TRAILBLAZERS

Many notable figures in industry and research earned degrees from the Department of Bioengineering. Here are some outstanding examples of how our alumni are changing the world.

- Wayne Quinton (BS '58) is an innovator whose contributions to the world of medicine have been numerous. He started Quinton Instruments in 1953, building the first treading machine designed specifically for cardiac testing, and in 1960 helped to develop the hemodialysis shunt, which made giving dialysis treatments to artificial kidney patients easier and safer. Quinton was the UW 2009 Alumnus Summa Laude Dignatus, the "Alumnus worthy of the highest praise." He is an affiliate professor at UW Bioengineering.

- Wayne R. Gombotz (PhD '88) is a leader in the pharmaceutical industry with over 20 years in executive management. Currently Chief Development Officer at Immune Design, Gombotz serves on advisory boards for the UW’s Microscale Life Sciences Center and the Washington Center for Advanced Materials Technology. He is the co-author of Current Trends in Monoclonal Antibody Development and Manufacturing.

- Jay Rubinstein, M.D. (PhD '88) is a model example of a bioengineer who straddles the line between doctor and researcher. He is the director of the Virginia Merrill Bloedel Hearing Research Center and professor in the department of Bioengineering and Otolaryngology. His research focuses on signal processing for cochlear implants and he is also known as a superb surgeon. He is the first doctoral student to graduate from UW Bioengineering.

- Christopher McInnes (PhD '92) was behind the research that provided the fundamental science underlying the technology associated with the Sonicare power toothbrush. His research included both clinical trials and laboratory studies. He worked for Optima Corp., makers of Sonicare, for 12 years and during his tenure saw the company grow from six employees to 600. He is currently doing advanced research for Pacific Bioscience Laboratories, makers of Clarisonic.

- David A. Basiji (PhD '97) honed his entrepreneurial skills as a UW student. He co-founded Arminis Corporation with technology developed in UW Bioengineering. He is co-inventor of the ImageStream system, a breakthrough technology for high speed imaging and analysis of cells in flow. While at UW, he developed an ultra-sensitive DNA and protein analysis platform for the Human Genome Project, a technology that was later commercially licensed to Oxford GlycoSciences. Basiji currently holds 37 U.S. Patents.

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- Joan Greve (BS '83) is a program manager at the Allen Institute for Brain Science. Greve previously lead Genentech, Inc’s MRI Group multi-modality imaging lab and was a core team member of Genentech’s Alzheimer’s disease program. She was a key figure in designing the strategy for initial phases of an Investigational New Drug filing with the FDA, eventually seeing an antibody to treat Alzheimer’s disease from the laboratory bench to the clinic. She is currently an associate editor for the Annals of Biomedical Engineering and was a National Science Foundation Fellow from 2002-2005.

- Arthur Chan (PhD '03) is the first person at UW Bioengineering to complete a doctorate on focused ultrasound ablation. His research resulted in three patents for an image-guided therapy device and received awards from Aulum and ASRM. Chan is currently a clinical affairs manager at Endo Pharmaceuticals. Prior to joining Endo, Chan led clinical marketing and education for InSightech, a medical device start-up. He was the recipient of a Washington Research Foundation Gates Fellowship to pursue technology entrepreneurship.

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"Bioengineering trains you to speak the many different technical languages needed to work in multidisciplinary teams that tackle the medical challenges of a rapidly changing world. This is the best training for a new cadre of engineers.”

PAUL YAGER, W. HUNTER AND DOROTHY L. SIMPSON ENDOWED CHAIR

Inventing the Future of Medicine.

UW Bioengineering faculty and students bridge the traditional disciplines of medicine and engineering to drive health care forward for those in remote parts of the world and here at home. Students, scientists, engineers, and physicians come together in Bioengineering to develop innovative and cost-effective approaches to improve health care. Our interdisciplinary teams collaborate in a wide range of areas, from biomedical imaging to biomaterials, and from diagnostic tools to targeted drug delivery.

Our Missions

LAUNCHING CAREERS

Our doctoral and undergraduate programs are consistently ranked among the top 10 in the nation by US News & World Report. Our students get direct experience working with faculty, conducting research that leads to new discoveries, treatments, and tools. Our graduates pursue diverse careers and leadership roles in industry, academia, and medicine. Our partnership with UW’s highly ranked medical school and proximity to Seattle’s growing global health community help prepare our students to translate research into bedside technology.

