PURDUE UNIVERSITY

# Mathematics with Computer Science

College of Science

2023-2024

## Program Progression Guide

**Disclaimer**: The 2023-2024 Purdue West Lafayette catalog is considered the source for academic and programmatic requirements for students entering programs during the Fall 2023, Spring 2024, and Summer 2024 semesters. The Program Progression Guide assists students in the development of an individualized 8-semester plan. Students are encouraged to use this guide, myPurduePlan* (online degree auditing tool) and the Student Educational Planner (SEP) as they work with their academic advisor towards the completion of their degree requirements.
**Notification**: Each student is ultimately responsible for knowing, monitoring and completing all degree requirements.

An undergraduate degree in the College of Science requires completion of the following degree requirements.

| **University Degree Requirements** | | |
|---|---|---|
| Minimum 2.0 Cumulative GPA | Minimum 120 Credits that fulfill degree requirements | 32 Residency Credits (30000 and above) at a Purdue University campus |
| **University Core Curriculum**** | | |
| • Human Cultures: Behavioral/Social Science<br>• Human Cultures: Humanities<br>• Information Literacy<br>• Oral Communication | • Quantitative Reasoning<br>• Science<br>• Science, Technology & Society Selective<br>• Written Communication | |
| **Civic Literacy Proficiency - https://www.purdue.edu/provost/about/provostInitiatives/civics/** | | |
| | | |
| **Required Major Program Courses** | | |
| Students should strive to earn a B- or better. Average GPA in courses must be 2.00 or higher in **Required Major Courses.** 2.0 Graduation GPA required for Bachelor of Science degree. | | |
| **College of Science Core Curriculum** | | |
| • First-Year Composition: 3-4 credits<br>• Technical Writing and Presentation: 0-6 credits<br>• Computing: 4 credits<br>• Cultural Diversity: 0-9 credits | • General Education: 9 credits<br>• Great Issues in Science: 3 credits<br>• Laboratory Science: 6-8 credits<br>• Mathematics: 8-10 credits | • Science, Technology, and Society: 0-3 credits<br>• Statistics: 3 credits<br>• Team-Building and Collaboration: 0-3 credits |
| **Degree Electives** | | |
| No Count Courses are not allowed for credit. Overlapping Course Content courses - only one course can be used for courses considered to have overlapping content. A course can only be used once in the Major Course area. | | |

* This audit is not your academic transcript and it is not official notification of completion of degree or certificate requirements.

** University Core Curriculum Outcomes may be met through completion of the College of Science Core curriculum. Students should consult with their academic advisors and myPurdue Plan for course selections.

# 2023-2024 Mathematics with Computer Science Degree Progression Guide

The Mathematics Department has *suggested* the following degree progression guide for the Mathematics with Computer Science Degree. Students will work with their academic advisors to determine their best path to degree completion.

| Credits | Fall 1st Year | Prerequisite | Credits | Spring 1st Year | Prerequisite |
|---|---|---|---|---|---|
| 4-5 | Calculus I Option * | ALEKS 85+ or SATM 670/ACTM 29 requirement | 4-5 | Calculus II Option | Calculus I, C- or higher |
| 3-4 | Science Core Option | | 4 | CS 18000 Prob. Solving & O-O Programming (meets Computing / Teambuilding & Collaboration) | Calculus I, C- or higher or co-req |
| 3-4 | Science Core Option | | 3-4 | Science Core Option | |
| 1 | Free Elective (MA 10800 recommended) | | 3 | Free Elective | |
| 4 | Free Elective | | 1 | Free Elective | |
| **15-18** | | | **15-17** | | |

| Credit | Fall 2nd Year | Prerequisite | Credits | Spring 2nd Year | Prerequisite |
|---|---|---|---|---|---|
| 4-5 | Calculus III Option | Calculus II, C- or higher | 3 | MA 35100 * Elementary Linear Algebra | Calculus III, C- or higher |
| 3 | STAT 35000 or STAT 35500 | Calculus II, C- or higher | 3 | MA 37500 Introduction To Discrete Mathematics (used as CS 18200 pre-requisite) | Calculus III, C- or higher |
| 3-4 | Science Core Option | | 3 | COM 21700 | |
| 3-4 | Science Core Option | | 3 | Science Core Option | |
| 2 | Free Elective | | 3 | Free Elective | |
| **15-17** | | | **15** | | |

| Credit | Fall 3rd Year | Prerequisite | Credit | Spring 3rd Year | Prerequisite |
|---|---|---|---|---|---|
| 4 | MA 36600 Ordinary Differential Equations | Co-req or pre MA 35100 C- or higher | 3 | MACS Math Selective I | Varies by Class |
| 3 | CS 24000 Programming In C | CS 18000 and MA 37500 C or higher | 3 | CS 25100 Data Structures And Algorithms | CS 24000 and MA 37500, C or higher |
| 3-4 | Science Core Option | | 3-4 | Science Core Option | |
| 3 | Free elective | | 3 | Free Elective | |
| 2 | Free Elective | | 3 | Free Elective | |
| **15-16** | | | **15-16** | | |

| Credit | Fall 4th Year | Prerequisite | Credit | Spring 4th Year | Prerequisite |
|---|---|---|---|---|---|
| 3 | CS 31400/MA 51400 Numerical Methods | CS Programming and MA 35100, C or higher | 3 | MA/STAT Selective | Varies by Class |
| 3 | MACS Math Selective II | Varies by Class | 3 | CS Selective | Varies by Class |
| 3 | Science Core Option | | 3 | Science Core Option | |
| 3 | Great Issues in Science Option | | 3 | Science Core Option | |
| 3 | Free Elective | | 3-6 | Free Elective | |
| **15** | | | **15-18** | | |

Superscript of * (eg Calculus I Option*) indicates a student should earn a minimum of a B-. See advisor for further details.
Courses in ( ) are recommended.

## Science Core Curriculum Options

**(one course needed for each requirement unless otherwise noted)**

| Options recommended for first- and second-year students | Options recommended for third- and fourth-year students |
|---|---|
| Written Communication[UC] | Technical Writing and Presentation[UC] (COM 217 recommended) |
| Foreign Language and Culture[UC] (3 courses needed) | Science, Technology, and Society[UC] |
| Laboratory Science (2 course sequence) | General Education[UC] (3 courses needed) |
| | Great Issues |

UC Select courses may also satisfy a University Core Curriculum requirement; see the University Core Requirement course list for approved courses. Students must have 32 credits at the 30000 level or above taken at Purdue.