ADVISORY BOARD MEETING

125 Years of Engineering at Maryland

The Fischell Department of Bioengineering
University of Maryland
November 22, 2019

Photo of Spring 2019 Advisory Board Members during the Senior Capstone Design Competition

FISCHELL DEPARTMENT OF
BIOENGINEERING

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CONTACT INFORMATION

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ADVISORY BOARD SUBCOMMITTEES

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Emily English
Steven Lehrer
Michael O'Connor
Todd Pantezzi
Adam Steel
Diana Yoon

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Jon Rowley*
Matthew Dowling
David Lindsay
Bret Schreiber
Reginald Seeto
Peter Soltani
Andy Steggles

Student Engagement:
Woodie Kessel*
Naresh Menon
Susanna Naggie
Brenda Ogle
Minh-Quan Pham

* Notes subcommittee chair

DEPARTMENT FACULTY LISTING

Aranda-Espinoza, Helim
Associate Professor
Associate Chair, Graduate Studies

Bentley, William
Distinguished University Professor
Director, Robert E. Fischell Institute for Biomedical Devices

Clyne, Alisa Morss
Associate Professor

Duncan, Gregg
Assistant Professor

Eisenstein, Edward
Associate Professor

Fisher, John
Department Chair
Fischell Family Distinguished Professor

He, Xiaoming (Shawn)
Professor

Huang, Huang Chiao (Joe)
Assistant Professor

Jay, Steven
Associate Professor

Jewell, Christopher
Associate Professor
Associate Chair, Research

Locascio, Laurie
Vice President for Research
Professor

Maisel, Katharina
Assistant Professor

Matysiak, Silvina
Associate Professor

Montas, Hubert
Associate Professor

Scarcelli, Giuliano
Assistant Professor

Stroka, Kimberly
Assistant Professor

Tao, Yang
Professor

White, Ian
Associate Professor
Associate Chair, Undergraduate Studies

Zhang, Li-Qun
Professor

ADVISORY BOARD MEMBERS

Dowling, Matthew

Dr. Matthew Dowling, Ph.D., is Founder and Chief Scientific Officer of gel-e. Matt completed his graduate work at the Fischell Department of Bioengineering in May 2010 and has since pursued gel-e on a full-time basis. In 2005, after graduating in chemical engineering from the University of Notre Dame, he was awarded the Fischell Fellowship in Biomedical Engineering for his innovative ideas in drug delivery systems. Matt then co-created the gel-e platform, raising several initial grants to develop the technology, which led to recognition with the Dean's Doctoral Research Award from the University of Maryland (UMD) A. James Clark School of Engineering for his work on chitosan-based self-assembled soft materials for use in wound treatment. He has since successfully licensed gel-e from UMD and has raised another $4 million in non-dilutive funding, which has been used to achieve three FDA clearances for gel-e, a large and growing patent estate, and numerous peer-reviewed publications in high-impact journals.

English, Emily

Emily P. English, Ph.D., is the Chief Executive Officer of Gemstone Biotherapeutics, LLC. Dr. English is a proven innovator with a passion for transitioning early-stage technologies to operational capabilities and commercial products. In her current role, she is guiding the commercialization of Gemstone's innovative biomaterials technology, with a goal of bringing solutions for scar-free skin regeneration to market. She has published seven peer-reviewed papers, holds four patents, and is the principal investigator on three grants. Prior to joining Gemstone, Dr. English spent eight years at the Johns Hopkins University Applied Physics Laboratory, where she was the Global Communications Program Manager and led a team of 35 scientists and engineers. She holds a bachelor's degree, magna cum laude, in chemistry from the University of Maryland, College Park, and a Ph.D. in chemistry from the University of Wisconsin, Madison. Outside of work, Dr. English enjoys spending time with her family, and she is an avid curler.

