



DEPARTMENT OF BIOMEDICAL ENGINEERING

SCHOOL OF ENGINEERING AND TECHNOLOGY
Indiana University-Purdue University
Indianapolis

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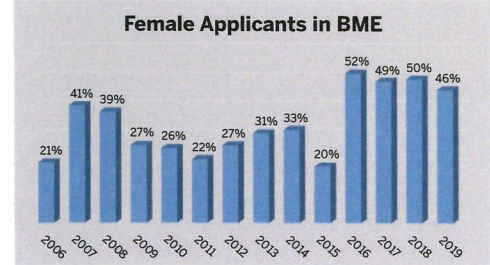
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DEPARTMENT OF BIOMEDICAL ENGINEERING
SCHOOL OF ENGINEERING AND TECHNOLOGY, IUPUI
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BME.ET.IUPUI.EDU

Women in BME

It is no secret that the field of engineering is predominately male. However, one area of engineering seems to be tipping the scale: Biomedical Engineering. According to the most recent report by the American Society for Engineering Education (ASEE), women in the U.S. were awarded 45.4% of all BME B.S. degrees, nearly 5% higher than any other discipline after Environmental Engineering. The trend is not limited to just B.S. degrees, both M.S. and Ph.D. degrees have been awarded to an increasing number of females as well.¹



Here within our own department, we have encouraged and observed this trend. Over the past 4 years, the number of women who have applied to the undergraduate program has increased, reaching nearly half of the applicant population. The graph above depicts the percentage of female applicants

each year, since the department of BME at IUPUI has been established.

We have been fortunate to have so many talented students of all genders pass through the BME program, but we have been especially impressed with the women this application cycle.

Ashtin Wilson (pictured at the bottom right), a remarkable Sophomore in the program, explained that she chose BME over other engineering discipline because it gives her the opportunity to use her technical and innovative skills to improve health care outcomes. Ashtin plans on completing the BS/MS 5 year Program and Physical Therapy School, then building a career in prosthetic design.

Her greatest female role model is her mother, a mechanical engineer who supports our Navy at NSWC Crane. Ashtin describes her mother as, "An advocate for intelligent, capable, and confident women in her male-dominated workplace, [who can] balance her career and her role as one of the best moms on the planet." Ashtin is honored to follow in her footsteps.

Ashtin has entered the program with astonishing ambition and dedication. Not only a Lilly Endowment Scholar and an Adam W. Herbert Presidential Honors Scholar, she also was awarded a Life Health Science Internship Program (LHSI) grant to research in Dr. Robyn Fuchs' Rehabilitation lab.

We hope this trend continues, not only in our department, but throughout BME.

Citation 1: Roy, J. (2018). Engineering by the Numbers. Engineering by the Numbers (pp. 14-52). Washington DC: American Society for Engineering Education.



Ashtin Wilson

Biomedical Engineering Seminar Schedule

- September 6, 2019**
Speaker: Tim Corson, PhD, IU School of Medicine Ophthalmology
- September 20, 2019**
Speaker: Ken Yoshida, PhD, IUPUI Biomedical Engineering
- October 4, 2019**
Speaker: Adam Kean, MD, MPH, IU School of Medicine Clinical Pediatrics
- October 25, 2019**
Speaker: Susan Walsh, PhD, IUPUI Biology
- November 8, 2019**
Speaker: Sherril Bucher, PhD, IU School of Medicine Pediatrics
- November 22, 2019**
Speaker: Chad Carroll, PhD, Purdue Health & Kinesiology
- December 6, 2019**
Speaker: Clement Ren, MD, MBA, IU School of Medicine Pediatrics

- Julie Ji, PhD**
 - Vascular Mechanobiology
- John H. Schild, PhD**
 - Autonomic Neural Control
 - Visceral Afferent Function
- Dong Xie, PhD**
 - Functional and Polymeric Biomaterials
- Hiroki Yokota, PhD**
 - Breast Cancer and Bone Metastasis
 - Mechanotransduction
- Ken Yoshida, PhD**
 - Bioelectronics
- Joseph Wallace, PhD**
 - Bone Biomechanics
 - Mechanobiology
- Chien-Chi Lin, PhD**
 - Polymeric Biomaterials and Tissue Engineering
 - Cancer Bioengineering
- Sungsoo Na, PhD**
 - Cellular Signaling and Reprogramming

Faculty Research Areas



DEPARTMENT OF BIOMEDICAL ENGINEERING
MESSAGE FROM THE
CHAIR

EDWARD J. BERBARI

CHANCELLOR'S PROFESSOR AND CHAIR OF THE DEPARTMENT BIOMEDICAL ENGINEERING

This edition, I'd like to announce my retirement plan. After 25 great years at IUPUI, 19 of which in BME, it is time to step down as Chair. I will enter a phased retirement plan by teaching courses for the next 2 years at a reduced load. After that, I look forward to spending time with my growing family and enjoying my hobbies.

As the founding Chair of the Biomedical Engineering department in 2004, I have supported 12 graduating classes, as the department grew in both number and funding. In 2008, BME graduated merely 10 students compared to our current senior class of 34. I have been honored to see so many of our students complete the program and start successful careers in industry or continue on as strong students in professional schools.

