

COMPUTER SCIENCE PH.D.

All students must meet the Requirements for the Doctor of Philosophy Degree

OVERVIEW

The interdisciplinary Ph.D. program in computer science offers study in both traditional and cross-disciplinary areas in computing. Please see the departmental website for current research interests of the department's faculty.

SPECIFIC REQUIREMENTS

Requirements for Admission to Graduate Studies for the Degree of Doctor of Philosophy

A Bachelor's degree is required of all applicants. Applicants will be evaluated based on their potential for excellence in research, as judged from their academic background, relevant experience and letters of recommendation. We admit students who we believe are most likely to succeed and thrive in the program.

No students are admitted unless a computer science graduate advisor has agreed to supervise them; thus, all applicants are strongly encouraged to contact potential advisors as soon as they have applied. All eligible graduate advisors are listed on the departmental website, along with their research areas and links to their websites.

Applicants who have strong academic records in a discipline other than computer science and lack an acceptable computer science background (normally including courses in Data Structures (e.g. CS 2240), Computer Organization (e.g., CS 2210), and Intro to Computability and Complexity (e.g., CS 2250)) may be accepted provisionally. Provisionally accepted students will be required to complete an approved program of remedial work within their first year of study.

Applicants whose native language is not English or whose formal education has been conducted in a language other than English must have a Test of English as a Second Language (TOEFL) score of 90 (Internet-based test) or above or an International English Language Testing System (IELTS) score of 6.5 or above. To be considered for financial assistantship from the university, applicants must have an iBT TOEFL score of 100 or an IELTS score of 7.0 or above.

Minimum Requirements for the Degree of Doctor of Philosophy

| Requirement Description | Credits |
|--|---------|
| 75 credits of graduate study at the 5000-level or above | 75 |
| A minimum of 30 credits of course work in CS, CSYS, or other areas approved by the student's advisor, at least 9 of which must be at the 6000- or 7000-level, and 15 of which must be graded and may not count towards a master's degree | 30 |

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| A minimum of 30 credits of Doctoral Dissertation Research | 30 |
| Pass the oral Comprehensive Exam in three topical areas | |

A student's doctoral program consists of:

- gaining a sound breadth of knowledge in computer science, primarily through course work
- gaining appropriate depth in a specific research area and posing an appropriate original research problem
- completing the research and documenting that research in a dissertation

The completion of these stages is marked by:

- the comprehensive exam demonstrates breadth of knowledge in computer science
- the dissertation proposal describes the current state-of-the-art in a particular research area and the particular research problem the student proposes to tackle
- the written dissertation and oral defense document the original research

Beyond research and course work, the student must gain appropriate experience in teaching, programming, and communicating technical ideas, both orally and in writing. The student must have at least 2 peer-reviewed publications accepted prior to defending their dissertation.

Comprehensive Examination

All students enrolled in the UVM CS Ph.D. program must pass the Ph.D. comprehensive exams, regardless of whether they received their M.S. degree at UVM. The exam aims to examine a student's breadth of knowledge in selected topical areas. It may be administered in either oral or written or mixed form. The topical areas, examiners, and modalities of the exam will be identified by the student and their advisor. The exam must cover a minimum of three topical areas. An examiner may oversee multiple areas, but the student's advisor is permitted to examine only one. The exam may be conducted either in person or remotely and must be completed within a maximum period of three months.

On the first try, the examination committee will award students one of the following 3 outcomes to the exam:

1. Pass at the Ph.D. level
2. Pass at the M.S. level with opportunity for at most 1 retake (to try for a Ph.D. level pass)
3. Fail with opportunity for at most 1 retake

If a student retakes the comprehensive exam, the examination committee will award students one of the following 3 outcomes to the retake:

1. Pass at the Ph.D. level
2. Pass at the M.S. level without further opportunity to retake at the Ph.D. level
3. Fail without opportunity for retake at the Ph.D. level

Ph.D. students who pass their Ph.D. comprehensive exams at the M.S. level but not at the Ph.D. level may, if desired, complete any remaining requirements to complete an M.S., but are not allowed to advance to candidacy for the Ph.D.

Each student's advisor will approve an appropriate timeframe of oral exams for a given student based on their individual circumstances. It is then up to the student to schedule their exams within the agreed-upon timeframe. While individual circumstances may vary, normal expectations are as follows:

- Ph.D. students are normally expected to take oral exams by the end of their second year of full-time Ph.D. graduate study (part-time students may take longer).
- A student who needs to retake their oral exams is expected to do so within 6 months of their first attempt.

Requirements for Advancement to Candidacy for the Degree of Doctor of Philosophy

Before advancing to candidacy, the student must:

- Demonstrate satisfactory performance in a schedule of courses of at least 15 credits of graduate course work at UVM, as approved by the student's advisor
- Pass a comprehensive exam in areas approved by the student's advisor
- Successfully propose a dissertation topic in a public presentation
- Pass an oral exam before the student's dissertation committee in a closed session following the dissertation proposal