

# BIOMEDICAL ENGINEERING, MS/MEDICINE, MD

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

**Major:** Biomedical Engineering

Biomedical Engineering (MS) Program Information

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

Medicine (MD) Program Information

Summary of the requirements

6 credit hours Life science courses (medical school curriculum)

12 credit hours (4 courses) in biomedical engineering

12 credit hours of thesis research EBME 651

Graduation requirement: 30 credit hours, Thesis defense

Please review the MD/MS dual degree website for additional information.

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## Program Overview

The MD/MS degree is open to Case School of Medicine students in the Cleveland Clinic Lerner College of Medicine (Lerner College Program) or the WR2/University Program, which will award the MD component of the dual degree. Students in this program receive some credit for their medical school studies in completing the MS degree. There are specific admission requirements. 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 9-12 credit 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 University Program or College 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 IBIS 401, as in the MD/PhD program. Students in the College Program enroll in the 6 credit hour IBIS 434 in the second year of the College Program curriculum. 6 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 credit 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.