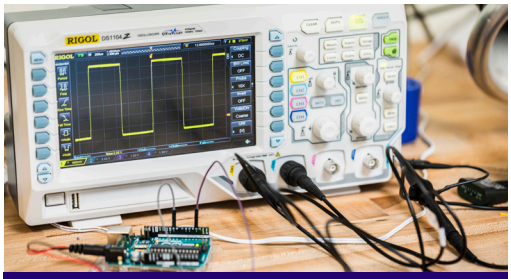
BIOENGINEERING

BIOENGINEERS ADDRESS UNMET CHALLENGES IN BIOLOGY, HEALTH AND MEDICINE TO IMPROVE LIVES AROUND THE WORLD.



QUICK FACTS

More than 90% of our students participate in undergraduate research.

BioE students join a cohort at the end of sophomore year, and progress together to graduation.

Past students are Goldwater, Luce, Rhodes & Gates Cambridge scholars; Bonderman fellows; Engineering Dean's Medalists and more.

WHAT DO BIOENGINEERS DO?

Bioengineering is a uniquely interdisciplinary field bridging engineering, biology, physical science and medicine. Students receive the tools, opportunities and experiences needed to work in multidisciplinary teams, and receive opportunities to engage in research with renowned UW faculty in the College of Engineering and the School of Medicine.

WHAT PROBLEMS ARE BIOENGINEERS TRYING TO SOLVE?

Bioengineers make a difference in healthcare. They apply an integrative and innovative approach to solve open-ended problems in biology, health and medicine. A few examples of the areas of focus at UW BioE are:

Neurorehabilitation - To improve the limited and minimally effective treatment options for neurological disorders like stroke, bioengineers ask:

- How can we better understand the neural mechanisms that cause these disorders? What technologies could rehabilitate and ultimately cure these conditions?

Diagnosing Disease - In search of ways to reduce the global burden of diseases like HIV, tuberculosis and the flu, bioengineers ask:

- How can we detect disease earlier, faster and inexpensively? Can we integrate diagnostic devices with smartphones?

Heart Failure - Heart attacks cause irreversible damage. As they seek to repair broken hearts, bioengineers ask:

- Can we re-engineer the heart to pump more efficiently? How can we design medical devices that the body does not reject?

WHERE DO BIOE ALUMNI WORK?

Industry and consulting – Around one-third of graduates work as engineers (application, biomedical, project, system, software, test), scientists (research, process development) and analysts (business, MRI, systems, analysts for innovations).	*Accenture, Allen Institute for Brain Science, Deloitte, EKOS, GE Healthcare, Juno Therapeutics, Just Biotherapeutics, Pacific NW National Laboratory, Philips, Sage Bionetworks, Seattle Children's Hospital, St. Jude Medical, Seattle Genetics, SonoSite, Stryker, U.S. Food and Drug Administration*
Medical school and health-related degrees – Many become successful medical, dental, pharmacy and osteopathic students and well-rounded healthcare professionals.	*Columbia Medical School, Harvard, Johns Hopkins, Northwestern, Stanford, Uniformed Services University, UCLA, University of Illinois, University of Pennsylvania, University of Washington Medicine and Dentistry, Yale School of Medicine*
Graduate education – Graduates are accepted to a broad range of top-rated national and international programs, such as law, business, public health, thesis and applied master's and Ph.Ds.	*Carnegie Mellon, Georgia Tech, Harvard, Northwestern University Kellogg School of Management, Stanford, University of Michigan, University of Pennsylvania Wharton School, University of Washington Foster School of Business and School of Law*

SPECIAL DESIGN PROJECTS

Recent projects include:

- 3D Printed Rods with Electrical Stimulation for Promoting Spinal Fusion
- Contrast-Enhanced Ultrafast Imaging for Liver Microcirculation
- Design of a Controlled Substance Waste Disposal System
- Engineering Complex Physiological Tissue Architectures In Vitro for Study of Structure-Function Relationship
- Neurons for the Study of Alzheimer's Disease

WHAT MAKES BIOE SPECIAL?

We are a small department. Students are placed in a cohort and progress sequentially through a core curriculum, with opportunities for hands-on research. UW BioE faculty and graduate students mentor our students in core and elective classes, and during their senior capstone. Seniors engage in an independent research and design or a team design capstone.

The UW student chapter of BMES, the professional bioengineering society, organizes social, academic and service events to build an inclusive community and offer professional development opportunities for the student body. Other BioE-related clubs and project-based teams, such as Bioengineers Without Borders, HuskyADAPT, BioExplore, DENATURED, iGEM, and Humans of BioE, offer students a chance to incorporate classroom learning to solve real-life community challenges.

Many BioE departmental committees include undergraduate student members, ensuring that student input is included in the department's decision-making process.

HOW CAN I LEARN MORE?

If you think UW BioE might be for you, there are many opportunities to explore. Consider taking a non-major class, such as BIOEN 215: Introduction to Bioengineering Problem Solving, ENGR 115: Engineering Transformation of Health, or BIOEN 509: Bioengineering Departmental Seminar.

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