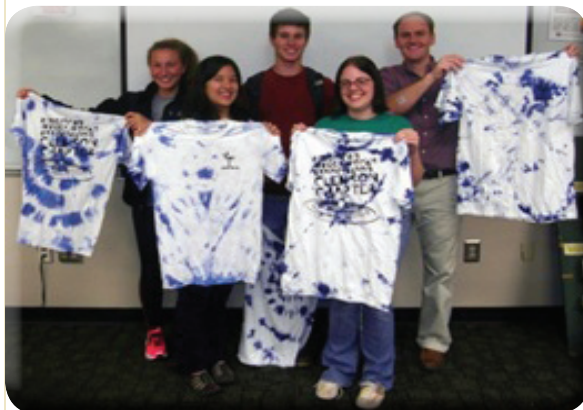




Focus on Student Organizations

Clemson AWWA Student Chapter



The Clemson Student Chapter of the American Water Works Association (AWWA) was founded in April 2011 and has now completed its inaugural academic year. AWWA (www.awwa.org) is a professional organization focused on the drinking water industry, with close ties to the wastewater industry and other environmental engineering fields. The student chapter holds networking meetings, on-campus activities, and field trips to stay engaged with one another and the community. During the 2011-2012 academic year, activities included monthly meetings with industry representatives giving seminars about their work and two signature events. The first was a "Career Panel" where five panelists answered questions about various types of careers in the industry. Nine additional industry

representatives joined in a networking and socializing period after the panel discussion. The second event was a trip to the South Carolina Environmental Conference (SCEC) in Myrtle Beach where students gained a more in-depth understanding of the field of water and wastewater and met many of the key industry leaders in South Carolina.

The South Carolina section of AWWA has been a significant supporter of the Student Chapter, providing the lodging expenses for the executive committee members at the SCEC conference and an additional \$2000 budget which has enabled our first-year activities. The activities have already borne fruit as several students have received internship offers and career leads through meeting and networking with industry representatives. Future projects are planned to extend the Chapter's work into community service and developing nation activities.



Officers for the 2011-12 academic year are **Jackie Lauer** (president), **Kathryn Fauerby** (president-elect), **Jessica Bush** (secretary), **Zachary Priester** (treasurer 1st semester) and **Kevin McIntyre** (treasurer 2nd semester). The Chapter's Industry Liaison is Morgan Young (Black & Veatch), who has been instrumental in establishing the Chapter and helping to carry out its first-year events. **Dr. David Ladner** is the faculty advisor and the person to contact for further information (ladner@clemson.edu).

Biosystems Engineering Club



Thomas Creek Brewery Tour

Friends, food, fermentations, and fun – these are just a few of the words that come to mind when talking about the Biosystems Engineering Club. The BE Club aims to increase student involvement within the exciting field of Biosystems Engineering, provide professional and educational development activities outside the classroom, and most importantly bring like-minded students together. An official student branch of ASABE (American Society of Agricultural and Biological Engineers), the BE Club utilizes local, regional, and national resources to bring networking opportunities to its members.

The club has numerous activities throughout the year. Some of these include fellowship dinners, outdoor hikes, local brewery tours, adopted highway cleanups, and the annual end-of-year cookout. Last month, several members visited Virginia Tech for the annual ASABE Southeast regional rally. In addition to making professional connections and learning great new ways to lead, participants met many new BE friends from across the southeast.

This year, the club was led by seniors **Steven Chow** (President), **Lauren Harroff** (Vice-President), **Kaitlyn Murray** (Treasurer), and **Amy Smith** (Secretary). Dr. Caye Drapcho is the club's advisor. Club meetings generally occur monthly. Each meeting comes supplied with dinner and a speaker from either academia or industry.



BE students at the 2012 ASABE Rally formal

Clemson University Health Physics Society



Pictured from L-R: **Sarah Herr**, **Jennifer Wong**, **Matt Millard**, **Amy Hixon**, **Hilary Emerson**; 2nd row: **Yu Xie (Helen)**, **Dr. Lindsay Shuller-Nickles**, **Nate Conroy**, **April Gillens**, **Joseph Jablonski**; 3rd row: **Dr. Brian Powell**, **Long Hoang**, **Ryan Trostad**, **Shanna Estes** and **Dr. Tim Devol**

The Clemson University chapter of the Health Physics Society consists of graduate students from our EE&ES department who are interested in nuclear fields (i.e. radiochemistry, health physics, and nuclear forensics). The group hosts a weekly forum where students can present their research and ideas for feedback and discussion.

Members of CUHPS regularly attend seminars and meetings for local and professional chapters, as well as tour nuclear facilities like those in Oak Ridge, Tennessee, and the Savannah River Site. In addition, the group has adopted a road located near the Clemson University main campus on SR-S-39-149, regularly participates in the Duke Energy Boy Scout Merit Badge "College" with the Nuclear Science Merit Badge, and has presented at local area high schools on nuclear sciences.

This summer, several CUHPS members will help lead a workshop for K-12 educators on nuclear energy and the environment.

nt Organizations

The Geology Club

This year, the Clemson University Geology Club has incorporated a mix of exciting guest speakers, informational lectures, and field trips into its schedule. In order to gain interest from Clemson's different colleges, representatives from the club presented ideas to potential members at Clemson's Club Fair at the beginning of the fall semester. Dr. James Castle explained his intriguing hypothesis of mass extinctions, including that of the dinosaurs, possibly being related to microscopic blue-green algae. Past and present faculty members spoke on potential field trip intensive courses, as well as methods to prepare for life after college. One of the highlights from the fall semester was a field trip to Due West, South Carolina. Club members, as shown in the picture, had the opportunity to mine for gems, such as aquamarine and emerald, without having to travel out of the Upstate. Dr. Melissa Ranhofer of Furman University recently detailed the potential for phytoplankton to be farmed as the next biofuel of the future. Plans are in the making for a rafting excursion down the Chattooga River to examine the metamorphic rocks exposed along the river's channel.



