PURDUE UNIVERSITY

Computer Science Honors
College of Science

2024-2025

Program Progression Guides

Disclaimer: The 2024-2025 Purdue West Lafayette catalog is considered the source for academic and programmatic requirements for students entering programs during the Fall 2024, Spring 2025, and Summer 2025 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.

<table>
<tr><th colspan="3">University Degree Requirements</th></tr>
<tr><td>Minimum 2.0 Cumulative GPA</td><td>Minimum 120 Credits that fulfill degree requirements</td><td>32 Residency Credits (30000 and above) at a Purdue University campus</td></tr>
<tr><th colspan="3">University Core Curriculum**</th></tr>
<tr><td colspan="2">Human Cultures: Behavioral/Social Science
Human Cultures: Humanities
Information Literacy
Oral Communication
University Core Curriculum Course Listing</td><td>Quantitative Reasoning
Science
Science, Technology & Society Selective
Written Communication</td></tr>
<tr><th colspan="3">Civic Literacy Proficiency - https://www.purdue.edu/provost/about/provostInitiatives/civics/</th></tr>
<tr><td colspan="3"></td></tr>
<tr><th colspan="3">Required Major Program Courses</th></tr>
<tr><td colspan="3">Departmental specific requirements: Honors students must maintain an overall GPA of 3.25 plus at least a 3.6 in Computer Science and required CSHO courses. All major required courses, all track requirements and track selectives, and their pre-requisites, regardless of department, must be completed with a grade of C or better.</td></tr>
<tr><th colspan="3">College of Science Core Curriculum</th></tr>
<tr><td>Written Communication – 3-4 credits
Technical Writing and Presentation – 3-6 credits
Teaming & Collaboration (NC)
General Education - 9 credits</td><td>Foreign Language & Culture – 0-9 credits
Great Issues - 3 credits
Laboratory Science – 6-8 credits
Science, Technology & Society – 1-3 credits</td><td>Mathematics - 6-10 credits
Statistics - 3 credits
Computing – 3-4 credits</td></tr>
<tr><th colspan="3">Degree Electives</th></tr>
<tr><td colspan="3">Any Purdue or transfer course approved to meet degree requirements in accordance with individual departmental policies. The College of Science has identified courses that are below the disciplinary level of each program and major area of study. While similar, Not Recommended course lists vary between departments.</td></tr>
</table>

* 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.

2024-2025 Computer Science Honors Degree Progression Guide

The Computer Science Department has suggested the following degree progression guide for the Computer Science 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 1st Year	Prerequisite
4	CS 18000[CC] ***	Co-req CALC I	3	CS 18200 ***	CS 18000 & CALC I
1	Recommended: CS 19300 *		3	CS 24000 ***	CS 18000
4-5	MA 16100[CC] or 16500[CC] (CALC I) ***	ALEKS 85+	4-5	MA 16200 or MA 16600 (CALC II) ***	CALC I
3-4	Science Core Option		3-4	Science Core Option	
1-3	Free Elective		1	CS 19700 * (elective) suggested	
1	Free Elective				
14-18			**14-16**		

Credit	Fall 2nd Year	Prerequisite	Credit	Spring 2nd Year	Prerequisite
4	CS 25000 ***	CS 18200 & CS 24000	4	CS 25200 ***	CS 25000 & CS 25100
3	CS 25100 ***	CS 18200 & CS 24000	3	MA 35100 ***	CALC II & (co-req CALC III)
4-5	MA 26100 or MA 27101 (CALC III) ***	CALC II	3-4	Science Core Option (sugg: COM 21700)	
3-4	Science Core Option		3-4	Science Core Option	
1	Free Elective (rec. CS 29100)		3	Free Elective	
15-17			**16-18**		

Credit	Fall 3rd Year	Prerequisite	Credit	Spring 3rd Year	Prerequisite
3	CS track requirement *** (sugg: CS 35200)	Varies	3	CS track requirement*** (sugg: CS 35400)	Varies
3	CSHO Math Selective ***	Varies	3	CS track requirement/elective ***	Varies
3	STAT 35000/STAT 51100 ***	CALC II	3-4	Science Core Option	Varies
3-4	Science Core Option		3-4	Science Core Option	
3	Free Elective		3	Free Elective	
1	Recommended: CS 39100* (Free elective)				
16-17			**15-17**		

Credit	Fall 4th Year	Prerequisite	Credit	Spring 4th Year	Prerequisite
3	CS track elective*** (sugg: CS 38100)	Varies	3	CS 49700***	Varies
3	CS track elective ***	Varies	3	CS 50000 Level ***	
0	CS 39700 ***		3-4	Science Core Option	
3-4	Science Core Option		3-4	Science Core Option	
3-4	Science Core Option		3	Free Elective	
3	Free Elective				
15-17			**15-17**		

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)
Computing (CS 18000)	General Education[UC] (3 courses needed)
Foreign Language and Culture[UC] (3 courses needed)	Lab Science[UC] (2 courses needed)
Science, Technology & Society Selective[UC]	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 CS 19300: Tools is recommended with CS 17700 or CS 18000. This is not a degree requirement. CS 19700 honors seminar, 29100 sophomore seminar, and CS 39100 junior seminar are optional but recommended.