Fischell, Tim *(Emeritus)*

Dr. Fischell is Professor of Medicine at Michigan State University, Clinical Professor of Medicine at Western Michigan University, Medical Director of the Department of Cardiovascular Research, and Director of the Interventional Cardiology Fellowship Program at the Borgess Heart Institute in Kalamazoo. He has an active practice as an interventional cardiologist at the Heart Center for Excellence in Kalamazoo. After receiving his medical degree from Cornell University Medical Center in New York City, Dr. Fischell completed an internship and residency in internal medicine at Massachusetts General Hospital/Harvard University in Boston, and then completed his interventional cardiology fellowship at Stanford University Medical Center in Palo Alto. He was on the faculty at Stanford for five years, and then served as director of the cardiac cath labs and interventional cardiology at Vanderbilt University from 1992-1996. Dr. Fischell is board certified in internal medicine, cardiovascular medicine, and interventional cardiology. He is an active inventor and serial entrepreneur, with more than 100 medical device patents, founder or co-founder of seven medical device companies, and was elected in 2017 as a Fellow in the National Academy of Inventors.

Kessel, Woodie

Dr. Woodie Kessel, B.S.E.E., M.D., M.P.H., is a pediatrician and child advocate with experience as an educator, investigator, and practitioner in medicine, public health, bioengineering, community-based programming, and public policy. Dr. Kessel is currently the CEK Senior Child Health Scholar in Residence at the C. Everett Koop Institute, Dartmouth College and Medical School; Professor of Pediatrics, Geisel School of Medicine, Dartmouth College; and Professor of the Practice at the University of Maryland's School of Public Health. Previously, Dr. Kessel served in the U.S. Public Health Service as an Assistant Surgeon General and senior advisor on child and family health matters to the White House, Cabinet Secretaries, Surgeons General, and Health and Human Services officials spanning eight administrations.

Knight, Ivor

Dr. Ivor Knight joined Penn State to lead research and graduate programs at the Behrend College in Erie, Pennsylvania. Prior to this academic appointment, he was senior VP and CTO at Canon U.S. Life Sciences and Canon BioMedical, Inc., where he oversaw the R&D functions of both companies. During his career at Canon, Dr. Knight established Canon's biomedical research and development organization and facility in Rockville, Maryland, and led the development of the first products brought to market. Prior to joining Canon, he was a professor at James Madison University, where he taught and conducted research in molecular genetics and microbiology. He has published widely in his field and is an inventor on numerous patents in the area of diagnostic instrumentation and chemistry. He holds a Ph.D. from the University of Maryland and is a Fellow of the American Association for the Advancement of Science.

Knizek, Claudio *(Advisory Board Chair)*

Claudio Knizek joined The Boston Consulting Group in January 2006 and is a Partner and Managing Director in BCG's Washington, D.C. office. Throughout his tenure at BCG, he has focused on a variety of operational and strategic issues affecting the Industrial and Consumer Goods sectors. The majority of Claudio's work at BCG has been focused on operational topics, particularly manufacturing and supply chain. Claudio currently co-leads BCG's Manufacturing Topic globally. Prior to joining BCG, Claudio worked at A. T. Kearney for five years. Claudio has a B.S. and M.S. from Stanford University and an M.B.A. from Harvard Business School.

Lehrer, Steven

Steven Lehrer brings over 30 years of experience starting, growing, and running life science-based businesses focused on commercializing new technology and expanding businesses globally. SBLehrer LLC works with life science companies to develop and introduce drugs worldwide. Steve has extensive experience in pharmaceutical, biopharmaceutical and biosimilar R&D, regulatory, operations and commercialization. In addition, his companies and businesses have developed and commercialized new drug delivery approaches for pharmaceuticals and multiple molecular genetic diagnostic tests, and developed outcomes databases for bioinformatics and healthcare econometric modeling. Steve has built and run businesses in the U.S., EU, Brazil, China, India, Japan and SEA. Steve previously served as Head of Biologicals at Cipla Ltd., CEO at Cipla BioTec, President at Glycominds, EVP at Adamas Pharma, CEO at GeneOs Ltd, CEO at DNA Sciences and division President at Monsanto. Prior to Monsanto, Steve worked for McKinsey & Co. and P&G. Steve has a master's degree from The Graduate School of Business at Harvard University and a B.S.E. in chemical engineering as well as a B.A. in economics from the University of Maryland.

