

# DEPARTMENT OF BIOENGINEERING

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Bioengineering involves the application of engineering tools and concepts to solve problems in biology or medicine. The impact of engineering on biomedicine is wide ranging, from advanced biomedical imaging technologies to discovering new diagnostic devices and targeted therapeutics. With an aging population, the growing costs of health care, and the impact of novel technology to fundamental understanding in biosciences, the demand for bioengineers is growing. This program provides students with a solid foundation in engineering while offering in-depth exposure to the life sciences. Bioengineering faculty members collaborate with colleagues at George Mason University and nearby institutions including Inova Health Center, and federal laboratories such as the Naval Research Laboratory, the National Institutes of Health Clinical Center, and the National Institute of Standards and Technology. Research areas include:

- biomechanics
- biomedical imaging
- neuroengineering
- computational neuroscience
- microfabricated devices
- nanomedicines
- biomaterials
- tissue engineering

## Available Programs

### Bioengineering, BS

The BS in Bioengineering is a challenging multidisciplinary training program with the goal of enabling graduates to be competitive for an entry-level position in the biomedical industry or to continue their education in graduate school or medical school. The curriculum provides a strong background in the biological and engineering fundamentals of bioengineering as well as upper level courses in areas of biomedical measurements, biomedical systems modeling, and bioinformatics. The department offers six concentrations: Bioengineering Healthcare Informatics, Bioengineering Prehealth, Biomaterial and Nanomedicine, Biomedical Imaging and Devices, Computational Biomedical Engineering, Neurotechnology and Computational Neuroscience. In addition the Bioengineering, BS program offers an Honors Program to outstanding students. Entry is by invitation and based on academic performance achieved at Mason.

### Bioengineering, MS

The Bioengineering, MS prepares students for research and professional practice in bioengineering and related fields. This program comprises four core areas: biomechanics, biomaterials, biomedical imaging, and neuroengineering while offering three different options. Students can choose to focus their graduate work toward a career in academia (thesis option), or in industry (practicum or coursework option).

### Bioengineering, PhD

The Bioengineering, PhD is a research-intensive, multifaceted program which is comprised of four different concentrations. Students can

choose to focus their graduate work in nanoscale bioengineering, neuroengineering, biomedical imaging or data-driven biomechanical modeling.

## Faculty

### Faculty Professors

Ascoli, Blackwell, Buschmann (chair), Cebal, Hoemann, Sikdar,

### Associate Professors

Bray, Ikonomidou, Peixoto, Wei

### Assistant Professors

Chitnis, Ross, Veneziano

### Affiliated Professors

Alshiek, Caldwell, Chung, Cohen, Cortes, Cressman, Demeter, Graling, Hamilton, Joiner, Kang, Katona, Liotta, Moran, Neville, Pancrazio, Pritz, Rangwala, Reyes-Hernandez, Seshaiyer, Shah, Shehu, Shenai, Shobeiri, Thompson, Vora, Wiener

## Programs

- Bioengineering Minor
- Bioengineering, BS
- Bioengineering, MS
- Bioengineering, PhD