

Biomedical Engineering (MSE)

The biomedical engineering program is interdisciplinary, with a faculty that includes members of the Dell Medical School, College of Natural Sciences, the Departments of Kinesiology and Health Education, Chemistry and Biochemistry, Psychology, Biomedical Engineering, and several other departments in the Cockrell School of Engineering. In addition, several faculty members from the University of Texas Health Science Center at San Antonio, the University of Texas Health Science Center at Houston, and the University of Texas MD Anderson Cancer Center serve on the Graduate Studies Committee and supervise biomedical engineering students.

The current research of this faculty is focused in the following areas: biomedical imaging and instrumentation; cellular and biomolecular engineering; computational biomedical engineering; and molecular, cellular, and tissue biomechanics. Research activities embrace such topics as bioinstrumentation, modeling and control of biological systems, nerve fiber regeneration, biomedical computer and information technology, biomechanics, cell and tissue mechanics, thermal processes, musculoskeletal modeling, acquisition and analysis of in vivo and ex vivo spatial human biomechanics data, acquisition of physiological data by noninvasive means, cell and tissue engineering, design and testing of novel fluid and drug delivery systems, effects of laser radiation on biological material, laser applications in medicine, coherence imaging of biological materials, pulsed photothermal tomography, biorheology, visual system instrumentation, computer vision, production and purification of genetically engineered proteins, DNA and drug delivery, cell-electronic interfaces, acquisition and processing of neurological signals, neuroprostheses, applications of finite element modeling in medicine, acoustics and ultrasound, image processing, thermography, hyperthermia, genomic signal processing, biological and medical informatics, and nanotechnology.

The Master of Science in Engineering and the Doctor of Philosophy degree programs include a core curriculum and courses from one or more areas of specialization selected with the approval of the graduate advisor. Specializations are offered in the following four areas: biomedical imaging and instrumentation; cellular and biomolecular engineering; computational biomedical engineering and bioinformatics; and molecular, cellular, and tissue biomechanics. The graduate advisor and the Executive Committee of the Graduate Studies Committee must approve deviation from the prescribed curriculum.

Graduate Handbook

Graduate handbook information is updated and maintained by each program. Graduate handbooks are available within each program's office and [online](#). Please contact the program with concerns or questions.

Admission

The graduate advisor and the Admissions Committee make all admission decisions. Standards for entrance into the program exceed the minimum standards established by the University. Students must have a bachelor's degree with the following coursework or equivalent knowledge: freshman biology, freshman inorganic chemistry, physiology, differential equations, probability and statistics, and calculus-based physics. An applicant with a degree in an area other than engineering must take specified preliminary coursework before applying to the graduate program in biomedical engineering. The coursework does not need to be completed at UT Austin. Information about the admission process is given [online](#).

Admission decisions are based on a careful review of all aspects of each applicant's file, including scores on the Test of English as a Foreign Language, if needed, grade point average, letters of recommendation, résumé, personal statement, transcripts, previous research or work experience, and contributions to the broader impacts of the field. Only the most qualified applicants are accepted. Graduate Record Examination (GRE) scores are not considered as part of the application file and applicants are not advantaged in the admissions process by submitting GRE scores. All applications received by the applicable deadline are reviewed holistically. The number of students admitted each semester depends on the availability of supervising faculty members to provide research facilities and possible financial support. Students are admitted for doctoral study. Students interested in a terminal master's degree are required to obtain faculty nomination before applying. Admission is offered for fall entry only.

Admission into the integrated Bachelor of Science in Biomedical Engineering/Master of Science in Engineering degree is only open to current biomedical engineering undergraduate students at The University of Texas at Austin.

All applicants whose native language is not English must submit a score on the Test of English as a Foreign Language (TOEFL), unless exempt. More information is given [online](#).

Total Hours Required: 30 Requirements

The master's degree requires at least 30 semester hours of coursework, including six hours in the thesis course and 18 hours of biomedical engineering coursework. The remaining six semester hours can be selected from courses outside the field of biomedical engineering. These additional courses must be logically related to the student's program and must be approved by the graduate advisor.

A thesis is normally expected; however, with the consent of the graduate advisor, the student may follow a degree plan that includes a report or one with neither thesis nor report. The report option requires 30 semester hours of coursework, consisting of six courses in the major, three courses in supporting work, and three hours in the report course. The plan without thesis or report requires 30 semester hours of coursework, consisting of at least six courses in the major and up to four courses in supporting work.

Code	Title	Hours
All students must also follow the requirements and policies below:		
Graduate Natural Sciences Requirements		
Graduate University Requirements		

Integrated Bachelor of Science in Biomedical Engineering/Master of Science in Engineering Program

The integrated degree program results in simultaneously awarding a Bachelor of Science in Biomedical Engineering (BSBiomedE) and a Master of Science in Engineering (MSE) degree offered by the graduate program in biomedical engineering. The objective of the Integrated BSBiomedE/MSE Program is to enable prepared undergraduates in Biomedical Engineering to earn two degrees in a shortened time period. By applying AP and Credit by Exam courses, having students take recommended summer courses, and allowing seniors to enroll in graduate-level engineering courses reserved for graduate credit, the program enables graduates to complete both degree requirements in five years.

Graduates of the integrated program will receive the BSBiomedE and MSE degrees simultaneously after successfully completing the 126 SCH for the BSBiomedE and 30 SCH for the MSE, a total of 156 SCH. It is expected that students in this program will graduate with both degrees in a total of five years to completion.

Information regarding the integrated program requirements and policies may be obtained from the Biomedical Engineering Academic Advising Office in BME 3.308.

Graduate degrees in biomedical engineering have been offered by the University since 1974. The undergraduate degree program and the Department of Biomedical Engineering were established in 2001. The department fosters a unique environment in which scholars and scientists may excel in both fundamental research and its translation to clinical applications.

The mission of the UT Austin graduate program in biomedical engineering is to educate students in the fundamentals of engineering and science as they affect biology and medicine and to perform multidisciplinary, disease-oriented research at the molecular, cellular, organ, and systemic levels. The program aims fully to integrate biology and engineering research and education at the graduate level.

The graduate program has approximately 130 students, with backgrounds in biology, chemistry, physics, and various engineering disciplines. Students come from all over the United States and the world to gain unique knowledge and experience. Apart from coursework and research in some of the world's premier laboratories, there are many opportunities for personal and professional development through interaction with industry professionals, conference attendance, and seminars with leaders in the field.

This program has been designated as a STEM-eligible degree program, as defined by the Department of Homeland Security.