

Doctoral Program Information

Doctor of Philosophy

The Doctor of Philosophy (PhD) degree is not only an exploration of the knowledge in a given discipline but also an original contribution to it. To the extent that doctoral education has been successful, the student's relationship to learning is significantly changed. Having made a discovery, developed an insight, tested a theory or designed an application, the PhD recipient is no longer a student but a colleague of the faculty. It is for this reason that the PhD is the highest degree offered by a university.

The core mission of PhD programs at research universities is to educate the future faculty of other research universities and institutions of higher education. Graduates of Washington University participate in research and teaching; they also make valuable contributions to society by applying the analytical and creative skills required for scholarship to careers in the business, government and nonprofit sectors.

Among the critical components the university provides for these purposes are a small and select graduate student body, faculty members dedicated to scholarly work, and the physical facilities needed for research. In these regards, Washington University compares favorably to the finest graduate institutions in the world. However, the key ingredients of PhD completion must be provided by the student: a love of learning and a desire to increase the sum of human knowledge. Motivation and perseverance are prerequisites for success in PhD programs.

Doctor of Science

The Doctor of Science (DSc) degree is conferred in recognition of the candidate's abilities and attainments in some field of engineering. The DSc is a doctorate in science equivalent to a PhD doctoral degree. The departments of Electrical & Systems Engineering and Mechanical Engineering & Materials Science offer both the PhD and DSc doctoral options for graduate students.

The requirements for the DSc are identical to those for the PhD except for the following: (1) the mentored teaching experience is not required for the DSc; (2) the residency requirement for the DSc is limited to 24 units completed at Washington University; and (3) the requirements for research rotations and the time limits for completion of the qualifying exam, proposal, and thesis defense for the PhD do not apply to the DSc.

The DSc is recommended for students who will pursue doctoral studies part-time. Stipend support from grants or contracts is typically not available to DSc candidates.

General Requirements

Candidates for doctoral degrees at Washington University must complete all courses required by their department; maintain satisfactory academic progress; pass certain examinations; fulfill residence and teaching requirements (if applicable); write, defend and submit a dissertation; and file an Intent to Graduate form on WebSTAC (<https://acadinfo.wustl.edu>).

Engineering-based doctoral degrees require a minimum of 72 units. The doctoral program requires 36 to 48 units of course work and 24 to 36 units of research. The specific distribution decisions are made by the individual programs and departments.

The doctorate can be awarded only to those students whose knowledge of their field of specialization meets contemporary standards. Course work completed more than seven years prior to the date the degree is awarded generally cannot be accepted as satisfying degree requirements. No courses will be accepted toward degree requirements if the course exceeds the 10-year maximum time period unless they are formally approved by the McKelvey Doctoral Committee. In addition, all milestone requirements for the degree must be completed within seven years from the time the student is admitted to a graduate program.

The doctoral degree has a residency requirement of one year. To satisfy the requirement, the student must devote full time for two consecutive semesters to academically relevant activities on the Washington University campus. A limited amount of outside employment may be permitted, but only with the approval of the department or program chairman and/or the dean. Candidates for the Doctor of Philosophy degree and the Doctor of Science degree are required to follow the guidelines of the Office of the Provost and of the McKelvey School of Engineering.

Advisor & Doctoral Committee

Once admitted to graduate standing, each doctoral student will have an advisor appointed by the chair or director of the designated area of specialization. It is the responsibility of the advisor to help the student plan a graduate program.

Each department within McKelvey School of Engineering has its own policy related to the selection of a doctoral committee; therefore, students should consult with their faculty advisor regarding the appointment of their doctoral committee.

Doctoral Qualifying Examination

To be admitted to candidacy for a doctoral degree, the student must pass a comprehensive qualifying examination that may consist of both written and oral portions. The examination is administered by the student's department or program, and the student should consult their advisor for information concerning the scope of the examination and the dates on which it is given. The examining panel will consist of faculty members approved by the department chair or the program director.

Doctoral Dissertation

Doctoral candidates must submit a satisfactory dissertation that involves independent creative work in an area of specialization and that demonstrates an ability for critical and constructive thinking. It must constitute a definite contribution to knowledge in some field of engineering. The research that is the subject of the dissertation must have been performed under the supervision of a member of the faculty of McKelvey School of Engineering. The candidate must defend the dissertation during a final oral examination by an examining committee to be nominated by the advisor and approved by the appropriate dean.

For specific information about preparing the dissertation for submission, candidates should refer to the thesis and dissertation submission procedures on the McKelvey School of Engineering webpage (<https://engineering.wustl.edu/offices-services/student-services/graduate-student-services/thesis-dissertation-submission.html>).

Each candidate for the doctoral degree must electronically submit a final approved version of their dissertation. The dissertation should include an abstract that embodies the principal findings of the research and that has been approved by the doctoral committee as ready for publication. Such an abstract will be published in Dissertation Abstracts, which announces the availability of the dissertation for distribution.

Administration

Dean's Office

314-935-6350

Department of Biomedical Engineering

314-935-6164

Department of Computer Science & Engineering

314-935-6160

Department of Electrical & Systems Engineering

314-935-5565

Department of Energy, Environmental & Chemical Engineering

314-935-6070

Department of Mechanical Engineering & Materials Science

314-935-6047

Engineering Information Technology

314-933-3333

Engineering Graduate Student Services

314-935-5830