Student Accomplishments



Muriel Steele, (PhD, EE&S) was selected as one of the recipients of the National Science Foundation 3-year graduate research fellowships (NSF GRF) to students in science, engineering, mathematics, technology, and some social sciences. These are very prestigious awards with a generous support package (\$45k/year).

Hilary Emerson (PhD, EE&S) was awarded the Roscoe Hall Memorial Scholarship by the Savannah River Chapter of the Health Physics Society. Hilary was recognized for her academic and research accomplishments. In the picture she is being presented with her award by Dennis Hadlock, a representative of the chapter.

Shanna Estes has received the Health Physics Society Fellowship for graduate studies in health physics. The award includes

\$5,000 to support Shanna's graduate work as well as a travel grant to attend the 2013 HPS Annual Meeting in Madison, Wisconsin.

Adam Mangel (PhD, EE&S) was awarded a travel grant from Geometrics Inc. to attend the 2012 Symposium on the Application of Geophysics to Environmental and Engineering Problems (SAGEEP) in Tucson, Arizona. At the conference, Adam will be presenting part of his research which involves imaging land mines in the shallow subsurface during multiple hydrologic conditions in order to increase unexploded land mine identification capabilities.



EEES 2012 Student Awards



L-R: **Steven Chow**, Clark Lindsay McCaslan Award, Biosystems Engineering; **Lauren Harroff**, Howard H. McKinney Award, Biosystems Engineering; **Alex Baldwin**, Jean G. Stillwell Award, Geology; **Tanju Karanfil**, Department Chair; **Jaclyn Ellerie**, L. G. Rich Water Environment Federation Award; **Kelly Grogan**, Environmental Scholars Award; **Xiaoling Liu**, Environmental Scholars Award; **Meric Selbes**, A. Ray Abernathy Water Environment Federation Award; **Muriel Steele**, Environmental Scholars Award; **Josh Smith**, Thomas M. Logan Geology Award (not pictured)



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Faculty Profile



Dr. Caye Drapcho, Associate Professor of the Biosystems Engineering Program, thinks back on her childhood in central Pennsylvania, and can trace some of the influences that led to her current career – the beautiful mountain streams turned lifeless and orange due to coal mine acid drainage; news coverage of malnourished children in developing countries lacking food and clean water, her mother's reminders to think about those less fortunate before wasting food or resources; and the innovative biology teacher who challenged his students to tackle problems and find solutions. What career would lead to solutions in sustainable energy, water and food and educate others about the issues? Biosystems Engineering! From her graduate program to her current projects, Cayes' research has spanned these topics - design of aquaculture systems for fish production; assessment and treatment of nonpoint source pollutants from animal agriculture; production of biofuel (hydrogen gas) by fermentation of waste agricultural feedstocks, and capture of atmospheric CO₂ with cultures of freshwater algae. Her most recent proposal is to develop a sustainable energy pathway to produce biofuels (hydrogen, ethanol, biodiesel) and food in an integrated agricultural system using green processing techniques. Caye teaches courses in Fundamentals of BE, Biological Kinetics, and Heat and Mass Transfer. Each includes fundamentals with applications of engineering design and analysis to living systems that range from microbial cultures to wildlife to humans. With the addition of the Biosystems Engineering program to the EE&ES Department, Caye is looking forward to even more opportunities to strive for a sustainable future!

Chair's Corner

Dear EEES alumni and friends:

I am pleased to present you a new issue of our alumni newsletter. Students are the main focus and constitute the main mission of any educational institution. We have been very fortunate to have a diverse student body with amazing talents, skills, interests and accomplishments. In this issue, we highlight some of our student's activities through different student organizations in the Department. I am certain that you will be impressed with our young and dynamic student body.



The Department has completed another very successful and productive academic year. New research awards reached \$3.7M in the past academic year, and EEES faculty has completed three years in a row with research awards, exceeding \$3M/year. This is a testament to the research quality and diversity in the Department.

Dr. Timothy A. DeVol has been named the Toshiba Endowed Professor of Nuclear Engineering. The new Endowed Professorship was funded as part of a \$1.5 million endowment to Clemson University in honor of Toshiba Corp. President and CEO Norio Sasaki. The professorship will be used to maintain and properly equip the departmental world class laboratories with nuclear instrumentation and to enhance the educational experience of all the Nuclear Environmental Engineering and Science students in the department.

Congratulations to Dr. Stephen Moysey for winning a prestigious National Science Foundation (NSF) CAREER Award for his research project on advancing the mechanistic understanding of field-scale preferential flow and transport processes in soils using geophysics. This award increases the number of current faculty in EEES who have won NSF CAREER grants to five. The CAREER grant is the highest honor given to young faculty by the National Science Foundation.

We had also another (20th!!) very successful David Snipes Hydrogeology Symposium with over 350 attendees and 30 exhibitors. This is now a well established go-to event for geologists and hydrogeologists. Its influence and attraction pass beyond the boundaries of Southeastern United States.

We greatly appreciate your continuous support and generous donations to the Department. Please note that you can make on-line donations through our Department web page. They provide important resources to the Department and especially to our students. Also, please visit our web page to read more about the events and stories in the Department. THANK YOU!

Tanju Karanfil, Ph.D., P.E., BCEE
Professor and Chair