FISCHELL DEPARTMENT OF BIOENGINEERING

A. James Clark School of Engineering
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The Fischell Department of Bioengineering at the University of Maryland is the home of a growing academic discipline, exciting interdisciplinary degree programs, and faculty and students who want to make a difference in human health care through education, research, and invention.

Health care is changing rapidly, moving toward more technological approaches to diagnosis, treatment, personalized and regenerative medicine, and the extensive use of data science. Biomedical engineering is steadily becoming the world's largest industrial sector, and as a result, there is an increasing demand both for doctors who are technically competent and for engineers who are properly trained in basic medical science.

To help meet these needs, we take advantage of the A. James Clark School of Engineering's location in a metropolitan area that is home to an expansive number of health care facilities, medical schools, biomedical research centers, and federal regulatory agencies. We have established relationships with the National Institutes of Health (including the National Institute of Biomedical Imaging & Bioengineering and the National Cancer institute), the National Science Foundation, and the U.S. Food and Drug Administration, as well as educational institutions such as the University of Maryland Baltimore (UMB) Schools of Medicine, Dentistry, and Pharmacy, and other universities locally and nationally. Our growing interdisciplinary faculty is dedicated to expanding our research collaborations.

We are also dedicated to the vision of engineering entrepreneurship —getting science out of the lab and into the hands of doctors, care providers and consumers. For example, we are a founding member of the FDA-funded Maryland Center of Excellence in Regulatory Science and Innovation (http://www.bioe.umd.edu/research/fda/), which focuses on modernizing and improving the ways drugs and medical devices are reviewed and evaluated.

We have a view of the human condition that is unlike many bioengineering and biomedical engineering departments in the country. Our thoughts and ideas are grounded first in biology. Our faculty and students think about biological systems: how they work, how they function, and how they interact with their environments. They think about how nature organizes information and materials into molecules, cells, tissues, organisms and ecosystems that sense and respond to physical and chemical cues. They try to understand processes that go astray, like those involved in disease. Armed with this knowledge, they use engineering principles to develop new technologies and devices that will change lives and improve human health throughout the world.

PROGRAMS

Major

- Biocomputational Engineering Major (https://academiccatalog.umd.edu/undergraduate/colleges-schools/engineering/bioengineering/biocomputational-engineering-major/)
- Bioengineering Major (https://academiccatalog.umd.edu/undergraduate/colleges-schools/engineering/bioengineering/bioengineering-major/)

ADVISING

The Fischell Department of Bioengineering is committed to student advising and aims to provide comprehensive curricular support to all of its students towards their academic success. Students will find that at various points during their academic careers, they may need a certain kind of guidance. Students may always begin by addressing their questions to bioe-undergrad@umd.edu, and we will point you in the right direction. Generally, advising is handled by one or a combination of the following: faculty advisor, departmental advisor, and/or college advisor.

Faculty Advising

All bioengineering and biocomputational engineering majors are assigned to a faculty advisor. Students are required to meet with their faculty advisors at least once per semester. For currently enrolled majors, the mandatory advising period occurs in the weeks prior to registration for the next semester. The advising meeting with the faculty member generally covers the following: course selection for upcoming semester, four-year planning, and career goals. Students should prepare for every advising meeting by completing and updating their major's Advising Worksheet.

Freshmen and transfers will be assigned to faculty advisors and notified during their first semesters. All other students may contact bioe-undergrad@umd.edu if they are not sure who their advisor is. For faculty contact information, please see the faculty list (http://www.bioe.umd.edu/faculty/).

Departmental Advising

Current and prospective transfer students may also need to meet with a departmental (staff) advisor. Some examples of departmental advising include: Benchmarks (academic progress), planning for study abroad, C.A.R.E (academic probation), double-major/double-degree planning, graduation audit (seniors), and additional help with four-year planning.

For departmental advising, please send an email including your name, UID, and general question to bioe-undergrad@umd.edu. All students seeking advising should read and make sure that they understand the policies and requirements stated in the BIOE Undergraduate Handbook (http://www.bioe.umd.edu/undergraduate/advising/references/).

