Yale ENGINEERING

Biomedical Engineering
MS Graduate Program
Admissions Information

Overview

The Master's degree program is designed to be a one-year program that includes advanced-level courses in biomedical engineering or a related area with the option of completing independent research for credit with a BME advisor. The core curricular and research areas of concentration in Yale Biomedical Engineering include Bioimaging and Biosensing, Biomechanics and Mechanobiology, Computational Modeling and Analysis, Biomolecular Engineering, and Systems Biology. This document describes the terminal MS in Biomedical Engineering. It is meant as a supplement to the School of Engineering terminal MS guidelines found in the "Yale Graduate School of Arts and Sciences Programs and Policies".

Requirements

- Eight graduate courses, up to two of which may be lab-based research (called "Special Investigations"). The chosen curriculum should be consistent with a Master's degree in BME. Sample course schedules are provided below.
- An overall grade average of High Pass, including a grade of Honors in at least one full-term graduate course (not a Special Investigation course). Grades are Honors, High Pass, Pass, and Fail.
- Short ethics course (credit/no credit)

Independent Research (Optional)

There is no thesis option for the BME Master's program, however many of our Master's students complete research for credit (i.e., a Special Investigation). If you are interested in this option, you should reach out to faculty in our department prior to your arrival on campus. The department web page lists faculty by their associated research areas. For students interested in pursuing a PhD after the Master's, research experience is very important.

Background of Successful Applicants

- Most admitted students have an undergraduate degree in engineering, biology, chemistry, physics, mathematics, computer science or a related field.

- The GRE is required for admission. The average GRE scores of accepted students are 77th percentile verbal and 91th percentile quantitative. The average GPA of accepted Master's students is 3.7.
- The TOEFL test is required for applicants with a Bachelor's degree from a university where English is not the primary language of instruction. Competitive applicants score 100 or higher on the TOEFL test overall and 26 or higher on the TOEFL-Speaking test.

Other Considerations

- There is no direct path from the MS program to the PhD program. Students in the MS program must apply to the PhD program. Acceptance into the MS program does not guarantee future acceptance into the PhD program.
- There is no financial assistance available for students enrolled in the MS degree program. Further, due to the course work, students typically cannot devote sufficient time to be eligible for research funding. However, several of our MS students perform a teaching fellowship for undergraduate courses and receive compensation for this work.
- After completion of the MS degree, international students are generally eligible for an extension of up to one year (two terms) as a "Special Student". In this case, students are charged full tuition. For more information on this option, please see: https://gsas.yale.edu/admissions/non-degree-programs/visiting-students.

How to Apply

If you would like to apply for our graduate program, please do so online (http://www.yale.edu/graduateschool/admissions/). The deadline is December 15, 2025 to start the program in Fall 2026. You cannot apply to the MS program and the PhD in the same year. There are no rolling admissions or options to start during the Spring semester.

Sample Course Curriculums

The following are ***examples*** of course schedules for different areas of focus in our department. Students may design their own curriculum including any advanced-level courses in biomedical engineering or a related area an with approval from the MS advisor (the BME Director of Graduate Studies).

Bioimaging and Biosensing Concentration

Fall Semester

- BENG 5200: Physiological Systems
- BENG 5410: Physical and Chemical Basis of Biosensing

- BENG 5440: Fundamentals of Medical Imaging
- BENG 4475: Computational Vision and Biological Perception

Spring Semester

- BENG 5849: Biomedical Data Analysis
- BENG 5485: Fundamentals of Neuroimaging
- CPSC 5220: Deep Learning Theory and Applications
- BENG 5990: Special Investigation in Bioimaging and Biosensing (i.e., independent research with faculty for credit)

Biomechanics and Mechanobiology Concentration

Fall Semester

- BENG 5200: Physiological Systems
- MENG 5359: Neuromuscular Biomechanics
- ENAS 5000: Mathematical Models I
- BENG 5990: Special Investigation in Biomechanics and Mechanobiology (i.e., independent research with faculty for credit)

Spring Semester

- BENG 5350: Biomaterial-Tissue Interactions
- BENG 5560: Molecular and Cellular Biomechanics
- BENG 5570: Computational Mechanics
- BENG 5990: Special Investigation in Bioimaging and Biosensing (i.e., independent research with faculty for credit)

Computational Modeling and Analysis Concentration

Fall Semester

- BENG 5200: Physiological Systems
- BENG 5410: Physical and Chemical Basis of Biosensing
- ENAS 5000: Mathematical Models I
- BENG 4475: Computational Vision and Biological Perception

Spring Semester

- BENG 5849: Biomedical Data Analysis
- BENG 5823: Data and Clinical Decision-Making

- CPSC 5220: Deep Learning Theory and Applications
- BENG 5990: Special Investigation in Computational Modeling and Analysis (i.e., independent research with faculty for credit)

Biomolecular Engineering and Systems Biology Concentration

Fall Semester

- BENG 5200: Physiological Systems
- PHYS 5610: Modeling Biological Systems I
- BENG 5690: Single Cell Biology, Technologies, and Analysis
- BENG 5630: Immunoengineering

Spring Semester

- BENG 5724: Topics in Computational and Systems Biology
- CPSC 5220: Deep Learning Theory and Applications
- BENG 5350: Biomaterial-Tissue Interactions
- BENG 5990: Special Investigation in Systems Biology (i.e., independent research with faculty for credit)