GRADUATE PROGRAM

BIOENGINEERING

PITT | SWANSON ENGINEERING

BIOENGINEERING

GRADUATE TRACKS

- Bioimaging and Signals
- Biomechanics
- Medical Product Engineering
- Molecular, Cellular, and Systems Engineering
- Neural Engineering
- Tissue Engineering and Regenerative Medicine

TRAINING GRANT PROGRAMS

BIOENGINEERING IN PSYCHIATRY (BiP) – engineering.pitt.edu/BIP/
T32 MH119168, Contact PI: Tamer Ibrahim

The goal of BiP is to provide students with a solid foundation in quantitative and computational science and in the models and constructs of mental health research. Consistent with the NIMH strategic plan, the program envisions an increasing role for quantitative and computational science in psychiatric research. Trainees in this program will be uniquely qualified to help lead development and use new technical bioengineering approaches to address mental health research challenges.

BIOMECHANICS IN REGENERATIVE MEDICINE (BiRM) – engineering.pitt.edu/BiRM/
T32 EB003392, Contact PI: Savio Woo

The goal of BiRM is to provide a solid foundation upon which to build a productive and independent career in biomechanics and regenerative medicine. This is accomplished through integrating contemporary cell and molecular biology within the context of a rigorous biomechanics curriculum as an approach to increasingly interdisciplinary research problems.

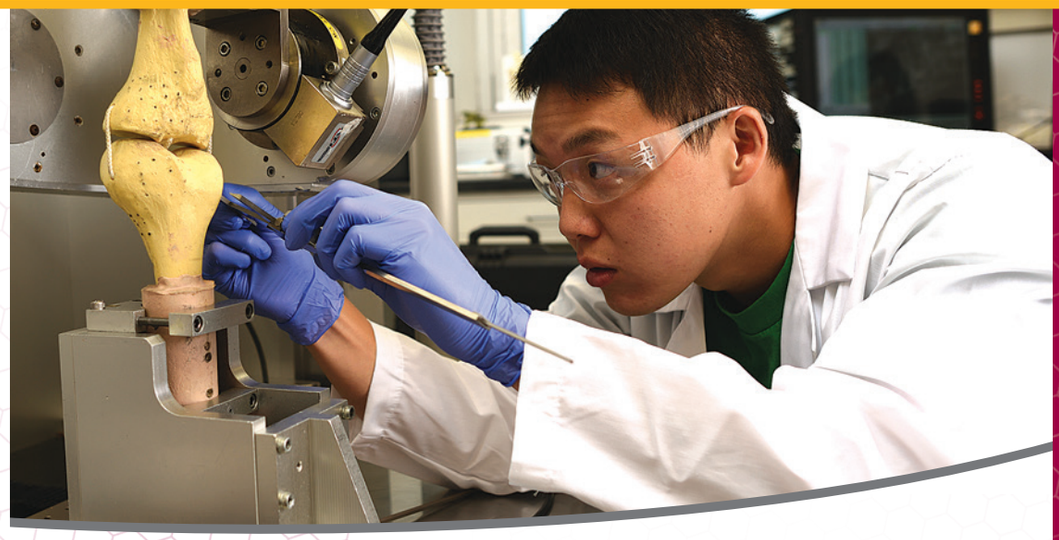
CARDIOVASCULAR BIOENGINEERING TRAINING PROGRAM (CBTP) – engineering.pitt.edu/CBTP/
T32 HL076124, Contact PI: Sanjeev Shroff

The goal of CBTP is to educate talented students from engineering and other quantitative sciences for careers in cardiovascular biomedical research. The program focuses on 1) a basic understanding and quantitative characterization of native and perturbed cardiovascular function at various levels of organization; 2) imaging for functional assessment at various levels of organization; and 3) design and optimization of artificial devices and constructs (mechanical, tissue-engineered, or hybrid).

CELLULAR APPROACHES TO TISSUE ENGINEERING AND REGENERATION (CATER)
mirm-pitt.net//professional-development/cater/
T32 EB001026, Contact PI: Paul Monga

The goal of CATER is to provide a solid foundation upon which to build a productive independent career in cellular- and tissue-based therapy for human disease and injury (i.e. regenerative medicine). The training program incorporates faculty from the Swanson School of Engineering, the McGowan Institute for Regenerative Medicine, and the School of Medicine to provide a unique, cross-disciplinary educational and research experience in regenerative medicine.

For complete details or degree requirements and course offerings, visit engineering.pitt.edu/bioengineering/graduate.



DEGREE PROGRAMS AND CERTIFICATES

THE DOCTOR OF PHILOSOPHY IN BIOENGINEERING trains individuals to develop authoritative knowledge and expertise through intensive research experiences, complemented with didactic coursework. PhD candidates publish their thesis work in leading peer-reviewed journals and present their research at national and international meetings. The department takes pride in the number of successful predoctoral fellowships its students have earned from the National Institutes of Health, the National Science Foundation, the American Heart Association, and other prestigious organizations.

THE MD/PhD IN BIOENGINEERING supports a well-integrated basic and clinical sciences predoctoral training program. The training program links 17 PhD programs in six graduate schools at the University of Pittsburgh and Carnegie Mellon University. Participants in the MD/PhD program are among the most successful and productive graduate students in the department and provide an important link between the engineering and medical communities at the University of Pittsburgh.

THE DOCTOR OF PHYSICAL THERAPY (DPT)/PhD IN BIOENGINEERING PROGRAM combines the professional DPT leading to licensure as a physical therapist with a PhD in bioengineering that will prepare the student to become an independent clinician-investigator. The program integrates clinical and research experiences, with mentoring from faculty in the Departments of Physical Therapy and Bioengineering.