Lindsay, David

Dr. David A. Lindsay is the Directorate Head of the Vaccine Clinical Materials Program (VCMP), within the Clinical Research Directorate at the Frederick National Lab (FNL) in Maryland. He is responsible for the scientific, technical, and administrative oversight and operation of a good manufacturing practices (GMP) vaccine pilot plant. The mission of the VCMP at FNL is to advance the development, manufacture, analytical testing, release, and regulatory support of biologically-derived clinical materials, discovered/developed by the Vaccine Research Center (VRC) at NIH's National Institute of Allergy and Infectious Diseases (NIAID), for subsequent evaluation in Phase I/II clinical trials in humans. While the focus to date has been on broadly neutralizing monoclonal antibodies (mAbs) for passive treatment of HIV-AIDS, there is a renewed emphasis on universal flu/influenza, and emerging/reemerging infectious diseases of global significance including Chikungunya, Ebola, Malaria, RSV, Tuberculosis, and ZIKA. David holds a B.S. degree in chemical engineering from Lafayette College and a Ph.D. from Johns Hopkins University. He has over 24 years of industry experience, from cell culture process development to tech transfer to clinical and commercial manufacture of biologics/recombinant vaccines.

ADVISORY BOARD MEMBERS

Menon, Naresh

As the founder of ChromoLogic, Dr. Menon is passionate about developing novel biomedical solutions that result in new biological insights and lead to superior patient outcomes while being cost-effective and affordable. Dr. Menon received his Ph.D. in physics from Purdue University, with an emphasis in sensor fabrication, instrumentation, and novel data analytic methods that were applied at multiple national and international laboratories towards fundamental physics discoveries. His early career was spent at Corning Incorporated and Northrop Grumman Mission Systems, where he was groomed for leadership positions in multiple businesses. Founded in 2007, ChromoLogic is a boutique product development organization developing innovative solutions that save lives and make the world secure. Products range from bioinspired solutions for establishing traceability of items, such as medical implantables, to at-home HIV viral load analysis kits, an ophthalmic system to assess physiological stress, and a unique digital telehealth platform.

Naggie, Susanna

Dr. Susanna Naggie completed her undergraduate degrees in chemical engineering and biochemistry at the University of Maryland, College Park, and her medical education at Johns Hopkins School of Medicine. She conducted her internal medicine and infectious diseases fellowship training at Duke University Medical Center, where she also served as Chief Resident. She joined the faculty in the Duke School of Medicine in 2009. She is an Associate Professor of Medicine with Tenure and currently holds appointments at the Duke University School of Medicine, at the Duke Clinical Research Institute (Director of ID Research), and at the Durham Veterans Affairs Medical Center. Dr. Naggie is a clinical investigator with a focus in clinical trials and translational science in HIV and HCV. Dr. Naggie is a current member of the DHHS Guidelines for the Use of Antiretroviral Agents in Adults and Adolescents Living with HIV and was a prior co-Chair of the AASLD/IDSA HCV Guidance Committee. She services the Duke SOM as the Associate Dean of Clinical Research and Regulatory Affairs.

O'Connor, Michael

Dr. Michael O'Connor is the Director, Strategy and Project Management with Medtronic, Plc. He has over 29 years of professional experience in the medical device industry developing products from idea to commercialization. He holds patents in the areas of medical catheters and stents, and has graduate degrees in project management, technology management, and business administration. O'Connor earned his Ph.D. in civil engineering – majoring in project management – from the University of Maryland's A. James Clark School of Engineering. He was selected as an American Society for Quality Fellow (ASQ), American Academy of Project Management Fellow (AAPM), Association for Project Management Fellow (APM), Biomedical Engineering Society Fellow (BMES), and Medtronic Technical Fellow. He is currently a Minnesota PMI Board Member and Director at Large. He is on the BMES Educational Committee and is also a member of the BMES Wallace H. Coulter Healthcare Innovation Award Subcommittee. O'Connor is also an Adjunct and Community Faculty Member teaching graduate-level project management, project Capstone, project procurement, and culture/organizational course(s).

