

Engineering and Applied Science

Doctor of Philosophy in Engineering and Applied Science

This interdisciplinary Ph.D. program is open to students in the Departments of Civil and Environmental Engineering, Electrical Engineering, Mechanical Engineering, Chemistry, Geosciences, Mathematics, and Physics. The program allows for a broad range of research topics in Engineering (Civil Engineering, Electrical Engineering, Environmental Engineering, Environmental Science and Management, Measurement and Control Engineering, and Mechanical Engineering), Chemistry (Biochemistry, Atmospheric, Environmental, Materials, Inorganic, Organic, Organometallic, and Physical Chemistry), Geosciences (Geology, Geochemistry, Environmental Geosciences), Mathematics (Applied Mathematics and Computational Mathematics), and Physics (Radiation Science, Accelerator Applications, and Applied Nuclear Physics).

Goals

- Prepare graduates to conduct and disseminate independent scholarly research.
- Prepare graduates for careers in academia, government, or industry.

Objectives

- Increase the knowledge of graduates in their specialized field: Chemistry, Engineering (all disciplines), Geosciences, Mathematics, and Physics.
- Enhance the ability of graduates to contribute to their chosen field.
- Enhance effective written and oral communication skills of graduates.

Admission Requirements

All applicants must meet Idaho State University Graduate School admission requirements for doctoral programs. Additionally, applicants must have attained a master's degree in engineering, physics, chemistry, geosciences, mathematics, or a closely related field. Applicants must submit a one-page statement of research interests, a one-page statement of career interests, a resume, and at least 3 letters of reference along with their application. The approval of the chair of major department is required for admission. In some special cases, a student with an exceptional undergraduate academic record and aptitude for research but without an M.S. degree may be directly admitted to the Ph.D. program with the approval of the Department Chair of the student's parent department.

General Requirements

The Ph.D. degree requires completion of at least 84 credits consisting of 30 credits for the M.S. degree, 18 credits of additional course work (at least 50% of the credits should be at 6000 level), 1-4 credits of graduate seminar, and 32-35 credits of dissertation research. Additional dissertation research credits may be required by the student's dissertation committee.

Program of Study

An advisory committee consisting of Idaho State University graduate faculty (a minimum of 2 from the student's parent department and 1 from another relevant department) will be formed for each student upon entry into the program. The committee will guide the student in establishing his or her program of course work and laboratory study based upon the student's background and research interest. The advisory committee has the responsibility of ensuring that the student has adequate knowledge to support research in his or her chosen area of interest.

At the end of 18 credits of course work, the student will take an 8-hour written, comprehensive qualifying examination covering relevant information within

the scope of the chosen research area. A student taking the comprehensive qualifying exam must be prepared to take an oral examination conducted by the student's Advisory Committee. The oral exam will focus primarily on material in the written exam that was not adequately answered. However, the Advisory Committee, at its discretion, may excuse a student from taking the oral examination if the student excels in the written examination. The student will be allowed two attempts to pass the comprehensive qualifying examination, and the second attempt must be within one-half year after the first attempt. The student will be admitted to candidacy only upon passing the comprehensive qualifying examination.

A Dissertation Committee is formed with a minimum of 5 members consisting of a major professor, 2 members from the student's parent department, a member from another relevant department, and a Graduate Faculty Representative (GFR). The major professor chairs the dissertation committee. Within six months of passing the comprehensive qualifying examination, the candidate, with guidance from the major professor, will satisfactorily complete an oral presentation and defense of a proposal for dissertation research to the Dissertation Committee. The research and dissertation preparation must be conducted under the close supervision of the committee and must include at least one full year of work performed under Idaho State University graduate faculty. The candidate can submit the final dissertation any time after six months from the date of acceptance of the research proposal if the candidate meets the requirement of one full year of work.

Dissertation approval requires a public presentation of the dissertation and a satisfactory oral defense to the Dissertation Committee. Doctoral oral examinations are open to all regular members of the faculty as observers. Further, oral presentations are open to the public until questioning by the Dissertation Committee begins.