

The Critical Thinker

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BioMEDS Purpose:

- Provide students a platform from which they can critically discuss and learn about the myriad of bioengineering research areas, staying current with an ever changing biomedical landscape.
- Provide opportunities to give back to the community through education outreach focused in science and mathematics.
- Encourage students to foster a sense of pride and accomplishment in their major as well as their institution .

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Spotlight: Bioengineers Travel to Tanzania

Mitchell Fullerton

This January one of our own members, Marci Elpers, got the incredible opportunity to travel to Tanzania with Dr. Delphine Dean and her creative inquiry team. The goal of the project was to bring an infant body temperature monitoring device to Tanzania and help the doctors and technicians implement it. The device is a little black box that connects to a baby and monitors their temperature by converting the heat into a resistance. "The device converts temperature into resistance which then cues the three lights on the box to change accordingly," Marci explains, "the lights will tell if the baby is too cold, to hot or just right." The groups goals were to make the user interface as simple as possible and to make it portable in order to let the mothers stay in contact with their children.

The group was brought this opportunity by Dr. Ellegala, a



Marci Elpers, Britton McCaskill, and Lauren Sosdian in Tanzania

neurosurgeon at MUSC who founded the Madaktari program after spending 6 months in Tanzania training doctors to do neurosurgery. The goal of the program is to train medical professionals and bring them up to speed with medical care. It was in this mindset that the group endeavored to create a simplistic device that could be easily created, implemented, and repaired.

"The greatest thing I pulled

from this experience is perspective. The healthcare in this country was in many ways lacking," says Marci, as she describes rooms full of broken medical equipment that either can't be repaired or used because there are no technicians to run them.

In the future, the group hopes to create a heating pad that works in tandem with their instrument that will warm the child if they become too cold.

Fundraising Events

Sallie Ware



Working the Concessions, Go Tigers!

This semester BioMEDS had two major fundraisers. raising around \$300 for the club. One of the fundraisers involved selling Candy Grams for Valentine's Day. Members of the department could purchase candy grams the week before Valentine's Day to send to students and faculty in the department. This was a great way for different groups in the department to interact with each other and support BioMEDS. This was the first year this fundraiser took place and many were unaware of it, however, in the future, it is predicted to be more profitable and a general morale booster for the department.

The second event that BioMEDS participated in was running the outfield concession stand at the baseball fields for the preseason game against Virginia Tech. A group of members manned the Dip 'n' Dots station, frozen lemonade and soda stand, and general concessions for the night. While the group had to arrive early to set up and take inventory as well as stay late to break down and take inventory again, it was a good bonding experience and raised a large chunk of the necessary funds for the club's activities this semester.

New Research Facility for the Bioengineering Department

Devon Bowser

The Bioengineering Department at Clemson University recently gained a new research facility in Greenville, SC called the Translational Bioengineering Research Center. Funded by a \$3.5 million grant from the state of South Carolina, the Translational Bioengineering Research Center is a 1200 square foot facility located on the Greenville Hospital System's Patewood Campus. The facility currently contains research laboratories, a Center of Vascular

Disease Diagnosis and Management, a medical library, a bioimaging facility, office space, and a conference room.

This research facility was created to focus on translational research. Translational research can be defined as "research undertaken in response to a defined clinical need which is directly applied towards the detection, prevention, and/or treatment of pathological, degenerative, or

traumatic conditions, resulting in improved clinical outcomes for target patient populations." In other words, it can take an idea from the laboratory and apply that technology at a patient's bedside to solve their medical problems. The Clemson Bioengineering Department Chair, Dr. Martine LaBerge, believes that with this facility "we will now be able to do research that is clinically applicable and has the potential to reach patients in a more timely manner. It will impact

how conditions and illnesses are ultimately diagnosed and treated." It is an honor and a great opportunity for Clemson University to have access to a facility such as the Translational Bioengineering Research Center and we can expect great results that further the medical industry from Clemson University in the future.

BioMEDS Summer Break

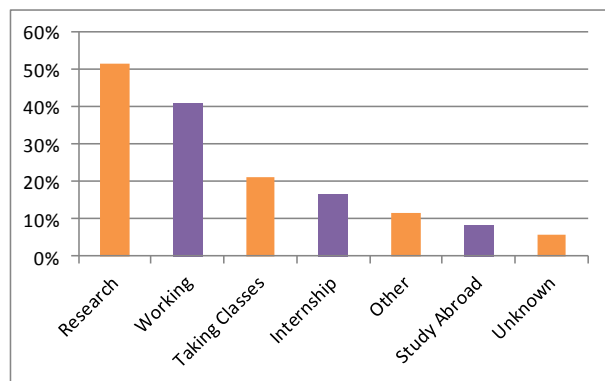
Molly Townsend

We asked the department what they were doing for their summer break, here's what they said:

Studying Abroad

This summer many BioMEDS members plan to expand their horizons by traveling abroad. Some students are taking advantage of the department's study abroad opportunities, taking classes in Pamplona, Spain for 5 weeks. There, students will be given the opportunity to fulfill core Bioengineering course requirements, in addition to taking a course focused on the Spanish culture. Other students will be traveling to Singapore for the sum-

mer to perform research at Nanyang Technological Institute in a variety of subjects, including biomaterials, defense materials, nanoelectronics, ecomaterials, nanotechnology, drug delivery and tissue engineering. BioMEDS members will also be traveling in non-departmental sponsored programs to countries across the world, including Scotland, England, Kenya, Australia, India, and the Dominican Republic.



