

BIOMEDICAL ENGINEERING, MS

More Information: <https://engineering.case.edu/ebme/>

Degree: Master of Science (MS)

Field of Study: Biomedical Engineering

Program Overview

The objective of the graduate program in biomedical engineering is to educate biomedical engineers for careers in industry, academia, health care, and government and to advance research in biomedical engineering. The department provides a learning environment that encourages students to apply biomedical engineering methods to advance basic scientific discovery; integrate knowledge across the spectrum from basic cellular and molecular biology through tissue, organ, and whole-body physiology and pathophysiology; and to exploit this knowledge to design diagnostic and therapeutic technologies that improve human health. The unique and rich medical, science, and engineering environment at Case enables research projects ranging from basic science through engineering design and clinical application.

Numerous fellowships and research assistantships are available to support graduate students in their studies.

Graduate Policies

For graduate policies and procedures, please review the School of Graduate Studies section of the General Bulletin.

Program Requirements

The MS in Biomedical Engineering program provides breadth in biomedical engineering and biomedical sciences with depth in an engineering specialty. In addition, students are expected to develop the ability to work independently on a biomedical research or design project. While there is no set of core required courses, the MS requires a minimum of 30 credit hours. Every program of study must be approved by the graduate education committee.

With an MS Thesis-Focused Track, a minimum of 18 to 21 credits hours is needed in regular course work and 9 to 12 hours of thesis research EBME 651 is needed.

With an MS Project-Focused Track a minimum of 24 to 30 credit hours is needed in regular course work, and 0 to 6 credit hours of project research EBME 695 is needed.

The MS Course-Focused Track requirements consist of the completion of 30 hours of approved coursework at the 400-level or higher, including satisfactory completion of the culminating course focused experience such as: EBME 471 or ENGR 600.

Students should consult with their academic advisor and/or department to determine the detailed requirements within this framework.

Translational Health Technology Specialization

This Master of Science in Biomedical Engineering is designed to develop expertise in translating biomedical ideas into clinical implementation. This degree can be completed in one year for full-time students. It is offered by the Biomedical Engineering department in the Case School

of Engineering and takes advantage of the large pool of expertise in Biotechnology on the campus of Case Western Reserve University. It combines aspects of **bioengineering**, **marketing**, **entrepreneurship**, and **bioregulatory affairs** with **ethics** and **experimental design**. The Translational Health Technology specialization will require students to take a minimum of 30 credit hours including a design project.

Prerequisite: Biomedical Engineering Degree or equivalent or consent of program director.

Special Features:

- 26 credit hours plus 4 credit hours of project
- Portions available through Distance Learning
- Flexible program to accommodate a professional's schedule
- Lock-Step Program; Duration 1 year: August to August
- Projects can be done within the place of work

Course curriculum is as follows:

Code	Title	Hours
EBME 491	Introduction to Translational Health Technology	2
PQHS 431	Statistical Methods I	3
BETH 503	Research Ethics and Regulation	3
EBME 473	Fundamentals of Clinical Information Systems	3
EBME 450	Biomedical Engineering Entrepreneurship	3
EBME 472	BioDesign	3
EBME 602	Special Topics (Health System Regulatory Affairs - 3 crs.)	3
EBME 695	Project M.S.	4
Total Hours		24

For the remaining 6 credit hours, students can choose from any 400-level engineering course or biomedical engineering course for which prerequisites are met and approved by the student's advisor or a program director.

Dual Degree Options

- Biomedical Engineering, MS/Medicine, MD