

MU Chemistry

year-in-review

Spring 2016

Faculty and Students Present at the ACS National Meeting



Cynthia Peck and Samantha Garretson posing with ACS's mascots Nick L. and Millie Mole.

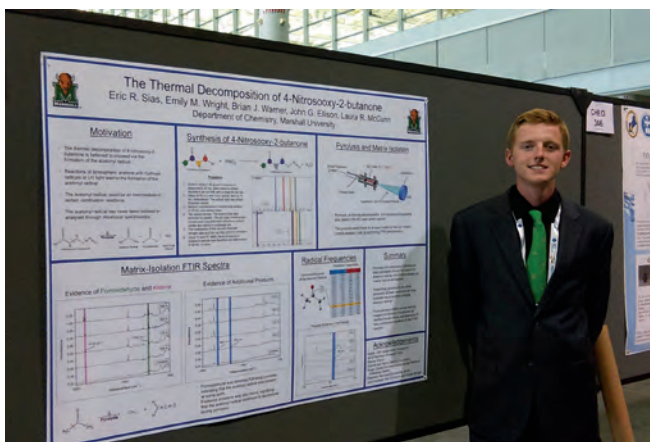
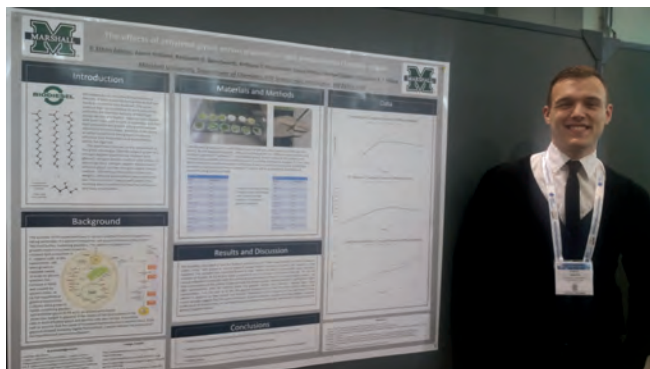
In August 2015, several undergraduate students and faculty members represented the Department at the [250th National Meeting of the American Chemical Society](#) in Boston, Massachusetts. Their trip was the first to be sponsored by the Babb Trust, which was established by the late Professor Dan Babb to support student travel and scholarships. Students Ethan Adkins, Destiny Carte, Samantha Garretson, Cynthia Peck, Eric Sias, and Tyler Skidmore were accompanied by chemistry faculty [Laura McCunn](#), [Mike Norton](#), [Rosalynn Quiñones](#), and emeritus professor [Gary Anderson](#).

The American Chemical Society National Meeting offered many opportunities for learning about current research, professional development, and careers in chemistry. Several of the students presented their own research in poster sessions. They also attended the Eminent Scientist Luncheon and Lecture with John C. Warner, President and Chief Technology Officer of the [Warner Babcock Institute for Green Chemistry](#).

It has become a tradition for students and faculty attending a conference to gather for a group dinner at a local restaurant. This year, the group enjoyed fine seafood at Boston's world-famous Legal Sea Foods. The students took some time for sightseeing with Boston Duck Tours, traveling the city streets and Charles River in an amphibious vehicle. Sophomore chemistry major Samantha did more sightseeing with Professors McCunn and Quiñones while running in the [ACS Younger Chemists Committee 5K Fun Run](#).

Feedback from the students indicated that the trip had a tremendous impact on them, both personally and professionally. When the students were asked about their experiences, Tyler Skidmore responded, "It was great attending such a prestigious event in a historically rich city and I am very thankful to Marshall's chemistry department for giving me the opportunity." Samantha Garretson reflected on the value to her current research experience, "I

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Ethan Adkins (Top) and Eric Sias (Above) with their posters at the undergraduate poster session.

particularly enjoyed the ACS National Meeting because the experience enabled me to make connections with people whose research was closely related to my own. Receiving feedback and suggestions on my poster was especially helpful for later presentations.”

Student and Faculty Achievements

This year, four Chemistry faculty published papers. [Laura McCunn](#) and students Emily Wright (BS Chemistry, 2015), Brian Warner (BS Chemistry, 2015), and Hannah Foreman (BS Forensic Chemistry, 2015) published an article titled [Pyrolysis of 3-Oxetanone](#) in the *Journal of Physical Chemistry A*. They were interested in this molecule because it serves as a model for materials that result from the breakdown of organic molecules in combustion reactions. Laura also presented this work at the [International Symposium on Molecular Spectroscopy](#) in Urbana-Champaign, Illinois, with Brian, Emily, and Hannah as co-authors. [Ken O'Connor](#) and Curtis Pelfrey (RBA, 2016) with Susan Ensel of Hood College, published “[SiliaCat Pd\(0\), a New Green Hydrogenation Catalyst for the Undergraduate Organic Chemistry Laboratory](#)” in *The Chemical Educator*. As the title suggests, this paper describes the development of a new laboratory that can be used in the undergraduate chemistry curriculum. [Mike Norton](#) and post-doctoral fellow Nathaniel Green provided a literature review “[Interactions of](#)

