COMPUTER SCIENCE AND ENGINEERING (PHD)

UConn's Ph.D. in Computer Science and Engineering prepares students to advance the frontiers of computing through sustained, original research under close faculty mentorship. Graduates develop deep expertise, rigorous research skills, and technical leadership—preparing them for careers as research scientists and R&D leaders in industry and government labs, and for faculty positions in academia.

Location

- Storrs Campus

Modality

- In Person

Requirements

Requirements for the Ph.D.

The Ph.D. program requires roughly two years of coursework beyond the M.S. and is intended to prepare students for a career in research. General requirements for the Ph.D. are coursework meeting the Ph.D. program requirements; a dissertation proposal with oral presentation and exam; Ph.D. dissertation and defense; Ph.D. publication requirement; the English proficiency requirement. The Ph.D. in Computer Science and Engineering does not have a related area or foreign language requirement.

Ph.D. Course Requirements

Coursework requirements for the Ph.D. depend on whether the student has an existing M.S. degree in Computer Science, Computer Engineering, or Computer Science and Engineering.

Course requirements for students without an existing M.S. (in CS, CE, or CSE): At least 36 credits of graduate-level courses, excluding thesis research credits; at least 18 credits of CSE graduate courses other than CSE 5097 Seminar and CSE 5099 Independent Study in Computer Science and Engineering; at most 12 credits, in total, of CSE 5097 Seminar and CSE 5099 Independent Study in Computer Science and Engineering; at most three credits of CSE 5097 Seminar; successful completion, with a grade of B- or better, of CSE 5050 Algorithms and Complexity or CSE 5500 Algorithms; satisfaction of the Ph.D. breadth requirements (see below); at least 15 credits of GRAD 6950 Doctoral Dissertation Research.

Course requirements for students with an existing M.S. (in CS, CE, or CSE): At least 24 credits of graduate-level courses, excluding thesis research credits; at least 12 credits of CSE graduate courses other than CSE 5097 Seminar and CSE 5099 Independent Study in Computer Science and Engineering; at most nine credits, in total, of CSE 5097 Seminar and CSE 5099 Independent Study in Computer Science and Engineering; at most three credits of CSE 5097 Seminar; successful completion, with a grade of B- or better, of CSE 5050 Algorithms and Complexity or CSE 5500 Algorithms; satisfaction of the Ph.D. breadth requirements (see below); at least 15 credits of GRAD 6950 Doctoral Dissertation Research.

The Ph.D. Breadth Requirement

Ph.D. students must fulfill the breadth requirement by successfully completing three breadth courses selected from three different areas below and the average GPA for the breadth courses must be a 3.7.

Course	Title	Credits
Area 1		
CSE 5800	Bioinformatics	3
CSE 5810	Introduction to Biomedical Informatics	3
CSE 6800	Computational Genomics	3
Area 2		
CSE 5500	Algorithms	3
CSE 5503	Theory of Computation	3
Area 3		
CSE 5402	Network Security	3
CSE 5850	Introduction to Cyber-Security	3
CSE 5852	Modern Cryptography: Foundations	3
Area 4		
CSE 5300	Advanced Computer Networks	3
CSE 5302	Computer Architecture	3
Area 5		
CSE 5713	Data Mining	3
CSE 5819	Introduction to Machine Learning	3
CSE 5820	Reinforcement Learning	3
CSE 5825	Bayesian Machine Learning	3

The English Proficiency Requirement

The program requires evidence of English competency for non-native English speakers. The requirement can be met in two ways: either through evidence of level B2 CEFR English competency (TOEFL Speaking score ≥ 23, IELTS speaking score ≥ 7.0, or official UCAELI assessment via interview); or through successful completion of a UCAELI Evening English Course (EEC).

Ph.D. Publication Requirement

All CSE Ph.D. students are required to publish (or have accepted for publication) prior to their dissertation defense, a minimum of three conference level papers; each paper must be a peer-reviewed full conference article, i.e., submitted and reviewed as a full paper and not as an abstract. Published journal articles may also be used to fulfill the requirement, though they must substantially differ from any conference articles used to satisfy the requirement. Major advisers have the authority to establish a higher threshold of publications for their students.

Learning Objectives

1. Knowledge: Demonstrate appropriate breadth and depth of disciplinary knowledge and comprehension of the major topics, theories, and issues of the discipline, including demonstration of specialized knowledge of a sub-field sufficient to carry out substantive independent research.
2. Research/applied skills: Use disciplinary methods and techniques to apply knowledge, carry out critical analyses and create new knowledge.
3. Communication: Communicate proficiently and effectively to a specialist and non-specialist audience, verbally and in writing, a structured, coherent academic presentation, representation, or

argument that cogently summarizes their research, relevant literature, and its significance at the level appropriate to discipline.

4. Ethics/Professional behavior: Conduct themselves in accordance with the highest ethical and responsible standards, values, and, where these are defined, the best practices of the discipline.