

COMPUTER SCIENCE, PHD

The goal of the Doctor of Philosophy (Ph.D.) program in the Department of Computer Science is to prepare first-rate scholars in computer science. Successful graduates may assume significant positions in academia, research institutes, industry, or government laboratories.

Applications for admission to the Ph.D. program in Computer Science are reviewed by a faculty committee. Although specific criteria isn't rigid, all students admitted must exhibit exceptional intellectual achievements and promise. Applicants must submit letters of recommendation, and (for international applicants) TOEFL/IELTS scores. Visit <https://engineering.jhu.edu/graduate-admissions/> for more information on the application process.

For details regarding CS Ph.D. program requirements and policies, please visit the Advising Manual (https://www.cs.jhu.edu/wp-content/uploads/2022/10/PhD-Advising-Manual_edited_9_28.202286.pdf) on our departmental website.

Financial Aid

All full-time CS Ph.D. students are fully-funded for the duration of their Ph.D. career while in a fulltime, resident status- either in the form of a Research Assistantship directed by members of the faculty, a Teaching Assistantship (at least one semester of TA is required), or a fellowship.

Support includes full tuition and annual health insurance coverage, as well as a monthly living-stipend during the fall and spring academic semesters (9 months). Students who wish to continue working with their advisor and remain researching/working towards their degree full-time with the University during the summer months will continue to receive their stipend for June, July, and August (as opposed to doing an external internship, etc.).

Program Requirements

University Residency

Two consecutive semesters of residence as a full-time graduate student are required.

Seminar Attendance

All Ph.D. degree candidates are required to maintain satisfactory attendance in the Computer Science Seminar each semester for the duration of their enrollment in the program. Although seminar attendance is required, the seminar may not be counted toward the qualifying course requirement. Enrollment in the Computer Science Seminar EN.601.801 (<https://e-catalogue.jhu.edu/search/?P=EN.601.801>) is required for first and second year students only.

Responsible Conduct of Research and Academic Ethics

All doctoral students are required to take AS.360.625 Responsible Conduct of Research. Students are expected to complete the course by the end of their first year. Failure to do so may result in a loss of funding. Additional information regarding this requirement can be found here: <https://engineering.jhu.edu/research/resources-policies-forms/responsible-conduct-of-research-training-for-students-and-postdoctoral-fellows-revised-spring-2020/>. In addition, all doctoral students must complete the course EN.500.603 Graduate Orientation and Academic Ethics.

Qualifying Course Requirements

The Department of Computer Science classifies its courses into five core distribution areas: Applications, Reasoning, Software, Systems and Theory. Ph.D. candidates must complete eight courses total (3 class hours/credits each), and at least five of those eight courses must be taught in the Department of Computer Science. Of those courses, four out of the five core distribution areas must be satisfied. A current (https://livejohnshopkins-my.sharepoint.com/personal/jhoulah1_jh_edu/_layouts/15/onedrive.aspx?id=%2Fpersonal%2Fjhoulah1%5Fjh%5Fedu%2FDocuments%2FCS%20Dept%2FWebsite%20PDFs%2Fcourseareas%2Epdf&parent=%2Fpersonal%2Fjhoulah1%5Fjh%5Fedu%2FDocuments%2FCS%20Dept%2FWebsite%20PDFs&ga=1)isting of courses with area designators (https://livejohnshopkins-my.sharepoint.com/personal/jhoulah1_jh_edu/_layouts/15/onedrive.aspx?id=%2Fpersonal%2Fjhoulah1%5Fjh%5Fedu%2FDocuments%2FCS%20Dept%2FWebsite%20PDFs%2Fcourseareas%2Epdf&parent=%2Fpersonal%2Fjhoulah1%5Fjh%5Fedu%2FDocuments%2FCS%20Dept%2FWebsite%20PDFs&ga=1) is provided on the departmental website. The areas are also encoded as POS (program of study) tags in SIS. Ph.D. students may complete remaining elective graduate courses (chosen from any CS area or from closely related departments such as Electrical and Computer Engineering, Cognitive Science, Mathematics, or Applied Mathematics and Statistics) for a total of eight courses. Computer Science graduate students may count 600-level and above graduate courses. The coursework program must be approved by the student's faculty advisor. The overall grade point average for these eight courses must be at least equivalent to a B+. No course with a grade of less than C- may be counted toward this Ph.D. qualifying course requirement. Other than independent study courses, no courses with grades of P or S can be counted toward the coursework requirement. Courses with grades of P or S will not be included in the grade point average calculation. One of the courses required for the degree, but only one, may be replaced by 3 credits from comparable short courses. With approval of the student's faculty advisor, up to two courses can be transferred from graduate programs of other institutions; more than two such courses can be transferred with approval of the department. It is the obligation of the student to provide all necessary documentation to the Department of Computer Science regarding the course(s) for which transfer credit is being requested. Students are expected to complete the course requirements by the end of their second year as a Ph.D. candidate.

