

Richard and Loan Hill Department of Biomedical Engineering

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Biomedical engineering is a field of engineering science that develops and applies quantitative analysis and design to living systems and hybrid systems containing living components. Biological systems are interesting, efficient and successful, but also highly complex; they are dynamic, nonlinear, self-repairing, and yet programmed to terminate. The classic engineering approach of measure-and-model must be carefully recast to deal with the complex nature of living systems, requiring biomedical engineers to balance analytical rigor with innovation.

Biomedical engineers are uniquely qualified to work at the interface between living and nonliving systems, enhancing our ability to analyze, repair or replace physiological substances or processes as needed in healthcare and research applications. Potential applications include creating engineered bone replacements, developing new tools for noninvasive imaging or diagnostics, and the design of molecules as new therapeutic drugs. Training in biomedical engineering prepares students for graduate school or industry, and is an excellent preparation for professional programs (medicine, dentistry, nursing, pharmacy and patent law). Exciting career opportunities exist for biomedical engineers at the BS level in the medical device, pharmaceutical and biotechnology industries, in hospitals, and in federal laboratories and agencies.

The department faculty routinely includes undergraduate students in world-class biomedical engineering research programs, and maintains strong interactions with faculty in the Colleges of Medicine, Dentistry, and Pharmacy, and the Department of Biological Sciences and other engineering disciplines. The undergraduate curriculum includes rigorous training in biomedical engineering fundamentals, including medical product development, complimented by significant course work in physiology, mathematics and chemistry. Each student must complete a program of required core courses and select an individualized course track in one specialized area (Neural Engineering, Cell and Tissue Engineering, or Bioinformatics) best suited to the student's interests. The department offers several elective courses to help prepare students for a variety of career paths, including launching start-up companies or careers

in industry or consulting. Internships, clinical immersion programs, design competitions, and several active professional societies are among the extracurricular activities available to students.

The department Mission Statement and the Educational Objectives for the Bachelor of Science in Biomedical Engineering can be found at the [departmental website](#).

Accreditation

The Richard and Loan Hill Department of Biomedical Engineering offers a program of study leading to the degree of Bachelor of Science in Biomedical Engineering that is accredited by the [Accreditation Board for Engineering and Technology](#).

Degree Program

- [BS in Biomedical Engineering](#)

Minor

- [Minor in Biomedical Engineering](#)