CROSSING BOUNDARIES

Bioengineering naturally evolved from partnerships between engineering and medicine. Today, our faculty and students continually reach across traditional boundaries in education and research. The interdisciplinary scope of our research spans five overarching themes: regenerative medicine and biomaterials, molecular and cellular engineering, imaging and image-guided therapy, systems and quantitative biology, and technology to increase access to health care.

THE POWER OF INVENTION

UW Bioengineering is a recognized leader in using education and research to encourage biomedical invention. Our students study commercialization with faculty who have taken their research from academia to industry, and they challenge other students in local and national contests of innovation, invention, and business plan creation. Our faculty and alumni have launched numerous successful start-up companies and regularly license technology to industry partners, fueling our economy and transforming health care.
Bioengineering Education

Degree Programs
- Bachelor of Science (BS) - prepares students for graduate school, medical school, and careers in industry
- Master of Science (MS) - prepares students for further study or careers in industry and research
- Combined Bachelor/Master of Science (BS/MS) - five year accelerated MS degree program
- Master of Pharmaceutical Bioengineering - part-time evening program that prepares working scientists and engineers for leadership roles in the development of drugs and drug delivery
- Doctor of Philosophy (PhD) - intensive research prepares students for advanced-level careers in industry and academia

Additional Programs
- Certificate programs in medical engineering and pharmaceutical bioengineering
- Program on Technology Commercialization

Undergraduate Learning

PROGRAM FEATURES
- Strength in core fundamentals – a foundation for success
- Real-world focus – teamwork, communication skills, problem-solving skills, systems analysis, and interdisciplinary projects, emphasis on leadership and creativity
- Hands on research – students complete research capstone mentored by research or clinical faculty
- Accredited by ABET

EXCELLENCE
- Program ranked 9th by US News & World Report for undergraduate programs in bioengineering
- 22 current National Science Foundation Fellows

Graduate Learning

PROGRAM FEATURES
- Multidisciplinary biomedical research and engineering program
- Students enter with degrees from bioengineering, chemical engineering, chemistry, physics, biology, computer science, electrical engineering, and related disciplines
- Intensive research experience with faculty mentors from BioE and across UW
- Strong base of extramural research funding
- Home to Bioengineering Cardiovascular Training Grant (NIH); faculty and students participate in other NIH training grants at UW

EXCELLENCE
- Program ranked 7th by US News & World Report for doctoral programs in bioengineering
- 22 current National Science Foundation Fellows

Student Demographics

Undergraduate enrollment: 157
Bachelor's degrees awarded 2012: 43
Graduate enrollment: 186
Master's degrees awarded 2012: 22
Doctoral degrees awarded 2012: 15

Research and Innovation

Research and Discovery
With a strong base of extramural support, our faculty and students conduct a mix of basic and applied research that cuts across traditional boundaries between engineering, physical sciences, and medicine. The broad scope of the research spans five overarching themes:
- Biomaterials and Regenerative Medicine
- Instrumentation, Imaging, and Image-Guided Therapy
- Molecular and Cellular Engineering
- Systems, Synthetic, and Quantitative Biology
- Technology for Expanding Access to Healthcare

Research Translation
Our success in translating research discoveries to real-world applications is promoted through collaborative, multi-partner initiatives such as:
- Wallace H. Coulter Research Partnership–furthering collaboration between engineers and clinicians and translating biomedical engineering technologies from the laboratory into medical practices
- Center for Intracellular Delivery of Biologics–developing new approaches for delivering biological drugs
- Ultrasound-Based Washington Molecular Imaging and Therapy Center–advancing molecular imaging and therapeutic technologies
- Center for Targeted Nanomedicines–accelerating new field and medicine the fundamentals of taking technology from the academic lab to marketed product

Market Impact
- Highest number of licensed inventions at UW in 2012
- 287 patents issued, 31 active licenses, 3 cases copyrighted software
- 602 reported inventions
- 23 startup companies launched as a result of faculty and student research

Building Bridges
The Bioengineering Affiliates Program promotes sustainable, mutually beneficial relationships with individuals, nonprofits, and companies in Seattle, nationally and around the world