

IDC GUIDELINES-DEPARTMENT OF BIOMEDICAL ENGINEERING
THE UNIVERSITY OF AKRON
November 2001
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Introduction

The Ph.D. Program provides opportunities to conduct independent, contemporary and significant research in biomedical engineering. Students are expected to identify, formulate and analyze research questions using clinical, experimental, and/or theoretical investigation involving modern experimental techniques, numerical and mathematical analysis, and computer simulations. The Program also develops students' interdisciplinary communication skills, thereby enhancing their ability to interact with other professionals.

The following provides guidelines regarding specific program requirements for the Biomedical Engineering Department. For more information, the student should consult the document on Interdisciplinary Doctoral Procedures provided by the College of Engineering.

Academic Matters - Ph.D. Degree in Engineering

Upon arrival, the first-year Ph.D. student will meet with the graduate coordinator and prospective advisors to establish an initial plan of study for the first semester. Over the course of the first semester, the student must identify an interdisciplinary field of study, and a dissertation director, and then finalize plans for coursework research and degree requirements throughout the first year. Among these requirements, the student must form an interdisciplinary doctoral committee (IDC).

The chair of the IDC must be in the Department of Biomedical Engineering.

The IDC shall consist of at least five faculty members, of whom at least two members must be from the Biomedical Engineering Department and one from another department OR outside the College of Engineering.

The Plan of Study

The Plan of Study is established by the IDC in accordance with the following guidelines:

The Plan of Study has a minimum of 96 total credit hours with a minimum of 48 credits of coursework at the 600-700 level of which up to 6 credits could be substituted with 500 level course work. At least 6 credits of the coursework must be from outside the Biomedical Engineering Department. The intent of the coursework in the Plan of Study is to provide the background necessary to perform the dissertation research and prepare the student for a career in research.

The Qualifying Examinations

The Qualifying Examinations consist of closed-book sections covering 4 of the 5 topic areas: Materials Science; Fluid, Heat, & Mass Transfer; Mechanics; Circuits; Signals & Controls. Timing: 3rd Friday after classes end in the Spring semester. It is not anticipated or suggested that the content of an exam touch on all content of each topic. Rather, the qualifier is a means of determining the extent of a student's undergraduate knowledge and any technical weaknesses.

This exam is composed and conducted by the faculty of the Biomedical Engineering Department. Grades on each topic will be either "pass" or "fail". Students achieving less than a passing grade shall be required to retake the exam in those subjects.

The Qualifying Examinations will be offered once per year, normally in May, and must be taken no later than the end of the student's first year of study. One retake of the examination is allowed.

The Candidacy Examination

The purpose of the Candidacy Examination is to test the student's ability to conduct independent research. The student must pass the Candidacy Examination composed and administered by the IDC within one year, completing at least 90% of coursework. Our department combines the candidacy exam and the dissertation proposal. Typically at the same time, the student must present an acceptable Proposal for Dissertation Research to the IDC. The student cannot enroll in doctoral dissertation credits before passing the Candidacy Examination.

The Dissertation Proposal

The student must present an acceptable Proposal for Dissertation Research to the IDC. The proposal shall be in the written form and given to the IDC at least 14 days prior to the scheduled date of the Dissertation Proposal oral presentation. The proposal should be written early in the PhD process, as it helps direct the research of the candidate while informing the committee of the expected outcomes. Each proposal should be written within the confines of the format of a NIH R01 proposal. Specifically, these proposals should contain the following sections: Significance, Innovation, and Approach, and be no more than 12 pages (without references). The font size should be no smaller than Arial 10pt and the margins set at 0.5". The content breakdown will vary depending upon the work. The student, with the approval of the IDC, can present the Dissertation Proposal at the same time as his candidacy examination.

The Dissertation and Oral Defense

The dissertation must be a scientifically acceptable and comprehensive study whose format meets all accepted standards of the College of Engineering and the IDC. The written dissertation should be given to the IDC at least 14 days prior to the scheduled date of the oral defense. The doctoral candidate must successfully pass this oral defense allowing no 'fail' vote from the members of the IDC.