

Master of Engineering in Biomedical Engineering

Guide for MIT Undergraduates

Should I consider the Master of Engineering in Biomedical Engineering (MEBE) degree?

The goal of the MEBE is to educate students in the application of fundamental engineering principles to solve challenging problems in biology and medicine. This program will educate individuals prepared for leadership positions in the medical products, pharmaceutical or biotech industries. A secondary objective is to provide students who may be considering either a medical degree or a doctorate in biological engineering or medical engineering the opportunity to learn more about these fields.

Many students have to decide between a doctoral program and the MEBE program. You should assume that if you are admitted to MEBE, the chances are good you would also be admitted to a top doctoral program. Therefore, you should not consider the MEBE program as a “safety” application. On the other hand, if you are truly undecided about whether a Master’s degree or doctorate better meets your career objectives, then you should seriously consider applying. There is no penalty to changing your mind once admitted.

When should I apply?

Applications are due in May of your junior year. Students not on a typical schedule should contact one of the program co-directors for guidance. Note that not all of the requirements for the MEBE program need be completed by the time you apply. We merely expect that they will be completed by the end of your junior year. Please see the next item for some further suggestions.

What are my chances for admission?

Admission standards are high for both tracks of the MEBE program, comparable to the standards for our doctoral programs. Students typically have a GPA of about 4.2 or better, however other factors, e.g., research experience, strong letters, can make a significant difference and compensate, in part, for a lower GPA.

What courses should I take?

The admissions committee looks for evidence of a strong interest in bioengineering (e.g., participation in the minor, bioengineering UROPs, coursework in biology or biochemistry for an engineering major). Students majoring in biology should be sure to take (and do well in) at least one, and preferably more than one, engineering subject prior to applying to demonstrate their ability to handle core engineering material.

Engineering majors applying for the Biological Engineering Track would do well to take 7.02 since it can be quite time consuming and would take time away from your research during your 5th year. Also, seniors are advised to take one of the core subjects during their senior year, if possible, both so that they can get to know some of the BE graduate students, and to get a taste of graduate coursework.

How do I choose a thesis supervisor and project?

Formal selection occurs during Spring Term of your senior year, but you should begin to explore possibilities in Fall Term. The Biological Engineering Division runs a series of faculty seminars to introduce the various research opportunities, primarily for the new graduate students but also the entering MEBE students.

Is funding available?

The simple answer is “no”, but there’s more to it than that. Most MEBE students have been able to find support as a Research Assistant that covers tuition plus a stipend. Keep in mind, though, that if you do obtain an RA, you are limited to no more than 24 units of coursework per term. That means that if you still want to finish in one calendar year, you must take one of the MEBE requirements during Spring Term senior year, 24 units both terms of your 5th year, and 6 units during IAP (**HST.181 is one example**). And keep in mind, that in order to count for graduate credit, none of these subjects can be used to satisfy any undergraduate requirement. If this doesn’t work for you, then the program will take more than one year.

What are the expectations of the research I do?

Keep in mind that although the 5th year is, in many ways, an extension of your undergraduate education, the expectations of you in terms of research and commitment are very different from a UROP project. Students frequently work as many as 60 hours per week in the lab while taking two subjects, especially if they hope to finish in one calendar year. MIT undergrads often fail to make the transition to “serious” research quickly enough, and find that they cannot complete their thesis on time.