Ogle, Brenda

Brenda Ogle is Professor and Head of Biomedical Engineering, Professor of Pediatrics, and Director of the Stem Cell Institute at the University of Minnesota. Her research team investigates the impact of extracellular matrix proteins on stem cell behavior especially in the context of the cardiovascular system. Insights gleaned over the years established mechanistic links between integrin engagement and the activity of critical transcription factors, and most recently led to the development of optimized, extracellular matrix-based bioinks for 3D printing of cardiac muscle mimics featured in *Newsweek*. The primary strength of her laboratory is the ability to span multiple subdisciplines within both basic science (i.e., stem cell biology, cell-cell fusion, and extracellular matrices) and engineering (cytometry, instrumentation, and 3D printing) fields. Her work received funding from the National Institutes of Health, the National Science Foundation, the Department of Defense, the American Heart Association, the Coulter Foundation, Regenerative Medicine Minnesota, and

MnDRIVE. She has partnered on research projects with Becton Dickinson, iCyt and Medtronic. Professor Ogle is an elected fellow of the American Institute for Medical and Biological Engineering and a member of the Board of Directors of the Biomedical Engineering Society. She has served as co-chair of the Women's Faculty Cabinet, UMN, and is a recipient of the Mullen-Spector-Truax Women's Leadership Award.

Pantezzi, Todd

Todd Pantezzi is a Senior Vice President with ICF, representing the firm's public health, biomedical research, health informatics, information technology, management consulting, health communications, cyber security, survey research, and digital media consulting practices. He has been a growth executive and consultant in the federal health industry since 1992, primarily focusing on civilian health agencies (NIH, CDC, FDA, and EPA) representing corporations including CSRA, General Dynamics, United Health Group, and Northrop Grumman, as well as small and mid-size firms. Mr. Pantezzi holds industry leadership positions including Trustee with The Children's Inn at NIH, and chair of the Professional Services Council's annual survey of the U.S. Department of Health & Human Services. He was named to the FedHealthIT100 in 2017.

Pham, Minh-Quan

Dr. Minh-Quan K. Pham is a patent attorney with over ten years of experience in protecting innovations and providing creative legal solutions through a unique combination of perspectives, including as an inventor, a scientist/engineer, an entrepreneur, an examiner, and an attorney. Dr. Pham is experienced in all aspects of intellectual property protection, including counseling, prosecution, litigation, licensing, and portfolio management. He has represented authors, artists, educators, engineers, physicians, and scientists, as well as universities, small companies, and international corporations. Prior to his legal practice, Dr. Pham was a patent examiner in group 1600, examining biotechnology patent applications. He was also a founder of Chesapeake PERL, a recombinant protein production company. Dr. Pham received his B.S. and Ph.D. in chemical engineering from the University of Maryland, and his J.D. from the Georgetown University Law Center.

Pinchuk, Leonard *(Emeritus)*

Dr. Leonard Pinchuk has 129 U.S. patents and 90 publications, and has founded 10 companies. His major accomplishments include the invention of the Nylon 12 angioplasty balloon, the helical wire stent, the modular stent-graft, a drug-eluting stent (TAXUS®), several biomaterials (Bionate® and SIBS), a novel glaucoma tube (the InnFocus MicroShunt®) and the next generation intraocular lens. His inventions are used in hundreds of millions of patients with a financial impact well over $100 billion. Dr. Pinchuk was inducted into the National Academy of Engineering in 2012, was awarded the 2017 Society for Biomaterials Innovation and Technology Award, San Antonio's BIOMED SA Award (2017) and the National Academy of Engineering 2019 Fritz J. and Dolores H. Russ Prize. He received a B.Sc. in chemistry from McGill University (1976) and a Ph.D. in interdisciplinary engineering and chemistry from the University of Miami (1984). Dr. Pinchuk co-founded Corvita Corporation (1987), which went public in 1994, was acquired by Pfizer, Inc. (1996) and then sold to Boston Scientific (1998). He then founded Innovia LLC (2002), which spun out InnFocus, Inc. (2004), which was acquired by Santen Pharmaceuticals in 2016. Dr. Pinchuk also enjoys an appointment as Distinguished Research Professor of Biomedical Engineering at the University of Miami.

Rowley, Jon

Dr. Jon A. Rowley is the Founder & Chief Product Officer of RoosterBio Inc. Jon started RoosterBio in 2013 as part of his personal quest to have the biggest impact possible on the commercial translation of technologies that incorporate living cells, including cellular therapies, engineered tissues, and tomorrow's medical devices. Jon holds a Ph.D. from the University of Michigan in biomedical engineering and has authored over 35 peer-reviewed manuscripts and 20 issued or pending patents related to biomaterials development, tissue engineering, and cellular therapy.

