COMPUTER SCIENCE, PH.D.

The doctor of philosophy degree is regarded as a research degree and is granted on the basis of scholarly proficiency, distinctive achievement in a special field, and the capacity for independent, original investigation.

Admissions

In addition to meeting the admission requirements established by the Graduate School, students applying for graduate study in the department must also meet the following general requirements:

- A 3.5 GPA (on a 4.0 scale) or equivalent
- Demonstrated competence in programming
- Completion of the equivalent of the department's undergraduate core computer science curriculum
- It is strongly recommended that students who wish to be considered for funding opportunities submit a GRE score.

See the Admission Criteria section of this catalog for more information.

Curricular Requirements

Core Course Requirements		Hours
Core CS Courses:		12
Select at least one course from each of the following three areas		
Software Courses		
CS 503	Programming Languages	
CS 507	Software Interface Design	
CS 515	Software Design & Development	
CS 516	Testing and Quality Assurance	
CS 520	Software Evolution	
CS 534	Compiler Construction	
CS 544	Software Security	
CS 545	Software Reverse Engineering	
CS 630	Empirical Software Engineering	
Systems Courses		
CS 526	Intro Operating Systems	
CS 538	Computer Comm & Networks	
CS 548	Network Security	
CS 567	Computer Systems Architecture	
CS 581	High Performance Computing	
CS 606	Analys Operating Systems	
CS 613	Adv Computer Comm & Networks	
CS 618	Wireless Mbile Netrwrk Protocl	
Theory Courses		
CS 570	Computer Algorithms	
CS 575	Formal Languages & Machines	
Elective Graduate CS Courses:		18
Students may not count CS 592, CS 598, CS 599, CS 692 or CS 699 courses towards this total.		
At least 9 hours total of the Core CS Courses and the Elective Graduate CS Courses must be taken at the 600 level		
Other coursework:		6
CS 592 or	Independent Study	
CS 692	Independent Study	
Additional graduate CS courses		
Courses taken outside of CS are subject to the approval of the Graduate Program Director and the student's advisor (where applicable). Students should contact the Graduate Program Director and their Advisor (where applicable) prior to registering for courses outside of CS.		
Dissertation Credit Hours:		18
CS 699	Dissertation Research	
Total Hours		**54**

Transfer Credit

Graduate coursework can be transferred from other institutions with departmental approval under the following conditions:

- No more than 6 hours can count towards the Core CS Courses
- No more than 12 hours total can count toward the Core CS Courses and the Elective Graduate CS Courses
- Any additional approved transfer hours will count towards Other Coursework
- Graduate School information on Transfer Credit.

Doctoral Plan of Study Requirement

- Graduate School information for the Doctoral Plan of Study.

Qualifying Exams

- The student must pass the Ph.D. Qualifying Exam.
- The student must select an advisor for their Ph.D. Qualifying Exam and choose three additional Computer Science faculty members to complete their Ph.D. Qualifying Exam committee.
- The Ph.D. Qualifying Exam is composed of a Qualifying Exam Written Document and an Oral Presentation. The student must pass both portions.
  - The Written Document either describes original research (Track 1) or is a review and synthesis of core papers in a particular research area (Track 2).
  - Written Document Track 2: The document must pass an initial editorial review, after which the written document is rated by the student's Ph.D. Qualifying Exam committee as either (1) Pass, (2) Needs Modification or (3) Fail. For documents rated as Needs Modification, students will have two weeks to modify the document to be reviewed by the committee and rated as either Pass or Fail.
  - Oral Presentation: the student must deliver a conference-style presentation of the research contained in the paper. The committee members and faculty members present will then question the student regarding the contents of the written document and the presentation. The student's committee and other members of the faculty who are present will rate the Oral Presentation as either a Pass or a Fail.
- Students are allowed two attempts to successfully complete the Ph.D. Qualifying Exam. Students who do not pass their first attempt must retake the exam at the next offering of the Ph.D. Qualifying Exam.
- Deadlines for taking the Ph.D. Qualifying Exam
  - For students with an M.S. in CS, the first attempt at the qualifying exam must occur at the beginning of the third semester in the PhD program.

- For students with an M.S. in a CS-related field, the deadline for the first attempt at the qualifying exam will be determined upon the student's enrollment in the program.
- For students with only a B.S. in CS, the first attempt at the qualifying exam must occur at the beginning of the fourth semester in the PhD program.
- For students who do not have a B.S. in a CS-related field, the first attempt at the qualifying exam must occur at the beginning of the fifth semester in the PhD program.
- The student may withdraw from the process before the due date of the Ph.D. Qualifying Exam Written Document if the advisor feels the student attempt at the qualifying exam is not sufficient. However, a withdrawal will be counted as a fail on the Ph.D. Qualifying Exam.

Admission to Candidacy Requirements

- A student is admitted to candidacy after the successful completion of both portions of the dissertation proposal.

Continuous Enrollment Policy

- Graduate School Policy on Continuous Enrollment.

Dissertation Requirements

- The student must select a dissertation advisor and a dissertation committee. At least four members, including the dissertation advisor, must be from the faculty of the Department of Computer Science, and at least one member must be from outside the department.
- The student must develop a dissertation proposal composed of both a written document and an oral presentation.
  - The written document should contain an introduction to the research area, a review of relevant literature in the area, a description of problems to be investigated, an identification of basic goals and objectives of the research, a methodology and timetable for approaching the research, and an extensive bibliography.
  - The student must deliver an oral presentation of the dissertation proposal, which is followed by a question-and-answer session that is open to all faculty and which covers topics related directly or indirectly to the research area. The student's committee will then examine the proposal privately with the student.
- The student must develop a written dissertation that demonstrates that the student has performed original research that makes a definite contribution to current knowledge. Its format and content must be acceptable to both the student's committee and the Graduate School.
- The student must defend the written dissertation. The defense includes an oral presentation of the dissertation research, followed by a question-and-answer session. The student's committee will determine whether the defense is acceptable.
- Graduate School information on Dissertation Requirements.

Time Limits for Degree Completion Requirements

- Graduate School information on Time Limits.

Student Progress Requirement

- Students must complete the Qualifying Exam by the specified deadlines
- Graduate School information on Student Progress.

Academic Misconduct Information

- Graduate School information on Academic Misconduct.

Withdrawals and Leave of Absence Information

- Graduate School information on Withdrawals and Leave of Absence.

Academic Grievances Information

- Graduate School information on Academic Grievances.

Grades and Academic Standing

- Graduate School information on Grades and Academic Standing.

Graduate School Deadlines Information

- Information on Graduate School Deadlines.

Application for Graduation Information

- Information on the Application for Graduation.