86 Students polled, some students chose more than one option

Study Abroad Opportunities in Bioengineering

Pamplona, Spain: Home of the Famous "Running of the Bulls"

- Courses offered at the Pamplona Spanish Learning Institute
- First Summer Session 2011
- 5 weeks, 6 credits
- Optional Independent Travel
- Contact Dr. John Desjardins (jdesjar@clemson.edu)



Singapore: Stem Cell Research Hub

- Offered Spring 2011, Spring 2012, Summer 2, Summer Internship in Company, or a full academic year
- Research areas: Biomaterials, Nano-electronics, Ecomaterials and Clean Energy Research
- Contact Dr. Frank Alexis (falexis@clemson.edu)



Nanyang Technological Institute

BioMEDS Summer Break (cont.)

Research

Bioengineering students often devote their summers to conducting research in a variety of fields. Many BioMEDS members plan to remain at Clemson over the summer to perform research under professors, either continuing research performed during the school year or to initiate new and exciting projects. Other students plan to travel across the nation to other acclaimed universities, including Johns Hop-

kins University, the Medical University of South Carolina, Rice University, Worcester Polytechnic Institute, the University of Maryland, and Iowa State University. BioMEDS members will also be conducting research under national labs, such as the National Institute of Health and the National Aeronautics and Space Administration.



BioMEDS Club Meeting Spring 2011



BioMEDS member, Lauren Eskew and Laura Reese, on Co-Op at Tetramer Technologies, LLC

Internships

BioMEDS members are spending their summer entering the work force through internships and co-op rotations. Students will be working at many big companies in bioengineering, including Edwards LifeSciences, AERES Biomedical, DeRoyal Industries, Baxter Healthcare, and St. Jude Medical. Other students will be working for government-sponsored programs, like SPAWAR and the Food and Drug Administration. Members are also shadowing

physicians to prepare for futures in medicine. Participating hospitals include Palmetto Health Richland Hospital, Cincinnati Children's Hospital, and the Free Medical Clinic of South Carolina.

Engineering Expo 2011

Laura Reese

This February, BioMEDs presented a display at the Engineering Expo during National Engineers Week. This event hosted over 150 second graders from Clemson Elementary and boasted different displays from 12 organizations ranging from a "fluids race" to the dynamics of paper airplane models. Each activity's goal was to stimulate the imagination of the children and spark an interest in science and math. BioMEDs had a large display of hip and knee implants, artificial

heart valves, pacemakers, and synthetic arteries. The main attraction of our display was a heart rate and breathing monitor. We showed the children what their EKG looked like when in a resting state and then had them do jumping jacks and observe the difference in their heart rate and pulse. It was an incredible learning experience for our members because it forced us to simplify our day-to-day terminology down to a language that a child could understand.



2nd Graders at the BioMEDS Display

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We're on the Web!
[sites.google.com/site/
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Your 2010-2011 officers:

- President
Brendan Roach
- Vice-President:
Laura Reese
- Secretary
Alanna Walker
- Treasurer
Laila Roudsari

BioMEDS Third Annual Career Panel: Finding your Future in Bioengineering

Laura Reese

This year's Career panel featured five speakers from industry, medical school and education showcasing a wide array of professions available to students. The career panel also featured two graduating seniors, Hilary Cash (future medical student at MUSC) and Brendan Roach (future PhD student at Columbia University) who were available for undergraduates who had questions or needed advice about the application process to medical and graduate school. The career panel offers a great oppor-

Jonas Hall

Received Bachelor of Science in Bioengineering from Clemson University and Master of Engineering Management from Duke University. Currently works at Zeus Industrial Products in Orangeburg, SC developing extruded polymeric biomaterial textiles and tubing for medical devices.

Eric Lucas

Received BS in bioengineering from Rose-Hulman. After graduation he took a job as a design engineer at a contract manufacturer of medical devices then he moved on to an orthopedic firm where he helped bring a product from concept through market, including FDA approval and audit. He is now working towards his PhD at Clemson University with a specific focus on orthopedics, and his intention is to return to the industry with an advanced knowledge that will assist him in development of new technologies.



Jon Morgan

Received BS in mechanical engineering from Clemson University. Currently works at St Jude Medical, the capacitor site in Liberty, SC. This facility contains all levels of the medical device development process from R&D, development of prototype devices and processes, quality validation, and manufacturing and testing.

Randy Hutchinson

Pursued an undergraduate degree in aerospace engineering at Virginia Tech, followed by a turn to education teaching high school science. He is now pursuing a MS/PhD in Bioengineering at Clemson through Clemson's Science Education department in partnership with the Bioengineering department and will be an assistant professor at Furman University in the fall.

Mohammad Pathan

Received BS in Bioengineering from Clemson University. Current second year medical student who is finishing up his pre-clinical training this summer. At this point in his training, he is a student of basic medical/clinical sciences. Consequently, on a day to day basis he is mostly involved with studying class material and attending any labs or activities that the college of medicine has planned.



Club Picture - BioMEDS 2011