ADVISORY BOARD MEMBERS

Jon started his industry career at BD as a scientist and R&D manager in a Cell & Tissue Technologies group focused on applying high throughput screening technologies to cell therapy media development and tissue engineering. Jon then contributed to the clinical development of Aastrom Biosciences' Tissue Repair Cell product, where he was Sr. Manager of Process Development responsible for manufacturing process improvements and cell delivery to the patient. Jon most recently spent five years as Director of Innovation and Process Development in Lonza's Cell Therapy CMO business, and currently resides in Walkersville, MD, with his wonderful wife and their three young children.

Schreiber, Bret

Bret Schreiber has worked for 20 years in the field of government and community relations, driving policy and economic development initiatives and strong ties to local, state, and national legislators and policy leaders. Currently, Mr. Schreiber is Vice President for Life Sciences and Technology for Fulton Bank, a $22 billion financial institution based in Lancaster, Pennsylvania. Schreiber will oversee the development of a new division for Fulton Bank, creating disruptive, innovative initiatives to support and grow the life science and technology industries in Fulton's five-state footprint. Most recently, Schreiber led the Office of BioHealth and Life Sciences for the Maryland Department of Commerce, seeking to develop and build the State's thriving life science ecosystem. Among other efforts, the office developed innovation assets for the industry, created international pipelines to bring companies into the state, and sought to provide fiscal and other support to companies already located in the State. Prior to leading the Office of BioHealth and Life Sciences, Schreiber was recruited to Commerce to start a new Division – Education and Innovation. Schreiber holds a bachelor's degree in political science from Johns Hopkins University. A lacrosse player for the nationally ranked Johns Hopkins University Blue Jays, Schreiber participated in three NCAA Final Four appearances. He counts family members among his biggest influencers – particularly his wife, Sharon, and their three children. When not working, Schreiber likes to spend time with his family. He plays lacrosse in an "over 35 league that's full of 20-year-olds," and also plays basketball and golf.

Seeto, Reginald

Dr. Seeto has over 20 years of experience in the healthcare and life sciences field. He is the President and CBO of CareDx, a public biotech company that is a leader in transplant diagnostics. Seeto's responsibilities include business development, commercial units, manufacturing and operations, R&D, and international operations. Prior to this, Seeto was the Chief Operating Officer of Ardelyx, a public biotech company, where he oversaw business development, commercial operations, corporate strategy, and medical affairs. His experience also included being a member of the executive leadership team at MedImmune, the Biologics unit for AstraZenecan, in his roles as Head of Partnering & Strategy, and as Executive Vice President of Corporate Development and Strategy. He first joined MedImmune as Head of Global Strategic Marketing and Portfolio Management, and later worked as a country general manager for AstraZeneca in Asia. Earlier in his career, Seeto led the Fertility and Emerging Biotech Franchises (oncology, immunology, vaccines) for Organon Biosciences as the Vice President of Global Marketing and Flomax for Boehringer Ingelheim, which he grew to be a blockbuster and the company's largest-selling U.S. product at that time.

Soltani, Peter

Dr. Soltani is a native of greater Washington, D.C. and has been involved in the medical device and diagnostics space for nearly 20 years. Peter's early career included technology innovation involving semiconductor and optical materials for energy conversion and imaging. He joined Hologic, Inc., a women's health-focused medical device company, in 2000, where he led the company's Women's Health business segment. Notable accomplishments include helping develop Hologic's digital mammography platform, and the development and commercialization of the first 3D digital mammography system for early cancer detection. Peter joined Siemens Medical Solutions between 2014-2016 to lead its North American Healthcare Services business, helping develop solutions to meet the changing and complex needs of the healthcare delivery market. Peter has been with Beckman Coulter Diagnostics, Inc. (a Danaher company) since early 2016, leading its Hematology, Urine Analysis & Workflow, and IT businesses.

Steel, Adam

Dr. Adam Steel is the Vice President of R&D Leader for Becton Dickinson's Integrated Diagnostic Solutions (IDS) business unit. He leads a team of over 500 engineers and scientists across the disciplines of mechanical, electrical, software, systems engineering, molecular biology and microbiology. Adam is a member of the IDS Leadership Team and works closely with business leaders in that capacity to drive new growth opportunities via technology and product development. Adam received a B.S. in chemistry and mathematics from Gettysburg College and a Ph.D. in analytical chemistry from the University of Maryland. He has several U.S. and worldwide patents and has published over 20 papers.