College Advising

The Clark School's Engineering Academic Services (EAS) (https://eng.umd.edu/advising/) also provides a broad range of services and support for engineering students. Some policies are the oversight of the college, so your faculty or departmental advisor may at times refer you to a Clark School advisor. For example, transfer admission/transfer credit, 45-credit benchmark review, and permission to enroll at another institution are handled by the college.

OPPORTUNITIES

Undergraduate Research Experiences

The Bioengineering Department offers a two-year research based **Bioengineering Undergraduate Honors Program**. Interested students should apply to the Honors Program in the spring of their sophomore year. Those accepted into the program will begin research in their junior year. For more information, please see: http://bioe.umd.edu/undergraduate/honors/.

The Office of Undergraduate Research also assists students in finding on and off campus research opportunities, see: http://our.umd.edu.

Honors Program

The Fischell Department of Bioengineering Undergraduate Honors Program is a research-oriented, thesis-based enrichment experience that serves to augment the curriculum by providing practical, hands-on learning opportunities. The primary goal of the Honors Program is to develop BIOE graduates who will be among the most competitive applicants for graduate and medical school programs, as well as industry jobs. Toward this end, the program provides exceptional undergraduate students with training in academic and professional pursuits while offering a formal mechanism to be recognized for scholarly achievements.

For more information, including program admission and completion requirements, see http://bioe.umd.edu/undergraduate/honors/.

Student Societies and Professional Organizations

BMES-UMD is the University of Maryland, College Park chapter of the Biomedical Engineering Society (BMES). BMES-UMD's mission is to unite and promote the future of the biomedical engineering profession; and to offer rising biomedical engineers the chance to establish leadership, publish their work, and participate in a wide range of activities that will enhance their careers. For more information, visit https://sites.google.com/view/umd-bmes/home (https://sites.google.com/view/umd-bmes/home/).

Alpha Eta Mu Beta (AEMB) is the National Biomedical Engineering Honor Society, and the University of Maryland Fischell Department of Bioengineering established its chapter in Spring 2015. For more information, visit http://umdaemb.weebly.com.

The UMD chapter of the Society for Biomaterials was established in 2018. The Society for Biomaterials is a national organization that seeks to unite professionals from different disciplines under the common goal of advancing biomaterials research.

The Engineering World Health Chapter at the University of Maryland seeks to inspire and mobilize the biomedical engineering community to improve the quality of healthcare in vulnerable communities. For more information, visit http://ewhatumd.wixsite.com/ewh-umd/.

Scholarships and Financial Assistance

The university and the A. James Clark School of Engineering offer a range of financial support to talented undergraduate students enrolled at the School. Offerings include the A. James Clark Endowed Scholarship fund and the Benjamin T. Rome Scholarship. Our program is competitive, with awards made on the basis of merit, financial need, and other factors.

For more information on a variety of scholarships, please visit the Clark School of Engineering (https://eng.umd.edu/scholarships/)'s website.

In addition, the Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, please visit http://financialaid.umd.edu.

We also have several departmental annual awards and scholarships for which students may apply and be selected based on their scholastic achievements, service to the department and the profession. These awards are open to juniors and seniors in the program. Information on these annual awards and scholarships may be obtained from the faculty advisors in the department.

Awards and Recognition

- Fischell Dept of Bioengineering Outstanding Junior Award
- Fischell Dept of Bioengineering Outstanding Senior Award
- Fischell Dept of Bioengineering Outstanding Research Award
- Fischell Dept of Bioengineering Outstanding Leadership Award
- Fischell Dept of Bioengineering Outstanding Service Award
- Seymour & Faye Wolfe Scholarship: Bioengineering student
- Jeffrey C. and Sandra W. Huskamp Scholarship: Bioengineering student

B.S./M.S. Program

The Fischell Department of Bioengineering's combined B.S./M.S. program provides undergraduate students the opportunity to complete the Bachelor of Science (B.S.) and Master of Science (M.S.) degrees in approximately five and a half years by double counting graduate coursework toward the B.S. and M.S. degrees. Ideal candidates for this program are high achieving, research-oriented undergraduate students interested in pursuing and developing research projects that will translate to the graduate level and, ultimately, into a master's thesis. For more information, visit http://bioe.umd.edu/undergraduate/bs-ms-program/.