BIOSYSTEMS ENGINEERING, PH.D.

Degree Requirements

Students are normally required to complete 12 credit hours of coursework, including a seminar course (BIOE 7270), and a thesis. The remaining 9 credit hours at the 7000 level can be taken from any Department.

The Department of Biosystems Engineering offers a Graduate Specialization in Engineering Education (GSEE) at the Doctoral level. The GSEE will require 12 credit hours of coursework at the 7000 level and a thesis on an Engineering Education topic. The coursework requirements include:

Course	Title	Hours
BIOE 7270	Advanced Seminar in Biosystems Engineering	3
EDUA 7840	Qualitative Research Methods in Education	3
or EDUA 7850	Design and Analysis of Educational Research (Quantitative)	
Select two of the following:		6
ENG 7010	The Engineering Design Process	
ENG 7030	The Discipline of Engineering Education	
ENG 7040	Foundations of Engineering Education Research	
Total Hours		**12**

Expected time to graduate: 3 - 4 years

Progression Chart

All students must complete a minimum of 12 credit hours of coursework approved by the faculty advisor.

Course	Title	Hours
Year 1		
GRAD 7300	Research Integrity Tutorial	0
GRAD 7500	Academic Integrity Tutorial	0
BIOE 7270	Advanced Seminar in Biosystems Engineering	3
COURSE 7XXX	Courses designated 7000 or above from any department	9
Thesis Proposal		
	Hours	**12**
Years 2-3		
GRAD 8010	Doctoral Candidacy Examination	0
	Hours	**0**
Years 3-4		
GRAD 8000	Doctoral Thesis	0
	Hours	**0**
	Total Hours	**12**

Students are expected to demonstrate independence and professionalism during their graduate studies. Students are expected to be present on campus for scheduled classes, regular meetings with the advisor, and research work (unless the research work is being done at a site off-campus). It is understood that progress on research may be limited when the student is taking classes, however, substantial progress is expected during periods when classes are not being taken. Research progress includes tasks such as reviewing scientific literature, collecting experimental data, analyzing experimental data, and paper/thesis writing. Ph.D. students are expected to display increasing independence as they proceed through the doctoral program. The advisory committee will judge whether the academic performance has been satisfactory based on the plans outlined in the previous "Progress Report" form.

Thesis Proposal

The thesis proposal will normally be reviewed and approved by the advisory committee within the first 12 months of the PhD program. It will consist of a maximum 10-page (double spaced) proposal including sections on objectives & sub-objectives, brief review of relevant literature, proposed methodology, and impact/significance of the proposed research. The PhD student will give a 20-25 minute presentation on the thesis proposal. The advisory committee may ask questions of clarification or offer suggestions for modification of the research objectives and/or proposed methodology. The thesis proposal presentation should not be viewed as an oral examination that must be passed. The purpose is to set the direction of the students' research with input from the advisory committee.

Doctoral Candidacy Examination

The candidacy examination consists of two parts (i.e., a written portion and an oral portion) that together comprise the candidacy examination.

Doctoral Thesis

The thesis must constitute a distinct contribution to knowledge in the major field of study, and the research must be of sufficient merit to be, in the judgement of the examiners, acceptable for publication. The final examination for the PhD degree, which is organized by the Faculty of Graduate Studies, includes two distinct stages: i) examination of the candidate's written thesis by members of the examining committee followed by ii) an oral examination in which the student presents an overview of the work in 20-30 minutes and is expected to answer questions on the subject of the thesis.