Steggles, Andy

Andy Steggles, a serial entrepreneur, has founded and advised multiple software startups. His most notable software success started with an idea he formed while operating as the head of technology for a New York-based association (RIMS), where he recognized the need for, and subsequently built, the next generation of large group collaboration software. After selling and delivering the software to several organizations, he then partnered with a friend and colleague to create what became Higher Logic. Over the next eight years, Andy helped grow this Software-as-a-Service (SaaS) company into a "Community Platform." In 2016, this small, bootstrapped company had grown to a $100 million+ enterprise. Andy and his business partner then decided to accept a $55 million growth equity investment, and once again hit the accelerator. One year later, they had acquired four adjacent software businesses and tripled the size and value of Higher Logic. In 2018, Andy decided to step out of his operating role to focus on his responsibilities as Co-Chair of the Board of Higher Logic as well as his other passions, which included completing his studies at Harvard Business School's three-year Owner/President Management (OPM) leadership program. Today, in addition to being an author, speaker, investor and board member, Andy focuses his time as CEO of his small family business, where he is able to leverage that same passion – which helped shape Higher Logic into what it is today – by helping leaders of early stage SaaS companies maximize their enterprise value while continuing to scale and preparing to exit.

Yoon, Diana

Dr. Diana Yoon has been working as a regulatory scientist in the U.S. Food and Drug Administration (FDA) since 2011. She started as a Commissioner's Fellow working on a project evaluating standards for premarket review of bone regenerative medicine products. During her tenure at the FDA, she has conducted premarket regulatory review in the Center for Biologics Evaluation and Research and the Center for Devices and Radiological Health. She is currently a Senior Scientific Reviewer for product classification and jurisdiction in the Office of Combination Products. In 2003, she received a B.S. in chemical engineering and biomedical engineering (double major) from Carnegie Mellon University. She attended the University of Maryland, College Park (UMD) for her Ph.D. in chemical and biomolecular engineering and graduated in 2008. During her time at UMD, she was awarded the Fischell Fellowship in 2006 for translational research in cartilage tissue engineering. She attended Rice University as a postdoctoral fellow to conduct bone tissue engineering research and was awarded the Gulf Coast Consortia Nanobiology Fellowship.

DEPARTMENT CHAIR

Fisher, John

Dr. John P. Fisher is the Fischell Family Distinguished Professor and Department Chair in the Fischell Department of Bioengineering at the University of Maryland. Dr. Fisher is also the Director of the newly established NIBIB / NIH Center for Engineering Complex Tissue (CECT) that aims to create a broad community focusing on 3D printing and bioprinting for regenerative medicine applications. As the Director of the Tissue Engineering and Biomaterials Laboratory, Dr. Fisher's group investigates biomaterials, stem cells, bioprinting, and bioreactors for the regeneration of lost tissues, particularly bone, cartilage, and cardiovascular tissues. Dr. Fisher's laboratory has published over 165 articles, book chapters, and proceedings (7200+ citations / 48 h-index) as well as delivered over 340 invited and contributed presentations, while utilizing over $15 million in financial support from NIH, NSF, FDA, NIST, DoD, and other institutions. Dr. Fisher has been elected Fellow of both the American Institute for Medical and Biological Engineering (2012) and the Biomedical Engineering Society (2016). Dr. Fisher is currently the Co-Editor-in-Chief of the journal *Tissue Engineering*.

In 2014, Dr. Fisher was the Chair of the Tissue Engineering and Regenerative Medicine International Society – Americas (TERMIS-AM) Chapter Annual Meeting in Washington, DC. In 2014, Dr. Fisher was elected Chair of TERMIS-AM, and in 2018 started his term as Chair of the society after serving three years as Chair-Elect. In 2018, Dr. Fisher was the Co-Chair of the Biomedical Engineering Society (BMES) Annual Meeting in Atlanta, GA, celebrating the 50th Anniversary of BMES.

DEPARTMENT STATISTICS

The University of Maryland Fischell Department of Bioengineering ranks among the top programs in the Big Ten and across the United States. The department employs innovative research approaches, working across disciplines to solve complex problems. In line with its strategic goals, BIOE at Maryland is on pace to grow to 27 tenure-track faculty members by 2023.

