

COMPUTER SCIENCE (PHD)

Graduate School

Program Website (<https://www.cs.cornell.edu/phd/>)

CIP: 11.0701 | HEGIS: 0701.00 | NYSED: 13303

Graduate Field

Computer Science (<https://catalog.cornell.edu/graduate-school/computer-science/>)

Program Description

The Cornell Ph.D. program in computer science is consistently ranked among the top six departments in the country, with world-class research covering all of computer science. Our computer science program is distinguished by the excellence of the faculty, by a long tradition of pioneering research, and by the breadth of its Ph.D. program. Faculty and Ph.D. students are located both in Ithaca and in New York City at the Cornell Tech campus (<http://tech.cornell.edu/>). The Field of Computer Science also includes faculty members from other departments (Electrical Engineering, Information Science, Applied Math, Mathematics, Operations Research and Industrial Engineering, Mechanical and Aerospace Engineering, Computational Biology, and Architecture) who can supervise a student's Ph.D. thesis research in computer science.

The Field of Computer Science is intended for students who are primarily interested in the general aspects of computational processes, both theoretical and practical. Areas of research in the field include algorithms, architecture, artificial intelligence, computer vision, computational biology, concurrency and distributed computing, database systems, machine learning, machine vision, natural language processing, networks, numerical analysis, programming environments, programming languages and methodology, robotics, software engineering, and theory of computation. You can find out more about our research here.

Concentrations

- Artificial intelligence
- Computer science
- Programming languages and logics
- Scientific computing and applications
- Systems
- Theory of computation

Program Information

- Instruction Mode: In Person
- Location: Ithaca, NY
- Minimum Credits for Degree: 72

Program Requirements

- Minimum Semesters for Degree: 6

Graduate School Milestones

- Responsible Conduct of Research Training: Required
- Open Researcher and Contributor ID (ORCID): Required
- Student Progress Reviews (SPR) begin: Second Year

- Examination for admission to candidacy (A Exam): Before seventh semester begins
- Defense of Dissertation (B Exam): At least two semesters after the A Exam, determined by student progress and Special Committee approval. Usually completed fifth or sixth year

Field Specific Milestones

- Field progress review every year
- Two semesters of teaching assistantship required

Course Requirements

Additional course requirements may be set by the student's Special Committee. Program specific requirements that apply to all students are included below.

- CS 6006 Succeeding in the Graduate Environment, completed in the first semester

Before A Exam

- Competency in AI, Theory, Systems, and Programming Languages

Before B Exam

- Completion of the five course breadth requirement

University Graduation Requirements Requirements for All Students

In order to receive a Cornell degree, a student must satisfy academic and non-academic requirements.

Academic Requirements

A student's college determines degree requirements such as residency, number of credits, distribution of credits, and grade averages. It is the student's responsibility to be aware of the specific major, degree, distribution, college, and graduation requirements for completing their chosen program of study. See the individual requirements listed by each college or school or contact the college registrar's office (<https://registrar.cornell.edu/service-resources/college-registrar-directory/>) for more information.

Non-academic Requirements

Conduct Matters. Students must satisfy any outstanding sanctions, penalties or remedies imposed or agreed to under the Student Code of Conduct (Code) or Policy 6.4. Where a formal complaint under the Code or Policy 6.4 is pending, the University will withhold awarding a degree otherwise earned until the adjudication process set forth in those procedures is complete, including the satisfaction of any sanctions, penalties or remedies imposed.

Financial Obligations. Outstanding financial obligations will not impact the awarding of a degree otherwise earned or a student's ability to access their official transcript. However, the University may withhold issuing a diploma until any outstanding financial obligations owing to the University are satisfied.

Learning Outcomes

- Demonstrate knowledge at the undergraduate level of four core areas in the computer science: systems, AI, PL, and theory. Students should be able to solve problems in these four core areas at the undergraduate level.

- Demonstrate knowledge, understanding, applications, analysis, and evaluation of material at the graduate level in four out of five important core areas of computer science. The five different core areas are as follows: algorithms and theory of computation, artificial intelligence, systems, programming languages and methodology, scientific computing and applications.
- Demonstrate knowledge, understanding, applications, analysis, and evaluation of the three different value systems of the three computer science research styles that differ in how they evaluate and validate research results. The three different research styles are theory, systems, and applications.
- Complete a significant computer science project.