Bachelor of Science in Biomedical Engineering

Biomedical engineering is the application of engineering principles and methods to define and solve problems in medicine and biology. Students choose the biomedical engineering field to be of service to people, for the challenge of working with living systems and to apply advanced technology to healthcare delivery.

Careers in Biomedical Engineering

Satisfying biomedical engineering careers can be found in industrial, healthcare, academic and government settings. The typical biomedical engineer will work in a team environment that may include engineers, clinicians and specialists in both the physical sciences and the life sciences.

High School Preparation

Engineering education requires strong high school preparation. Students interested in a biomedical engineering path should have at least one semester of trigonometry and at least one year each of elementary algebra, intermediate and advanced algebra, plane geometry, chemistry and physics, to develop their competencies to the highest possible levels to prepare them to move into demanding college courses in calculus, calculus-based physics and chemistry for science majors. It’s also essential that students have the competence to read and comprehend rapidly, and to write clearly and correctly.

Biomedical Engineering at UT Dallas

A degree in biomedical engineering provides students with a strong foundation in engineering, mathematics, chemistry and biology and teaches them how to solve complex engineering problems in medicine. Rigorous lecture courses provide students the knowledge necessary to succeed in biomedical engineering careers, medical school and graduate school. Laboratory courses engage students to solve complex biomedical engineering problems, communicate effectively and work in complex and dynamic teams.

A career in biomedical engineering offers the opportunity to work in an exciting and rapidly changing technical world while directly impacting the quality of life for millions suffering from a host of medical conditions. Biomedical engineers connect teams of clinicians, researchers, and traditional engineers to translate patient needs into engineering solutions.

“Few professions require individuals with the intellectual capacity, creativity, technical understanding, and social skills to succeed like biomedical engineering,” said Dr. Robert Rennaker, Bioengineering Department Head and Texas Instruments Distinguished Chair in Bioengineering. “The best and brightest are needed to solve the healthcare challenges facing us. Biomedical engineers working with health care providers, corporate leaders, researchers, and government officials will solve these problems, making biomedical engineering one of the most rewarding and challenging careers one could choose to pursue.”

Internships and Fast-Track

The Erik Jonsson School operates one of the largest internship and cooperative education programs of its kind, averaging more than 1,100 undergraduate and graduate student placements a year at Dallas-area high-tech companies, including Texas Instruments, Intel, Raytheon, Alcatel-Lucent and IBM.

The Fast-Track Program enables exceptionally gifted undergraduate students to include up to 15 hours of master’s level courses in their undergraduate degree plans. When Fast-Track students graduate with a bachelor’s degree, they are automatically admitted to graduate school at UT Dallas. The hours required to complete the master’s degree are reduced by up to 15 hours by the number of Fast-Track graduate hours completed. So a Fast-Track undergraduate who passed 12 hours of graduate coursework would have only 21 hours of graduate coursework left in order to complete a master’s degree.

Erik Jonsson School of Engineering and Computer Science

Strategically located in the Telecom Corridor, home of the second-largest high-tech economy in the U.S., the Jonsson School recently completed a major public-private initiative that greatly expanded its capabilities and included construction of a new state-of-the-art 220,000-square-foot interdisciplinary research building.
With nearly 150 tenured/tenure-track faculty members, 5,800 students, and almost $47 million in research funding, the Jonsson School has six academic departments:

- Bioengineering
- Computer Science
- Electrical Engineering
- Materials Science & Engineering
- Mechanical Engineering
- Systems Engineering

In addition, the school offers a minor in nanoscience and technology.

**Degrees Offered**

**Bachelor of Science**: Biomedical engineering, computer engineering, computer science, electrical engineering, mechanical engineering, software engineering

**Master of Science**: Biomedical engineering, computer engineering, computer science, electrical engineering, materials science and engineering, mechanical engineering, software engineering, systems engineering and management, telecommunications engineering

**Doctor of Philosophy**: Biomedical engineering, computer engineering, computer science, electrical engineering, materials science and engineering, mechanical engineering, software engineering, telecommunications engineering

**Research**

Research efforts under way at the school involve such cutting-edge technology as:

- Carbon nanotubes
- Micro-electromechanical systems
- Semiconductor design and manufacturing
- Wireless networking
- Cochlear implant technology
- Medical imaging
- Speech recognition
- Cybersecurity
- Organic electronics
- Materials characterization
- Physical, chemical and biosensors

**Additional Facts**

- The Jonsson School’s recent growth surge has helped propel its undergraduate programs into *U.S. News & World Report*’s annual rankings of the nation’s top schools of engineering.

- The school’s graduate program has continued its rise through the national *U.S. News* rankings, now placing among the top 45 public university graduate programs and ranking third in Texas.

- The Jonsson School has significantly increased the size of its faculty in recent years, hiring top recent graduates of Stanford University, Cornell University, Purdue University, Georgia Tech and UCLA as well as seasoned professionals from Rutgers University, USC, UC Davis, and from companies such as Freescale Semiconductor and Texas Instruments.

- The Jonsson School features a variety of student organizations that are actively involved in both academic and social activities. Completely student-run, these include the Association for Computing Machinery, the Game Development Group, the National Society of Black Engineers, a chapter of the scientific research society Sigma Xi, the Society of Hispanic Professional Engineers and the Society of Women Engineers.


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