[DNA with graphene and sensing applications of graphene field-effect transistor devices: A review](#)” in *Analytica Chimica Acta*. Finally, [Derrick Kolling](#), collaborating with Xiaoping Sun and his students from the University of Charleston “Investigation of Charge-transfer Absorptions in the Uranyl UO_2^{2+} (VI) Ion and Related Chemical Reduction of UO_2^{2+} (VI) to UO_2^+ (V) by UV-Vis and Electron Paramagnetic Resonance Spectroscopies” in *Inorganica Chimica Acta*. This research seeks to improve removing the radioactive species from water.

Several of our majors presented posters at Undergraduate Research Day at the Capitol, an event that connects West Virginia legislators to students at the state’s colleges and universities: Noah Searls (senior biology major/Pharm.D. major) working with [Rosalynn Quiñones](#), Marjorie McCoy (BS Chemistry, 2015, working with [Scott Day](#)), and Aaron Holland (senior biomedical sciences major, working with [Derrick Kolling](#)). Aaron was awarded the DOW-MU STEM Best Undergraduate Poster for his poster titled “Maximizing Lipid Production in *Chlorella vulgaris*”. Miles Gray (BS majors in Forensic Chemistry and Biochemistry) co-authored a national conference abstract with Jenna Kerby, Holly Tamski, Aaron Heaberlin, Gabriela Ion and Dr. Maria Serrat (Department of Anatomy) titled “Temperature Enhanced Extremity Lengthening is Growth Rate Dependent.”

[John Rakus](#) participated in the American Society for Biochemistry and Molecular Biology (ASBMB) Think Tank for Classroom Undergraduate Research Experiences (CUREs) held at the University of San Diego. John is participating in a project with faculty at USD and the University of Richmond to develop a new model for teaching biochemistry laboratory by bringing original research into the classroom. [Rosalynn Quiñones](#) again served as a facilitator at the 2015 American Chemical Society Postdoc to Faculty Workshop (P2F), prior to the national meeting. Rosalynn gave a talk titled “Using Clickers or Response Systems in Chemistry Class.” [Michael Castellani](#) was re-elected to the Council on Undergraduate Research, elected to its Nominations Vetting Committee, and appointed interim chair of the CUR-Goldwater Scholars Award selection committee.

John Hubbard Retires



John L. Hubbard, professor of chemistry, will be retiring at the end of this academic year. John received a B.S. degree from the University of North Carolina in 1969 and then a Ph.D. in 1976 from Purdue University, working in the lab of Herbert C. Brown on organoborane chemistry. John remained at Purdue as a visiting assistant professor of chemistry and research associate for two years before joining the Department of

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chemistry at Marshall in 1978. John was tenured in 1984 and promoted to full professor in 1990. He has served ably as associate chair for the last 12 years. He served several terms on the Faculty Senate and was a member of three university committees, all of which he chaired, and was honored with the Distinguished Service Award in 2012.

John was hired in a time of transition for the Department. The previous year, the College of Science was created and the chair, Steve Hanrahan, was selected to be its first dean. Jim Douglass replaced him as chair. Jim was in a cadre of faculty members hired in the mid-1960s to increase the research profile of the Department. With that perspective, John became Jim's first hire.

John continued working in the area of organoboranes in the early part of his career and spent two summers expanding his skills at the Oak Ridge Associated Universities and the Chemical Research and Development Center at the U.S. Army's Aberdeen Proving Ground. In about 1987, John began a productive collaboration with Gary Rankin of the Department of Pharmacology at the MU School of Medicine. This research explored the nephrotoxic effects of a variety of succinimide derivatives. John and his research group prepared some of these compounds and Dr. Rankin's group did animal testing to better understand the effects certain succinimides have on the kidneys.

John's real passion was teaching, however. His organic classes are renowned for their rigor. These classes prepared nearly two generations of students for graduate studies in

Chemistry as well as preparing students well for the MCAT (medical college admissions test). His attention to detail has been without parallel.

