

# BIOENGINEERING (PH.D.)

## Description

The Ph.D. in Bioengineering at UNH provides a flexible curriculum at a top-tier research university with a collaborative and supportive community. You will gain a solid foundation in bioengineering principles, preparing you for highly selective careers in academia, research, and related fields. You will work on cutting-edge research in high-demand areas such as biomaterials, sensors, biophysics, synthetic biology, and tissue engineering.

### Admission Requirements

An applicant to the Ph.D. program will have completed a baccalaureate degree in engineering or a related field. Students with good undergraduate records in the science fields may be admitted provided they learn specific math and engineering skills that are aimed at successful completion of the Ph.D. program requirements. Applicants must submit current scores (within five years) from the general test of the Graduate Record Examination. International students are required to submit TOEFL test scores. IELTS scores are accepted on a case-by-case basis, and students must have a minimum score of 6.5.

## Requirements

### Degree Requirements

Ph.D. students will complete the following coursework

Code	Title	Credits
<b>Required Courses</b>		
CHBE 900	Seminar <sup>1</sup>	2
CHBE 860	Principles of Bioengineering	3
<b>Electives</b>		
Select two additional CHBE Courses <sup>2</sup>		6-8
Select one Math/Data Science course <sup>2</sup>		3-4
Select one Life Science course <sup>2</sup>		3-5
Select additional Electives <sup>2,3</sup>		

<sup>1</sup> Students should register for CHBE 900 for 2 credits in their first two semesters and CHBE 900 for 0 credits each additional semester until their degree is granted

<sup>2</sup> Can be made up of electives offered by the CHBE department, the College of Engineering and Physical Sciences or the College of Life Sciences and Agriculture. In addition, courses taken within the UNH School of Law, College of Liberal Arts, and the Paul College of Business and Economics can apply with approval. Electives must be assessed with a letter grade and cannot be pass/fail. At least one of the electives must be at the 900-level

<sup>3</sup> Students admitted with a baccalaureate degree in Bioengineering or related fields are required to complete an additional 3 elective courses at the 800- or 900- level to complete the course work requirement. Those students admitted with a master's degree in Bioengineering or related fields are required to take only 1 additional elective course at the 800- or 900- level to complete the course work requirements

Students in the PhD program are expected to complete at least two core courses within the first year of graduate study excluding CHBE 900. Students must pass the two core courses with a B average or higher to be eligible to take the qualifying exam. The qualifying exam will have a

written and an oral component and will be administered by the graduate committee.

The graduate coordinator/committee will conduct an annual review of each student's progress in the program.

All course work, including electives, should be completed by the end of the second year of study and must be completed before the student can be advanced to candidacy. To advance to candidacy, the student must prepare a research proposal, which is different from their PhD dissertation research, and defend the proposal in an oral examination before a doctoral guidance committee.

After successful completion of the oral qualifying examination, the student is advanced to candidacy and upon recommendation of the graduate coordinator, a doctoral dissertation committee is appointed by the dean of the graduate school. The doctoral dissertation committee supervises and approves the dissertation and administers the final dissertation defense.

There is no language requirement.

## Student Learning Outcomes

### Program Learning Outcomes

- Use appropriate bioengineering techniques, tools and methods to solve broadly defined engineering problems.
- Critically analyze the literature and determine the state-of-the-art in a given research topic.
- Write and defend an original research proposal.
- Use computational and/or experimental skills to solve an original research problem in the field of bioengineering and critically evaluate the results.
- Demonstrate independence in conducting research and take ownership for its direction.
- Demonstrate oral and written communication skills through publications and presentations to a variety of audiences.