THE MASTER OF SCIENCE IN BIOENGINEERING (RESEARCH TRACK) is designed for individuals seeking depth through research and didactic coursework in a focused area. Candidates are required to prepare a thesis.

THE PROFESSIONAL MASTER OF SCIENCE IN BIOENGINEERING – MEDICAL PRODUCT ENGINEERING is offered in conjunction with the Swanson School's Center for Medical Innovation (CMI). The program emphasizes preparation for a career in the medical device industry through hands-on, practical experience in medical product design and development, development of advanced engineering skills, and instruction in professional affairs and practices in medical engineering. MS-MPE students are not required to prepare a thesis.

THE PROFESSIONAL MASTER OF SCIENCE IN BIOENGINEERING – NEURAL ENGINEERING FOCUS is a non-thesis program that delves into the biology of the nervous system and the engineering practices that can build computational models and clinical devices to help treat disorders.

THE MBA/MASTER OF SCIENCE IN ENGINEERING DUAL DEGREE PROGRAM, offered jointly by the University of Pittsburgh's Joseph M. Katz Graduate School of Business and Swanson School of Engineering, positions individuals with an undergraduate degree in engineering or the hard sciences to take a management role in a company that has a significant engineering and/or technological focus.

THE GRADUATE CERTIFICATE IN MEDICAL PRODUCT INNOVATION, offered in conjunction with CMI, reflects the multidisciplinary nature of medical innovation and is designed to educate engineering graduate students at the MS and PhD levels in clinical, engineering, business, and legal aspects of the medical device design and development process. Students from the health sciences (residents, fellows, and clinicians), law, engineering, and business programs are eligible to participate.

BIOENGINEERING

Program Description

The bioengineering graduate program at the University of Pittsburgh Swanson School of Engineering combines training in fundamentals and hands-on experiences to prepare students for careers in academia, patient care, industry, or entrepreneurship. The bioengineering graduate program benefits greatly from interdisciplinary research partners within the Swanson School as well as with other academic departments at the University, especially Pitt's renowned schools of the health sciences. Graduate students also benefit from the long-standing and unique relationship with the University of Pittsburgh Medical Center (UPMC) and have the opportunity to work directly with some of its leading physicians and surgeons.

ADMISSIONS AND FINANCIAL AID

Application requirements are distinct for each graduate program within the Department of Bioengineering. For requirements, please visit **engineering.pitt.edu/bioengineering/graduate/admissions**.

For more information on the DPT/PhD program, please contact Patrick J. Sparto, PhD, at **psparto@pitt.edu**.

For more information on the MBA/Master of Science in Engineering dual-degree program, please visit **katz.business.pitt.edu/academics/mba/joint-dual-degree-mba/mbamaster-science-engineering**.

The application deadlines for each program are as follows:

- Research MS and PhD: December 1
- Professional Master of Science in Medical Product Engineering: December 1 (for fall admission) or June 1 (for spring admission)
- MD/PhD: December 1
- DPT/PhD: December 1

All graduate applications for the University of Pittsburgh must be submitted online. For more information about the application process and required application material, visit **engineering.pitt.edu/Admissions/Graduate/Admissions_Process**.

The Bioengineering department typically has ~150-175 graduate students (~130-140 PhD/MD-PhD/DPT-PhD) and provides about $7M each year in merit-based graduate student aid. The faculty is committed to mentoring graduate students and helping to secure financial assistance to support their education. Primary sources of support include individual faculty research grants and training grants (the department currently has four NIH T32 training grants). In addition, a number of our students hold prestigious external fellowships from institutions such as the National Science Foundation, the National Institutes of Health, and the American Heart Association. The department offers a workshop each year to help students successfully compete for such fellowships. While admission and financial aid decisions are made separately, all of our current full-time PhD students are financially supported, as has been the case for many years.

THE CITY IS OUR CAMPUS

One of the greatest benefits of a graduate engineering career at Pitt is living on our urban campus in Pittsburgh. The city goes by many nicknames – the Golden Triangle, the Steel City, the City of Bridges, the City of Eds and Meds, and the City of Champions. As a graduate student, you'll come to know it as home.

That's one of the great things about Pittsburgh: Even though it is a modestly sized city, it has all the amenities of a large U.S. city. World-class arts organizations, collegiate and professional sports teams, walkable neighborhoods, a diverse business climate, and consistent safety rankings make it a distinctive place to study and live. Pittsburgh has been recognized as the most livable city in the United States by *The Economist*, one of the best places in the world to visit by *National Geographic Traveler*, and even one of the top 10 most beautiful places in America by *USA TODAY Weekend Magazine*.

The quality of life for the average Pittsburgh resident also extends to its students. Housing is affordable and easily accessible from campus because the University provides fare-free access, with a valid Pitt ID, to all Port Authority of Allegheny County buses and light-rail transit in the city. Students also have access to discounted arts and entertainment tickets to everything from the opera to a Pittsburgh Penguins hockey game. If you are really adventurous, you can hop on your bike and ride the miles of rails-to-trails throughout the city as well as the Great Allegheny Passage from Pittsburgh to Washington, D.C. Otherwise, enjoy a quiet afternoon studying in one of the city's many public parks – most of which are a short walk or bus ride away.

Just like your academic career at Pitt, your life in Pittsburgh will be an experience to remember.

University of Pittsburgh | Swanson School of Engineering

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For admissions and application information
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engineering.pitt.edu/bioengineering