Qualifying Project Requirements

A Ph.D. student must complete two projects, each under the supervision and written agreement of a different faculty member. One project must be under the supervision of a faculty member with an appointment in the Department of Computer Science (Professor, Research Professor, Visiting or Joint appointment). The second project can be supervised by a different tenure-track or research faculty member in any division of Johns Hopkins, or with advance approval from the department, by any outside researcher. Upon conclusion of each project, the student must write a "Project Report" describing the project in detail. This report will be a public document and will be kept on file in the department office. The

supervising faculty member must approve the project report. Students are expected to complete the qualifying projects by the end of their third year as a Ph.D. candidate.

Upon completion of the Ph.D. qualifying course requirements and the first qualifying project, students are ordinarily eligible to receive a master of science in engineering degree. The degree will be awarded upon student request.

Graduate Board Oral Examination (GBO)

This examination is a university requirement, ideally taken in the student's third year. The oral exam is administered by a committee consisting of 5 members. Students must select two members from inside the department and two members from outside the department, plus a 5th member who is either inside or outside the department. The exam seeks to establish the student's readiness to conduct original research in the area of their "Preliminary Research Proposal," which should be distributed to the examiners in advance and presented by the student at the start of the exam.

Part-Time Ph.D.

Two consecutive semesters of residence as a full-time graduate student are required by the university. Attempting to obtain a Ph.D. is a major commitment and involves close coordination with a faculty advisor in the department. Part-time students must be able to establish and maintain these close links, therefore part-time study is by advanced and special permission only.

Departmental Seminar

Ph.D. students must give an official departmental seminar on their research area. This is to be done after the GBO and prior to the dissertation defense, or as part of the dissertation defense.

Dissertation and Defense

Ph.D. students must write a dissertation consisting of original research in their chosen area. They must deliver a public presentation of the dissertation before a dissertation committee consisting of the faculty advisor, a second faculty member in the Department of Computer Science (who must have a primary tenure-track appointment in the Department if the advisor does not), and one or more other members with Ph.D. degrees. In conformity with University requirements, the members of the dissertation committee must submit a referee's letter to the Graduate Board recommending that the dissertation be accepted. Completed dissertations will be formatted and submitted to the Milton S. Eisenhower Library for electronic publication (<http://guides.library.jhu.edu/etd/>).

Teaching Requirement

All Ph.D. students are required to serve as a Teaching Assistant at least one semester during their program of study. As part of the requirement, the supervising course instructor must give the TA an opportunity to be in front of a group of students at least once during the course. Students are required to sign-up for the course EN.601.807 Teaching Practicum during the semester in which the requirement is being fulfilled, and at the end of the semester their performance will be evaluated by the course instructor.

Student Progress Review

Ph.D. students are reviewed annually by their advisor(s) and the department, and notified in writing as to their standing in the program. Students deemed to not be making satisfactory progress may be placed on probation.