

Student Name: _____

Perm: _____

Doctor of Philosophy – Biological Engineering 2024-25

In addition to departmental requirements, candidates for graduate degrees must fulfill University requirements described in the “Graduate Education” section of the UCSB General Catalog.

During the first year of study students are required to develop a formal study plan, which must be approved, by the student’s faculty advisor and the department graduate advisor. In this plan, students select a major area of study from among the 3 fields offered by the Program.

*Ph.D. students must complete a minimum of **69 quarter units** of coursework: 15 units for letter grade in Core courses; A minimum of 12 units for letter grade in four additional courses with at least two drawn from one focus area, at least one from a second focus area, and one additional science or engineering elective, 6 units of graduate seminar, and an additional 36 units of directed research.*

*In addition, all students will complete a translational requirement for the degree which may consist of a) taking an existing course related to biomedical or bioengineering translation, **or** b) completing an industry internship, **or** c) participating in approved activities that provide exposure to industry and translational applications of Biological Engineering (e.g., engagement with the Biomedical Engineering Society student chapter, Biotechnology Industry Showcase. If students choose the latter, the proposed program of activities will be approved by the Graduate Coordinator or Graduate Advisor.*

Students should register for directed research under their advisor for at least nine units per year in years 2-5; representing an additional 36 units taken as BioE 596.

Students who enter the program with a Master’s degree from a comparable department or program at another institution may receive subject credit, as approved by the Graduate Advisor. The department requires that students maintain a minimum grade-point-average of 3.25 in the Core courses and Focus Area courses. Time-to-degree: 3 years to advance to candidacy, 6 years to complete the Ph.D.

CORE COURSE REQUIREMENTS (15.0 units total)				
COURSE #	COURSE NAME	QUARTER	UNITS	GRADE
BIOE 210	Biomolecular and Biochemical Methods		3.0	
BIOE 211	Quantitative Experiments		3.0	
BIOE 212	Great Experiments		4.0	
BIOE 299	Independent Studies – “Lab Rotations” (3 quarters)		3.0	
BIOE 201	Bioethics and Responsible Conduct of Research		2.0	

<p>FOCUS AREAS</p> <p>Choose 2 courses from 1 Focus Area, 1 course from a second Focus Area and 1 approved Science and Engineering Elective</p> <p>THE BIOLOGICAL ENGINEERING GRADUATE COORDINATOR WILL MAINTAIN A LIST OF APPROVED COURSES IN THE FOCUS AREAS AND APPROVED SCIENCE AND ENGINEERING ELECTIVES</p> <p>(12.0 units total)</p>

FOCUS AREA 1: COMPUTATION, MODELING, AND SIGNAL PROCESSING

COURSE #	COURSE NAME	QUARTER	UNITS	GRADE

FOCUS AREA 2: SYNTHETIC AND SYSTEMS BIOLOGY

COURSE #	COURSE NAME	QUARTER	UNITS	GRADE

FOCUS AREA 3: CELL, TISSUE AND DEVICE ENGINEERING

COURSE #	COURSE NAME	QUARTER	UNITS	GRADE

APPROVED SCIENCE AND ENGINEERING ELECTIVES

Students must also take an additional **3.0 letter graded units** of science and engineering electives approved by the Graduate Coordinator

COURSE #	COURSE NAME	QUARTER	UNITS	GRADE

ADDITIONAL REQUIREMENTS

*All students will complete a translational requirement for the degree which may consist of a) taking an existing course related to biomedical or bioengineering translation, **or** b) completing an industry internship, **or** c) participating in approved activities that provide exposure to industry and translational applications of Biological Engineering (e.g., engagement with the Biomedical Engineering Society student chapter, Biotechnology Industry Showcase. If students choose the latter, the proposed program of activities will be approved by the Graduate Coordinator or Graduate Advisor.*

Directed Research

Students should register for directed research under their advisor for at least nine units per year in years 2-5; representing a minimum of an additional 36 units taken as BioE 596.

COURSE #	COURSE NAME	QUARTER	UNITS	GRADE
BIOE 596	Directed Research			

GRADUATE SEMINAR (6.0 units total)

COURSE #	COURSE NAME	QUARTER	UNITS	GRADE
BioE 230A	Intro to BioE Research Topics Seminar		1.0	
BioE 230B	Professional Development Seminar		2.0	
BioE 225	BioE Current Topics Seminar		1.0	
BioE 225	BioE Current Topics Seminar		1.0	
BioE 225	BioE Current Topics Seminar		1.0	

ADVANCEMENT TO CANDIDACY EXAM

The PhD qualifying process will include a Dissertation Proposal Presentation, which will serve as an Oral Qualifying Exam. Students should complete this requirement by fall of the 3rd year in the PhD program, but no later than the end of year 3. This will consist of a written thesis proposal, an oral defense of this proposal, and an oral examination by the pre-candidacy thesis committee. This committee is comprised of at least four academic senate faculty members: a chair, who is selected from among the Program faculty by the Graduate Advisor, and three or more faculty members selected by the student, at least one of whom are members of the Department faculty. Upon successful completion of this examination, students advance to candidacy.

Chair: _____

Member: _____

Member: _____

Member: _____

Exam passed on (date): _____

DISSERTATION

A written dissertation is required, which must demonstrate the student's ability to contribute significantly and independently to the field. This will be guided by a dissertation committee comprised of at least four academic senate faculty members, at least two of who are members of the Department. This nominally consists of the members of the qualifying exam committee plus the student's thesis advisor, who serves as chair of this committee. Prior to scheduling the dissertation defense, the candidate must have submitted at least one refereed research manuscript. Candidates must complete the dissertation and pass a public thesis defense consisting of presenting a seminar talk and answering questions posed by the dissertation committee.

Doctoral Committee: Chair: _____

Member: _____

Member: _____

Member: _____

Dissertation Defense passed on: _____

Month/Day/Year