Superscript of CC (eg CS 18000 [CC]) indicates a Critical Course

*** All major required courses, all track requirements and track selectives, and their pre-requisites, regardless of department, must be completed with a grade of C or better (effective Fall 2023)

2024-25 Computer Science Honors Major Science Courses

Credits	Course Number	Course Description
4	CS 18000	Problem Solving and object-Oriented Programming
3	CS 18200	Foundations of Computer Science
3	CS 24000	Programming in C
4	CS 25000	Computer Architecture
3	CS 25100	Data Structures
4	CS 25200	Systems Programming
5	MA 26100	Multivariate Calculus or MA 27101 (5 cr)
3	MA 35100	Linear Algebra
3	MA or STAT Selective	See Approved List
0	CS 39700	Honors Seminar
3	CS 49700	Honors Research Project
3	CS 5XXXX	CS graduate level course
3 to 9	CS 35200, CS 35400, CS 38100 or ECE 27000	Choose either Compilers, Operating Systems, Analysis of Algorithms, OR ECE 27000 Digital System Design

2024-25 Computer Science Honors Major Tracks and Course Options

Students must declare a minimum of one track to pursue from the following list:
Space and time permitting, student may be able to pursue multiple tracks

Computational Science and Engineering
Computer Graphics and Visualization
Database and Information Systems
Algorithmic Foundations
Machine Intelligence
Programming Language
Security
Software Engineering
Systems Software

Credits	Course Number	Course Description
3	CS 30700	Software Engineering I
3	CS 31400	Numerical Methods
3	CS 33400	Fundamentals of Computer Graphics
3	CS 34800	Information Systems
3	CS 35100	Cloud Computing
3	CS 35200	Compilers
3	CS 35300	Principles Of Concurrency And Parallelism
3	CS 35400	Operating Systems
3	CS 35500	Introduction to Cryptography
3	CS 37300	Data Mining & Machine Learning
3	CS 38100	Introduction to Algorithms
3	CS 40700	Software Engineering Senior Project
3	CS 40800	Software Testing
3	CS 42200	Computer Networks
3	CS 42600	Computer Security
3	CS 43400	Advanced Computer Graphics
3	CS 43900	Introduction to Data Visualization
3	CS 44000	Large-Scale Data Analytics
3	CS 44800	Introduction to Relational Databases

3	CS 45600	Programming Languages
3	CS 45800	Introduction to Robotics
3	CS 47100	Introduction to Artificial Intelligence
3	CS 47300	Web Information Search & Management
3	CS 47500	Human-Computer Interaction
3	CS 47800	Introduction to Bioinformatics
3	CS 48300	Introduction to the Theory of Computation
3	CS 48900	Embedded Systems
3	CS 49000-DSO	Distributed Systems
3	CS 49000-SWS	Software Security
3	CS 49700	Honors Research Project
3	CS 51000	Software Engineering
3	CS 51400	Numerical Analysis
3	CS 51500	Numerical Linear Algebra
3	CS 52000	Computational Methods In Optimization
3	CS 52500	Parallel Computing
3	CS 56000	Reasoning About Programs
3	CS 57700	Natural Language Processing
3	CS 57800	Statistical Machine Learning
3	CS 59000-SRS	Software Reliability and Security

2024-25 Computer Science Honors Major – Approved Mathematics/Statistics Selectives

Mathematics Selective Options:

Credits	Course Number	Course Description
3	MA 34100	Foundations Of Analysis
3	MA 35301	Linear Algebra II
3	MA 38500	Introduction To Logic
3	MA 36200	Topics In Vector Calculus
4	MA 36600	Ordinary Differential Equations
3	MA 41600	Probability
3	MA 42100	Linear Programming And Optimization Techniques
3	MA 44000H	Real Analysis Honors
3	MA 45000H	Algebra Honors
3	MA 45300	Elements Of Algebra I
3	MA 51800	Advanced Discrete Mathematics
3	MA 51900	Introduction To Probability

Statistics Selective Options:

Credits	Course Number	Course Description
3	STAT 41600	Probability
3	STAT 41700	Statistical Theory
3	STAT 51200	Applied Regression Analysis
3	STAT 51600	Basic Probability And Applications
3	STAT 51700	Statistical Inference
3	STAT 51900	Introduction To Probability