Based on 2018-2019 data from the American Society for Engineering Education, the Fischell Department of Bioengineering ranks among the following across all U.S. bioengineering/biomedical engineering programs:

- **Top 25 in Research Funding per Faculty:** In the past three years alone, the Fischell Department of Bioengineering's research expenditures have nearly doubled to $15.6 million, placing it among the Top 25 bioengineering/biomedical engineering programs in the country in total research funding dollars per faculty.

- **Top 20 in Total Federal Funding per Faculty:** The Department boasts numerous grants from the National Institutes of Health, the U.S. Department of Defense, the U.S. Food and Drug Administration, the U.S. Department of Veterans Affairs, and the National Institute of Standards and Technology, among others. This past year alone, BIOE was awarded two separate FDA grants totaling up to $10 million in support of medical device and regulatory initiatives, and two new NIH R01 faculty research grants, bringing our total number of active R01s to 10.

- **Top 10 in Bachelor's Degrees Awarded:** The Department places in the Top 10 bioengineering/biomedical engineering programs, nationally, in the total number of bachelor's degrees awarded. What's more, our Spring 2019 class achieved a 96 percent placement rate — which means that 96 percent of our most recent graduates had secured either employment or placement in a graduate program by commencement.

- **Top 5 in Bachelor's Degrees Awarded to Women:** The Department places in the Top 5 bioengineering/biomedical engineering programs, nationally, in the number of bachelor's degrees awarded to women. Sixty percent of students in our incoming Class of 2022 are women — and nearly one-quarter of our freshmen identify with an underrepresented minority group.

ADVISORY BOARD PURPOSE & RESPONSIBILITIES

The Fischell Department of Bioengineering Advisory Board at the University of Maryland A. James Clark School of Engineering is composed of leaders from industry, government, and academia committed to the advancement of the Department. Members of the Advisory Board are the Department's strongest advocates and champions.

The Advisory Board will be composed of approximately 20 members who represent a diversity of experiences and perspectives. The Advisory Board will have a Board Chair, appointed by the Chair of the Fischell Department of Bioengineering; the Advisory Board Chair will serve a two- (2) year term. The Advisory Board may also have committees related to the interests and growth of the Department, in areas including but not limited to strategic planning, development, and student engagement. The Chair of the Fischell Department of Bioengineering will be the primary facilitator, with assistance from the Advisory Board Chair as well as the Clark School of Engineering's Office of External Relations.

The purpose of the Fischell Department of Bioengineering Advisory Board is to:

1. Foster excellence in the Department;
2. Provide guidance to the Department regarding mission, goals, and strategic planning;
3. Promote the interests of the Department locally, nationally, and internationally;
4. Advise on curriculum and research, student recruitment, student career placement, and industry trends;
5. Strengthen and enhance the financial resources of the Department; and
6. Act as a liaison between the Department and industry, government, and other academic institutions.

Full Membership responsibilities include:

1. Service on the Advisory Board is for a three- (3) year term, with the option to renew for an additional three- (3) year term. Those who have demonstrated exemplary service may be invited by the Department Chair to continue as an Emeritus Member.
2. Attendance at two biannual meetings, typically held in the fall and spring (absence from three consecutive meetings may result in a request to step down from service);
3. Philanthropic support for the Department annually, at a level that is personally meaningful;
4. Active participation and engagement in strategic planning by advising the Department Chair on matters pertaining to curriculum, research, program initiatives, and external relations;
5. Visible ambassadorship to external constituencies and University of Maryland leadership;
6. Efforts to foster connections and identify resources to support Departmental initiatives; and
7. Volunteer work in assisting with a student, faculty, or alumni initiative.

Emeritus Membership responsibilities include:

1. Service on the Advisory Board for a three- (3) year term with the same responsibilities as a Full Member, without an expectation for attendance at the biannual meetings.

The Fischell Department of Bioengineering is committed to the following:

1. Soliciting feedback and recommendations from committee members on enhancing academic, research, and external relations programs;
2. Inviting members to marquee events such as the Fischell Festival and the Senior Capstone Design Competition;
3. Providing access to the Clark School Dean and UMD leadership; and
4. Providing updates on the state of the Department, including finances, undergraduate program, graduate program, and research initiatives.

Note: The Department will provide financial support for travel and housing to the biannual meetings for those members from academia.

UNIVERSITY OF MARYLAND 1856

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