Computer Science Degree Requirements

The first six (core) courses, which are taken in the freshman and sophomore years, lay a strong foundation for computer science majors. Each student then selects a Track in which to complete 6 advanced courses. Each Track has 2-4 Required Courses and a list of potential electives. A student may complete more than one Track if desired.

The flexibility of the Computer Science curriculum comes from requiring only six foundational (core) courses followed by one or more Tracks, which allow students to deepen their understanding in a specific area of computer science. Some intersection between tracks allows specialization in multiple areas, for example, Systems Programming and Software Engineering.

All beginning computer science majors are required to take **CS 19300**, Tools. This is a 1 credit course that Computer Science students take in their first semester. Students are equally encouraged to take **CS 29100**, Sophomore Development Seminar, and **CS 39100**, Junior Resource Seminar.

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.

Core Requirements (21)

Course	Title	Credits	Semester
CS 18000	Problem Solving and Object-Oriented Programming	4	1
CS 18200	Foundations of Computer Science	3	2
CS 24000	Programming in C	3	2
CS 25000	Computer Architecture	4	3-4
CS 25100	Data Structures and Algorithms	3	3-4
CS 25200	Systems Programming	4	4

Transfer credit (including credit from regional campuses) for 100 and 200 level core courses is possible only if those courses are taken before the student enters the Purdue West Lafayette Computer Science program.

Tracks:

To view course details for all tracks at the same time, click **Computer Science Track Details Prior to Fall 2019** (PDF), **Computer Science Track Details as of Fall 2019** (PDF), or **Computer Science Track Details as of Fall 2023** (PDF).

The Department of Computer Science does not accept transfer credit for 300 or 400 level CS coursework (with the exception of pre-approved Study Abroad coursework).

No course can be counted both for required and elective credit. (This holds for all tracks).

Computer Science Tracks

Tracks	Fall 2019 - Spring 2023	Fall 2023 & Forward	Track Chair
Computational Science and Engineering Track: Introduces computer science basics of Computational Science and Engineering.	**Link**	**Link**	**David Gleich**
Computer Graphics and Visualization Track: Prepares students for work and/or for graduate school in computer graphics, visualization, and related areas.	**Link**	**Link**	**Daniel Aliaga**
Database and Information Systems Track: Prepares students to apply database principles, algorithms, and optimization techniques to design, build, and manage current and future database and information systems.	**Link**	**Link**	**Walid Aref**
(Algorithmic) Foundations Track: (*Formerly: Foundations of Computer Science)* Gives students a broad education on foundational concepts, tools, and techniques underlying existing and future areas of computer science.	**Link**	**Link**	**Mikhail Atallah**
Machine Intelligence Track: Prepares students to work in fields related to analysis of data, including areas such as machine learning, artificial intelligence, information retrieval, and data mining.	**Link**	**Link**	**Chris Clifton**
Programming Language Track: Prepares students to work in fields related to program understanding, analysis, manipulation and transformation.	**Link**	**Link**	**Ben Delaware**
Security Track: Prepares students to design and develop secure software and to use techniques for testing and assessing systems for secure operation.	**Link**	**Link**	**Ninghui Li**
Software Engineering Track: Prepares students to design and develop large software products, be familiar with analysis, design, testing, and maintenance, and be able to work in teams.	**Link**	**Link**	**H.E. Dunsmore**
Systems Software Track: *(Formerly: Systems Programming)* Prepares students to build low-level operating system software, system tools, and programs that communicate over a network.	**Link**	**Link**	**Douglas Comer**

Detailed BS in Computer Science Description and Plan of Study from the University Catalog

College of Science Requirement Restrictions

Teambuilding and Collaboration (Cannot be met through credit-by-exam)

Approved course & approved experience: No departmental restrictions

Unacceptable courses for credit for CS students in College of Science

CURRICULUM RESOURCES

Computer Science prerequisite flowchart (PDF)

Visit the College of Science Curriculum Resources pageto find Degree Progression Guides.

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Department of Computer Science, 305 N. University Street, West Lafayette, IN 47907

Phone: (765) 494-6010 • Fax: (765) 494-0739