

Program Progression Guides

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**		
<ul style="list-style-type: none"> Human Cultures: Behavioral/Social Science Human Cultures: Humanities Information Literacy Oral Communication <p>University Core Curriculum Course Listing</p>	<ul style="list-style-type: none"> Quantitative Reasoning Science Science, Technology & Society Selective Written Communication 	
Civic Literacy Proficiency - https://www.purdue.edu/provost/about/provostInitiatives/civics/		
Required Major Program Courses		
Departmental specific requirements: For this degree, all major required courses, all major electives (selectives), and their pre-requisites, regardless of department, must be completed with a grade of C or better.		
College of Science Core Curriculum		
<ul style="list-style-type: none"> Written Communication – 3-4 credits Technical Writing and Presentation – 3-6 credits Teaming & Collaboration (NC) General Education - 9 credits 	<ul style="list-style-type: none"> Foreign Language & Culture – 0-9 credits Great Issues - 3 credits Laboratory Science – 6-8 credits Science, Technology & Society - 3 credits 	<ul style="list-style-type: none"> Mathematics - 6-10 credits Statistics - 3 credits Computing – 3-4 credits
Degree Electives		
Any Purdue or transfer course approved to meet degree requirements in accordance with individual departmental policies. Consult the No Count course list for courses, which may not be used to meet any College of Science degree requirement.		

* 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 Data Science - MATH Degree Progression Guide

The Mathematics Department has suggested the following degree progression guide for the Data Science - MATH Degree. Students will work with their academic advisors to determine their best path to degree completion. Course pre-requisites are specific to this degree plan.

Credit	Fall 1st Year	Prerequisite	Credit	Spring 2nd Year	Prerequisite
4	CS 18000 ^{CC} ***	Co-req CALC I	3	CS 18200 ***	CS 18000 & CALC I
1	CS 19300 *	Co-req CS 18000	1	CS 38003 ***	CS 18000
4-5	MA 16100 ^{CC} or 16500 ^{CC} **	ALEKS 85+	4-5	MA 16200 or MA 16600 **	CALC I
1	MA 10800 (recommended Free Elective)		3-4	Science Core Option	
3-4	Science Core Option		3	Science Core Option	
3	Free Elective		1-2	Free Elective	
16-18			15-18		

Credit	Fall 2nd Year	Prerequisite	Credit	Spring 2nd Year	Prerequisite
3	CS/or STAT 24200 ***	CS 18200, CS 38003, & Co-req STAT 35500	3	CS 25100 ***	CS 18200 & CS/STAT 24200
3	STAT 35500 ***	CALC II	3	MA 35100 ***	CALC III
4-5	MA 26100 or MA 27101 ***	CALC II	3	MA/STAT 41600 ***	CALC III
3-4	Science Core Option		3	Ethics Selective ***	Varies
1-3	Free Elective		3-4	Science Core Option	
			1-2	Free Elective	
14-18			16-18		

Credit	Fall 3rd Year	Prerequisite	Credit	Spring 3rd Year	Prerequisite
3	CS 37300 or MA 37400 *** (<i>CS37300 must be taken if planning to take CS44000 and CS49000 Data Science Capstone</i>)	Varies	3	MA 37500 ***	MA 35100
3	STAT 41700 ***	STAT 35500 & STAT 41600	3	CS 348000 or MA 34900 ***	Varies
3	MA 34100 or MA 44000 ***	Varies	3-4	Science Core Option	
3	Science Core Option (sug. COM 21700)		3-4	Science Core Option	
3-4	Science Core Option		3	Free Elective	
15-16			15-17		

Credit	Fall 4th Year	Prerequisite	Credit	Spring 4th Year	Prerequisite
3	CS Selective ***	Varies	3	CS 49000 Data Science Capstone (Recommended Option) /or Capstone Experience ***	Varies (<i>CS37300 required for CS49000 Data Science Capstone</i>)
3	MA 42100 ***	MA 35100	3-4	Science Core Option	
3-4	Science Core Option		3-4	Science Core Option	
3	MA 43200 ***	MA 35100 & STAT/MA 41600	3	MA Selective ***	Varies
3	Free Elective		3	Free Elective	
1	Free Elective		1	Free Elective	
16-17			13-18		

Science Core Curriculum Options

(one course needed for each requirement unless otherwise noted)

Options recommended for first- and second-year students

Written Communication^{UC}
 Computing (CS 18000)
 Foreign Language and Culture^{UC} (3 courses needed)
 Science, Technology & Society^{UC}

Options recommended for third- and fourth-year students

Technical Writing and Presentation^{UC} (COM 217 recommended)
 General Education^{UC} (3 courses needed)
 Lab Science^{UC} (2 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.

* Enrollment in freshman seminar courses MA 10800 and CS 19300 is required with CS 18000. They are not degree requirements. Superscript of CC (eg CS 18000^{CC}) indicates a Critical Course

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Equivalent 10000 and 20000-level Computer Science (CS) transfer credit courses (including credit from regional campuses) may be used to meet degree requirements if those courses were taken prior to admission to the Purdue West Lafayette Data Science, B.S. Mathematics program. Equivalent 10000 and 20000-level Mathematics (MA) transfer credit and MA 35100 transfer credit with a "B" or better (including credit from regional campuses) may be used to meet degree requirements if those courses were taken prior to admission to the Purdue West Lafayette Data Science, B.S. Mathematics program. CS and MA transfer credit at the 30000-40000-level may not be used to meet degree requirements. As exception to this policy is the application of pre-approved Study Abroad coursework.

2023-2024 Data Science Major Courses

Credits	Course Number	Course Description
4	CS 18000	Problem Solving and object-Oriented Programming
3	CS 18200	Foundations of Computer Science
1	CS 38003	Python Programming
3	CS/or STAT 24200	Introduction to Data Science
3	STAT 35500	Statistics for Data Science
3	CS 25100	Data Structures and Algorithms
4-5	MA 26100 or MA 27101	Multivariate Calculus
3	MA 35100	Elementary Linear Algebra
3	MA/ or STAT 41600	Probability
3	CS 37300/ or MA 37400	Data Mining and Machine Learning/ or Mathematical Foundations for Machine Learning
3	STAT 41700	Statistical Theory
3	MA 37500	Introduction to Discrete Mathematics
3	MA 42100	Linear Programming and Optimization Techniques
3	MA 43200	Elementary Stochastic Processes
3	CS 34800/ or MA 34900	Information Systems/ or Signals and Systems for Mathematicians
3	MA 34100/ or MA 44000	Foundations of Analysis/ or Honors Real Analysis I
3	CS/ or STAT 49000 DSC	Data Science Capstone (recommended option) or Capstone Experience

2023-2024 Data Science Computer Science Selectives Course Options (Choose 1)

Credits	Course Number	Course Description
3	CS 31400	Numerical Methods
3	CS 38100	Introduction to the Analysis of Algorithms
3	CS 44000	Large Scale Data Analytics
3	CS 47100	Introduction to Artificial Intelligence
3	CS 47500	Human Computer Interaction

2023-2024 Data Science Mathematics Selective Course Options (Choose 1)

Credits	Course Number	Course Description
3	MA 42800	Introduction to Fourier Analysis
3	MA 44200	Honors Real Analysis II

2023-2024 Data Science Ethics Selective Course Options (Choose 1)

Credits	Course Number	Course Description
3	ILS 23000	Data Science & Society: Ethical, Legal, Social Issues
3	PHIL 20700	Ethics For Technology, Engineering, And Design
3	PHIL 20800	Ethics Of Data Science