

# BIOMEDICAL ENGINEERING, MS/MEDICINE, MD

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**Degree:** Master of Science (MS)

**Major:** Biomedical Engineering

**Program Information:** [bulletin.case.edu/engineering/biomedical-engineering/biomedical-engineering-ms/](http://bulletin.case.edu/engineering/biomedical-engineering/biomedical-engineering-ms/)

**Degree:** Doctor of Medicine (MD)

**Program Information:** [bulletin.case.edu/medicine/programs/](http://bulletin.case.edu/medicine/programs/)

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## Program Overview

The MD/MS program is available to qualified medical students from the Case School of Medicine and the Cleveland Clinic Lerner College of Medicine of Case Western Reserve University. Students in this program receive some credit for their medical school studies in completing the MS degree. There are specific admission requirements.

The MD/MS degree is open to Case School of Medicine students in the Cleveland Clinic Lerner College of Medicine (CCLCM) or the University Program (UP), which will award the MD component of the dual degree. An undergraduate degree in engineering is desirable for students entering this program, but other students with adequate undergraduate preparation (calculus with differential equations, physics, chemistry, and electronic circuits) will be considered. Additional undergraduate courses in instrumentation and signals/systems would be helpful. Students with an insufficient background will be admitted conditionally until they take the remedial undergraduate courses. Remedial courses will not count toward the MS requirements.

Interested students should submit their applications through the BME department, as the department taking responsibility for program management. Students will normally apply to the program during their first year of medical school. Students should submit their medical school application instead of a separate graduate school application, including MCAT scores instead of GRE scores. The application should include a letter specifying the intended track, the department/major field designation, and a statement of purpose for seeking the combined degree.

## Program Requirements

The MS requirements are the same as the rest of the Case School of Engineering Thesis-Focused Track MS degree, i.e., 30 credit hours including nine to twelve hours of thesis registration (EBME 651). Please note that only the Thesis-Focused Option is available to MS/MD students. Students must complete the normal MD requirements in either the UP or CCLCM Program. Portions of the medical school curriculum earn graded credit toward the MS portion of this degree. Specifically, students in the University Program register for Integrated Biological Science courses (IBIS 401), as in the MD/PhD program. Students in the CCLCM Program enroll in the 6-credit IBIS 434 Process of Discovery course in the second year of the CCLCM curriculum. Six credit hours of these medical school courses are applied to the MS component of the dual degree. The balance of required formal courses (12-15 hours or 4-5 courses) must be graduate level engineering concentration courses that provide rigor and depth in a field of engineering relevant to the area of research. All courses must be listed on the BME Program of Study, which must be submitted and formally approved by the BME Graduate Education Committee

and subsequently transmitted to the School of Graduate Studies. The Program of Study must be approved prior to registration for the second engineering course. Students must earn a minimum of a B grade in each graduate engineering course, and have a minimum overall GPA of 3.25.

Summary of the requirements

6 hrs Life science courses (medical school curriculum)

12 hrs (4 courses) in biomedical engineering

12 hrs of thesis research (EBME 651)

Graduation requirement: 30 hrs, Thesis defense

<http://engineering.case.edu/ebme/academics/graduate/current-students/>

For more detailed information on this program, please see

[http://casemed.case.edu/admissions/education/dual\\_programs.cfm?program\\_id=11](http://casemed.case.edu/admissions/education/dual_programs.cfm?program_id=11)