DOCTORAL STUDENT HANDBOOK

Civil & Environmental Engineering Department

George Washington University

Spring 2013
DOCTOR OF PHILOSOPHY DEGREE PROGRAM

The doctoral program is designed to prepare the student for a career in creative scholarship, either in academia or industry, by providing a broad background of knowledge and guidance in the performance of research. The program is divided into two stages. The first stage comprises a study of related fields of learning that support the general area of research concentration and culminates in the qualifying examination. The second stage is composed of original research and the presentation of findings in a written dissertation, which culminates in the final examination.

ENTRANCE REQUIREMENTS

General admission requirements to the Doctor of Philosophy (Ph.D.) degree program for the School of Engineering and Applied Science, are provided in the George Washington University Graduate Programs bulletin. In addition to that, students whose highest earned degree is a baccalaureate must present a grade-point average of at least 3.3 on a scale of 4.0 in undergraduate work. For students whose highest earned degree is a master’s degree, the grade-point average must be 3.4 on a scale of 4.0 in master’s program.

Effective Fall 2005, the GRE is required for all students applying to the doctoral program.

AREAS OF CONCENTRATION

Engineering Mechanics
Environmental Engineering
Geotechnical Engineering
Structural Engineering
Transportation Engineering
Water Resources Engineering

FIRST STAGE COURSEWORK REQUIREMENTS

Upon admission to the program, each student is assigned a faculty advisor in his/her selected area of concentration, who directs his/her studies. Based on the advisor’s recommendation, the student will fill out a Form-1 before the end of the first semester. Prior to the beginning of each semester, the doctoral student will meet and consult with his/her faculty advisor on the courses to be completed. A minimum of 18 credit hours of coursework has to be successfully completed, beyond master’s study, for the student to be able to take the Doctoral Qualifying Examination (DQE). For students without master’s degrees, a minimum of 42 credit hours of coursework is required beyond the baccalaureate degree. In many cases, particularly when the student undertakes a doctoral program in a field other than that in which the earlier degree was obtained, the program of study may well exceed the minimum number of credit hours. In order to take the DQE, the student should have completed successfully at least 18 credit hours of coursework,
and have a minimum GPA of 3.4. The student can take the remaining 6 credit hours of coursework after finishing the DQE. A Form-1 should be on file for the student showing all the courses completed successfully.

THE DOCTORAL QUALIFYING EXAMINATION

The purpose of the qualifying examination is to ascertain that the student’s background and intellectual development are adequate to support doctoral research in a selected area of concentration. The examinations are offered twice a year, once at the end of the Spring semester, and again at the end of the Fall semester. The examination has a written component and an oral component. The written examination is administered first, upon successful completion of which the oral examination is given. Specific details about each of these examinations are given below. In general, the examination includes subject matter covered at both the Masters and Doctoral levels. The student should be prepared for comprehensive questioning on the subject matter without regard to whether any particular course is included in the actual doctoral coursework.

(I) WRITTEN EXAMINATION

- The written examination will be on at least 6 courses. It consists of three parts:
  - (a) Major area: consists of at least two courses,
  - (b) Minor area 1: Applied Science or related math courses, and
  - (c) Minor area 2: may consist of courses from other department(s) with approval of advisor.

  These three parts are usually scheduled over a period of three days.

- Each area should include at least two courses. One exception to that is:
  Environmental Engineering students can be examined on one course in the Applied Science area.

- Upon consultation with the advisor, the student will select the courses for each of the three examination areas. Advisor approval is required for the selection.

- The student is required to register for the qualifying examination in the CEE department office before the deadline for that particular semester. S/he has to fill out Form-4 and submit it.

- The student will receive a letter from the Department informing him/her of the schedule for the written examination.

- After completion of the written examination, the student will receive a letter from the Department informing him/her of the results.
(II) ORAL EXAMINATION

- The oral examination will be administered by a committee of at least three full-time regular status CEE faculty members, including the student’s advisor. During the oral examination, the student will be tested in subject areas similar to the DQE, especially those in which s/he has demonstrated weakness in the written exam.

Upon successful passage of the DQE, the student is admitted to candidacy for the degree of Doctor of Philosophy.

DISSERTATION RESEARCH

The candidate now consults with his/her advisor and selects a topic for doctoral research. The director of research can be the same person as the academic advisor, or may be a different faculty member who is willing to accept the student to conduct research with him/her. Research direction may be shared by a full-time faculty member of the department and an outstanding external scientist or researcher, but the final responsibility for the academic aspects of the dissertation work lies with the faculty member. The candidate has to complete a minimum of 12 credit hours of dissertation research, prepare a written thesis, and upon the director’s approval, present it before the dissertation committee and students at the Final Examination.

The dissertation should embody the results of an extended original study, and include material that is considered worthy of publication in recognized scientific and engineering journals. The student is expected to attempt to have the results of the research published, as soon as possible after he or she receives the degree.

During the period of dissertation research, the candidate goes through the following steps:

- **Formation of Dissertation Committee:** The dissertation committee will be composed of at least five members, which will include three full-time regular status faculty members from the student’s home department, with one of them being the director. There should be at least one committee member external to GW, who has expertise in the area of the student’s research work.

- **Presentation of Research Plan:** The doctoral candidate will prepare a written research plan and make an oral presentation of the plan to his committee. At least three of the five committee members should be present at this oral presentation. Upon approval of the research plan, the student will proceed with dissertation research.
• **Research work and thesis writing:** The candidate will complete the research work under close supervision of his/her director and committee members. Then he/she will prepare a written thesis detailing the research objectives, methodology and results obtained. Upon approval by the director, the candidate can appear for the final examination. The candidate consults with the committee members and selects a date for the final examination. At least three weeks prior to the final exam, the candidate provides each committee member with a copy of the dissertation for review. A time period of less than three weeks will have to be approved by the entire committee.

• **Final Examination:** The final examination is oral and open to the public. The director of research usually serves as the advocate for the candidate. The candidate makes a detailed presentation of his/her research work and the results obtained. The candidate must demonstrate a mastery of the special field of study, and of the materials and techniques used in the research. When the examining committee is convinced of the quality and originality of the candidate’s contribution to knowledge as well as his/her mastery of the scholarship and research techniques of the field, the committee recommends the candidate for the degree of Doctor of Philosophy. Under no circumstances will the student provide a copy of the dissertation to the Dean’s office before approval by his/her Committee. Please refer to the Bulletin of Graduate Programs for additional University requirements.

**ATTACHMENTS:** Required forms.