Department of Computer Science

DOCTOR OF PHILOSOPHY (PH.D.)

The Doctor of Philosophy (Ph.D.) is the highest degree offered in any discipline. It is intended for those who will pursue research in the field. The degree is usually required to teach computer science at the university level, and for employment in prestigious industrial research laboratories. Students may enter the doctoral program with a bachelor's degree or with a master's degree, and must have adequate background in computer science. Since completion of the degree requires presentation of a dissertation comprising of original research, the time required is pre-determined. Four to six years of full-time work are typical, less if the student enters with a Master's degree in computer science.

ADVISING

Upon admission to the doctoral program, a faculty adviser will be designated by the CS Director of graduate studies to advise and meet the student in regular consultation concerning the program of study and research. Your CS faculty adviser approves the courses in your program, including non-CS courses and courses taken outside of PSU. Students and their advisers will fill out a Ph.D. Plan of Study form after the student successfully completes 9 graduate level credits, no later than 6 months before their Research Proficiency Exam (RPE).

Doctoral students are also assigned to additional faculty members that make up an advisory committee during their first term. The role of the committee is to monitor the student's progress, to offer academic guidance, and to provide a resource in resolving academic or advising issues.

- The advisory committee consists of three faculty members, but they may come from different research areas of the faculty adviser.

- The committee will meet with the student in the Fall and Spring terms to generate a written assessment of progress and to set goals in writing for the next term.
- The committee, in consultation with the CS director of graduate studies, has the authority to delay a student's RPE date.
- The committee's opinion shall have strong weight in determining whether the student should continue to receive departmental support in the form of a teaching assistantship.
- The advisory committee's role is taken over by the dissertation committee when the student advances to candidacy.

When a doctoral student begins research work on a PhD dissertation, the faculty adviser should be the person that will supervise the dissertation. If a new faculty adviser has been identified, submit a 'Change of Advisor form' to the CS Graduate Advisor (gccs@pdx.edu). The faculty adviser must be a full-time faculty member and must agree to the change. Any changes should be properly recorded and processed by the CS department.

Graduate Assistantships

First-year Ph.D. students who are admitted with financial support are typically supported as a Teaching Assistant for up to three quarters, which typically pays a monthly stipend and a tuition remission. The student might teach a course under the supervision of a faculty member or grade papers for approximately 15-20 hours per week. Ph.D. students may apply to serve as a TA for an additional three quarters, but are highly encouraged to connect with a potential faculty adviser for a research assistantship.

APPLY FOR TA-SHIP →

CURRICULUM

Core Courses (18 credits) - Generally expected to be completed by the end of the second year.

- CS 581 Theory of Computation (3)
- CS 684 Algorithm Design & Analysis (3)
- CS 558 Programming Languages (3)
- CS 533 Concepts of Operating Systems (3)
- CS 538 Computer Architecture or ECE 585 & ECE 586 (3)
- CS 669 Scholarship Skills for Computer Science & Engineering (3)

Other Elective Courses (27 credits)

- Any graduate level courses in Computer Science, subject to guidance listed under Departmental Requirements

CS 601 Research or Other Elective Credits (18 credits)

CS 603 Dissertation Research Credits (27 credits)

DEPARTMENTAL REQUIREMENTS

In addition to the departmental requirements, students should review the university's doctoral degree requirements.

- Maintain good academic standing with a cumulative graduate GPA of 3.00 or higher in all graduate credits earned at PSU.
- All regular courses must be graded (not P/NP) and passed with a grade of B or better.
- Maintain a 3.5 GPA in core course work, with a minimum grade of B.
- Research, projects, internships, independent study and reading & conference credits may be graded P/NP or with a letter grade. These credits are set up independently by the student and a faculty member. These credits must be passed with a P or a grade of B or better.
- Students must be registered for a minimum of 1 graduate credit during the term the comprehensive exam is taken.
- For elective courses:
  - These courses should be used to strengthen the program in the student's research area.
  - CS 501/601 (Research) and CS 509/609 (Graduate Assistant Practicum) may not be counted.
  - A maximum of 6 credits of CS 502/602 (Independent Study), CS 505/605 (Reading and Conference), and CS 506/606 (Special Projects) may be counted.

ADVANCEMENT TO CANDIDACY

A student is advanced to candidacy after passing the comprehensive exam and successful defense of the dissertation proposal.

Comprehensive Examination

The comprehensive exam is a university requirement for the doctoral degree. In the CS Department, it takes the form of the Research Proficiency Examination (RPE), covering original research performed by the student. The exam consists of a written paper, public oral presentation, and a public question and answer session. Passing the exam is required before a PhD student can prepare and defend a dissertation. Review more about the comprehensive exam on our Research Proficiency Exam page.

Dissertation Proposal

After passing the comprehensive exam and identifying a dissertation research topic, a dissertation committee will be appointed to the student and will take over the role of the advisory committee (see *Advising* section above). If the research topic has changed since admission, students should change their faculty adviser to the person that will

supervise the dissertation. If a new faculty adviser has been identified, submit a 'change of advisor form' to the Graduate Advisor (gccs@pdx.edu). Any changes should be properly recorded and processed by the Computer Science office. The proposal:

- Identifies the general research field (e.g. networks) and presents an annotated bibliography of literature relevant to the particular dissertation topic (e.g. verification of network routing protocols).
- Describes the research problem.
- Describes the proposed approach to solving the problem, including specific methods to be tried.
- Gives a timeline for completing the work.

The written proposal will be circulated among the dissertation committee, and upon satisfactory agreement, the student will publicly present the proposal. The presentation begins with an oral talk, then the dissertation committee will question the student privately.

Students satisfactorily progressing are expected to have a dissertation proposal approved by the end of the third year. The abstract and date for the defense must be submitted to the CS Graduate Advisor at least two weeks in advance of the date of the defense.

DISSERTATION DEFENSE

Under the direction and consultation of the dissertation committee, Ph.D. candidates must complete a dissertation consisting of original research. The student will prepare, revise, and correct a draft of the dissertation as directed by the dissertation committee until it meets the approval. The work is expected to be a quality of merit publication in refereed journals or conferences.

After preparation of the written dissertation, a candidate's dissertation committee will conduct a dissertation defense. The candidate is expected to prepare an oral presentation on the research methodology and results. The abstract and date for the defense must be submitted to the CS Graduate Advisor at least two weeks in advance of the date of the defense. The final, approved dissertation should be submitted to csoffice@pdx.edu for posting.

PSU has a set of Dissertation Guidelines that describe the format and content requirements for the dissertation.

GRADUATION PROCEDURES

- Follow the university's outline for [Doctoral degrees](#).

- [Apply for graduation](#) by the first Friday of the first week of the anticipated term of graduation.

- Submit a revised [Plan of Study](#) to the CS Graduate Advisor ([gccs@pdx.edu](#)).

- Submit the [GO-17D](#) form to the CS Graduate Advisor.

GRADUATE CANDIDATE DEADLINES →