3296 is a 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. | |
| 4 | Computer & Information Science electives must be 3000 or higher, and they must be approved by the Computer & Information Science faculty advisor. | |

Accelerated Programs

Students may opt to pursue an accelerated +1 program, enabling them to complete both a bachelor's degree and master's degree in less time than the traditional route.

The following accelerated programs may be of interest to students in the Mathematics and Computer Science BS:

College of Science and Technology

- Bioinnovation PSM
- Computational Data Science MS