Although the interim chair, has not yet been named, I look forward to being of assistance to him or her over the next few years as we strive to continually improve the BME Department and its programs.

Also in this edition, I am excited to share some of the activities and accomplishments of our students and faculty. Our newsletter this year focuses on the increased trend of women in BME and highlights some exceptional BME students and faculty.

In other departmental news, research awards were over \$1.9 million in the last fiscal year and were from many sources, notably, NIH, NSF, foundations, and industry. Over this past summer, the department was fortunate to have been involved with the

Minority Engineering Advancement Program (MEAP). The purpose of the program is to introduce talented youth to engineering and technology related fields as they prepare for a degree.

In other novel announcements, Bill Combs, a Clinical Associate Professor of Biomedical Engineering has retired. He has been with the department for 12 years as an admired professor and mentor in Senior Design. He plans to continue his contributions to the department by sponsoring Senior Design projects. We thank him for his efforts and hope that he enjoys a fun-filled retirement! We now welcome Adjunct Assistant Professor Lester Smith who will be taking on a major role from Prof. Combs as a faculty member teaching the Senior Design sequence.

BME Award Recipients for 2019

Student Scholarship and Award Recipients

BME Awards

Elliott Beckner Charles H. Turner Outstanding Achievement Award

Samuel Olubakinde Bepko Continuing BME Student Scholarship

Mia Bartlett BME Outstanding Service Award

Kanokwan (Jiffy) Bishop Exemplary Internship Award

Blakely Heaton Outstanding EDDP BME Student Award

Charles Rumberger Bepko Scholarship for Outstanding Academic Achievement (Sophomore)

Cayla Skaggs Bepko Scholarship for Outstanding Academic Achievement (Junior)

IUPUI Top 100

Sabria Abufares, Jiffy Bishop, Cayla Skaggs, Rachel Surridge

IUPUI Elite 50

Landan Mintch

Other Awards

Katherine Powell published in Bone

Celia Ochoa Chancellor's Award for Outstanding Undergraduate Research

Faculty Awards and Accomplishments

Awards

Dr. Wallace 2019 IUPUI Digital Faculty Fellow

Dr. Miller 2019 Mosaic Faculty Fellow

Funding Recognition

Dr. Chien-Chi Lin NIH R01 Award

Dr. Ji NIH R03 Award

Dr. Higbee & Dr. Miller NSF Award

Dr. Yokota NIH from National Cancer Institute Award

Dr. Yoshida NIH NIBIB Award

Publications

Dr. Sungsoo Na published in the Journal of Biomedical Optics

Dr. Chien-Chi Lin published in the journals: Emergent Materials, ACS Biomaterial Science and Engineering, and Acta Biomaterialia

BME Spotlight

UNDERGRADUATE STUDENT



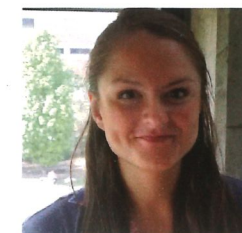
Jacob Slack, a junior in BME, spent the past year pursuing valuable research. Throughout the Life Health Science Internship Program (LHSI), he conducted research in a hematology/ oncology lab. His passion for hematological research extended to the summer in the IU-Cooperative Center of Excellence in Hematology (CCEH) program as well as continuing research for the LHSI program. After graduating, Jacob plans on pursuing an MD/ PhD possibly in Biomedical Engineering and continuing research.



Cayla Skaggs has also had an exceptional year with her undergraduate research. A senior in the department, Cayla has been an undergradu-

ate intern in Dr. Wallace's Bone Biology and Mechanics lab. She then presented her research at IUPUI's student research day. Over the past two summers, Cayla has interned with Roche Diabetes Care in global external manufacturing, investigating ways to make blood glucose monitors more efficient. Throughout her busy schedule in classes and the lab, Cayla was named among IUPUI's Top 100 Students, and awarded the BME Outstanding Academic Achievement!

GRADUATE STUDENT



Lindsay Zehrung, a Master's student in BME, is currently a research assistant in Dr. Yoshida's Bioelectronics lab as well as a teaching assistant for an undergraduate lab course. Lindsay has focused on promoting bioelectronics throughout the campus. She is the Founder and President of International Functional Electrical Stimulation Society (IFESS) Interest Group at IUPUI. Lindsay's goal is to promote the awareness, knowledge

and understanding of electrical stimulation technologies and its application in enhancing the quality of life. Since 2018, the organization has grown in number and interest across the campus.

FACULTY MEMBER



Joseph Wallace, PhD, has had a very busy past few years. As his research is expanding, so has the lab staff and funding to support it. In the past academic year, the Wallace research group has nearly doubled in size, yet he still is focused on individual student development. It comes as no surprise that Dr. Wallace was awarded the 2019 Kathryn J. Wilson Award for Outstanding Leadership and Mentoring of Undergraduate Research! In the past year, three publications have been reviewed with Dr. Wallace's students as lead authors. Dr. Wallace continues to be a valuable asset to both the department and students within BME.

Shout out to the BME Class of 2019!