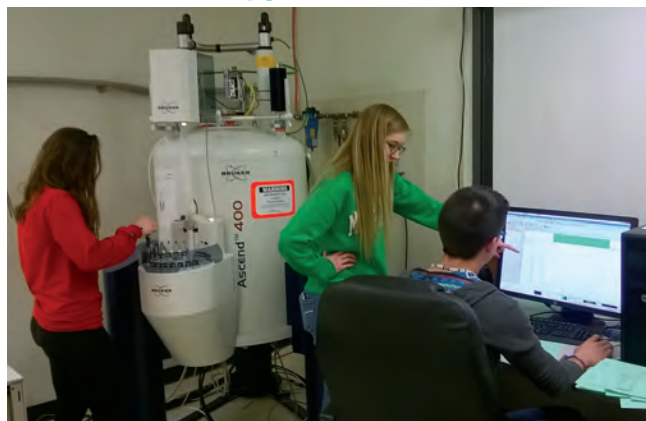
Away from campus, John is an avid birder and participates in annual Christmas bird counts as well as a Century Day count each May. His personal best is 138 different species on a Century Day. He and his wife, Jeanne, enjoy traveling, including the vineyards of California, Ireland and the British Isles, and the homes of their children and grandchildren. But what he really loves to do, in his spare time, is be a musician. He began formal training as an organist in high school and continued that at the University of North Carolina while he studied chemistry. He has been a substitute organist, mostly at the churches he has attended, since his arrival in Huntington. Likewise, he began choral singing while in college and helped found a chamber group in graduate school. John sang with the Marshall Choral Union for most of his time in Huntington and has also sung with the Huntington Musical Arts Guild and West Virginia Symphony Chorus. Throughout his time in Huntington he has been a member of his church choir.

John and his wife, Jeanne, who currently teaches in Marshall's Department of English, will both retire this year and look forward to spending time with their children, Christine, Elizabeth, & Matthew and six grandchildren, and to other travels, all without the constraints of the academic calendar.

Strategic Planning, Version 2.0

Last year, we reported to you that we had our second external review. That review found us to be in good shape to build for our future. The first review team (in 2008) suggested we create a strategic plan, which we did. The exercise was helpful and we decided to follow-up last year's review with another strategic planning session. We had achieved many of the goals of our first strategic plan and so most of our goals are new or substantial updates of the ones we set 6 years ago. Those goals range from increasing the efficiency and efficacy of our space usage to writing new general chemistry labs with real world applications. We also plan to grow our capabilities in the area of undergraduate research both in terms of the departmental culture and through proposal writing. Notably, we hope to make research an activity that our majors compete to participate in and the Babb travel fund will be a great vehicle to help us achieve that goal.

NMR Instrument Upgrade



In the field of organic chemistry, perhaps no instrument is more important than the nuclear magnetic resonance spectrometer. The device can rapidly provide a great deal of information on the structure of a material on only milligrams of material. It is so important that the American Chemical Society requires approved programs to own one. Until relatively recently though, using this instrument required a good deal of training and one had to use it with some frequency to be proficient with it. Last year, the university, with college and departmental support,

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Alpha Chi Sigma Update



The Gamma Eta Chapter of Alpha Chi Sigma has had an amazing year. We now have 50 active brothers and are preparing to initiate 26 more into our ranks. We are currently serving as the parent chapter for the reinstatement of the Alpha Gamma chapter at the University of Kentucky. This past fall, we mentored and initiated their first pledge class and will be traveling to Lexington this April to assist with their first initiation. We also hosted a successful Bluegrass District Conclave for the second consecutive year and hosted the first annual Bluegrass District Leadership conference this past March.

Gamma Eta has made great strides with outreach in the past year. We have a tutoring program which has tutors available for all chemistry classes and schedules individually with students to ensure accommodation with their schedules. We have hosted several successful outreach programs, including an inter-departmental tour of the Marshall College of Science for Lincoln County Middle Schoolers, several chemistry programs for Cabell County elementary and high school home schooled students, and a community-centered program at West Huntington Library that brought together over a dozen local children. We provided judges for the Fairland Elementary and High School science fairs and provided judges for nearly half of the West Virginia Science Olympiad events. We also volunteer regularly at the Huntington Soup Kitchen and sent a team to represent us in the Spike for a Cure volleyball



Students in the newly renovated Swamp

tournament. We also undertook a swamp beautification project between semesters so our swamp is a more enjoyable space for students and faculty to use.

Paired with our bonds of brotherhood often comes scholastic achievement. We are happy to say that several of our brothers have been accepted into medical school, pharmacy school, and PhD programs around the country, including Marshall, Ohio State, University of Michigan, University of Wisconsin, and Northwestern University.

– Amanda White, Master Alchemist

ACS National Meeting *continued from page 2*



Samantha Garretson, Professor Rosalynn Quiñones and Cynthia Peck during the undergraduate poster session at the ACS National Meeting in Boston, Massachusetts.

NMR Instrument Upgrade *continued from page 3*

replaced our aging instrument with a new Bruker AVANCE 400 MHz NMR. The package we purchased, which cost over \$300,000, gave us a research instrument easy enough to use that it has been incorporated into freshman and sophomore labs. Now, every student graduating with a degree in chemistry or biology will have the opportunity to use this technique on their own samples, rather than just reading about it in a book.

For more details about any stories in this newsletter, please visit our News page at www.marshall.edu/chemistry/news.asp.

Our Vision

To be known as one of the top undergraduate programs in the nation by integrating teaching with research experience.



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