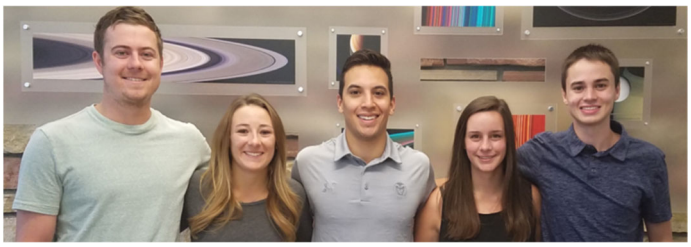
2018 BME E-Days Awards

Engineering Days (E-Days) provides undergraduate engineering students an opportunity to showcase their completed senior design projects to faculty, family, industry representatives, and peers. The capstone senior design project teaches students how to succeed in a well-integrated, interdisciplinary engineering design environment and allows students to develop practical, hands-on skills.

On April 19, 2018, members of the SBME Advisory Board—Dennis Bruner, Julie Dunn, Gary Johnson, Dennis Schlaht, and Steve Simske—served as judges and provided four biomedical engineering teams with cash awards at E-Days.

This year, ten industry members representing various companies including AlloSource, Beckman-Coulter, DePuy Synthes, Medtronic, and Terumo BCT, also served as BME judges and critically evaluated student projects on technical content, presentation, creativity, and overall impression. The following BME student senior design projects were awarded:

First Place (tie): Mechanical Bladder Device (faculty advisors: Hiep Nguyen, M.D.; Shawn Smith, Katie Trella)



Group Members: Anders Booth, Valerie Cochrane, Dominic Martinez, Sarah Jordan, and Aidan Friederich

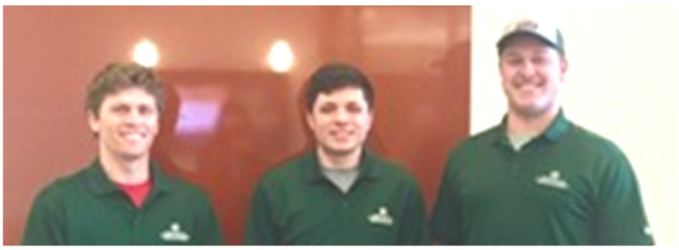
This project aimed to create a complete implantable replacement for the human bladder. In the United States, one million people each year require some form of treatment for bladder dysfunction. Current treatments fail to fully restore bladder function and result in complications including infection, bladder stones, incontinence, and bladder rupture. This device restores the complete function of the bladder by notifying the patient when the bladder is full and facilitating drainage.

First Place (tie): Paper-Based Microfluidic Device for Global Health (faculty advisor: Chuck Henry)

Group Members: Mitchell Cooper, Jase Wyeno, Sam Allsup, and Taylor Langer

The overall goal of this project was to create a fully automated paper-based microfluidic device for Salmonella detection to be deployed in developing countries to improve global healthcare.

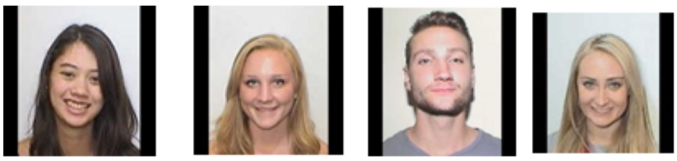
Second Place: Hypoxia Chamber for Biomedical Research (faculty advisors: Zhijie Wang and Jesse Wilson)



Group members: Willie Hawkins, Dominic Loffreda, and Zach Kugler

The purpose of this project was to construct a 'smart' hypoxia chamber that can be monitored and/or controlled by onsite (i.e., in the lab) or remote (i.e., via smart phone) operations. The Chamber creates and maintains a high-precision oxygen deprived atmosphere, providing an ethical and reliable research environment that can be custom tailored and flexibly programmed for a wide variety of applications, from bacterial cultures and animal research to point-of-care therapy.

Third Place: Bone Matrix Electrospinning (faculty advisors: Ketul Popat and Matt Kipper)



Group Members: Alex Kosmiski, Morgan Schake, Alex Bozzo, and Ally Baumgart

This project focused on the creation of a novel regenerative medicine technique to entirely eliminate the need for bone grafts by experimenting with the use of demineralized bone matrix for the specialization production of bone scaffolds using electrospinning and airbrushing methods. Such scaffolds are designed to be surgically implanted in the human body at the immediate site of bone loss and thus must be biocompatible, causing negligible immune reaction/rejection.

Join us Next Year

If you are interested in viewing biomedical engineering senior design projects and interacting with our students, please join us for next year's E-Days event on Friday, April 19, 2019 in the CSU Lory Student Center Ballrooms.