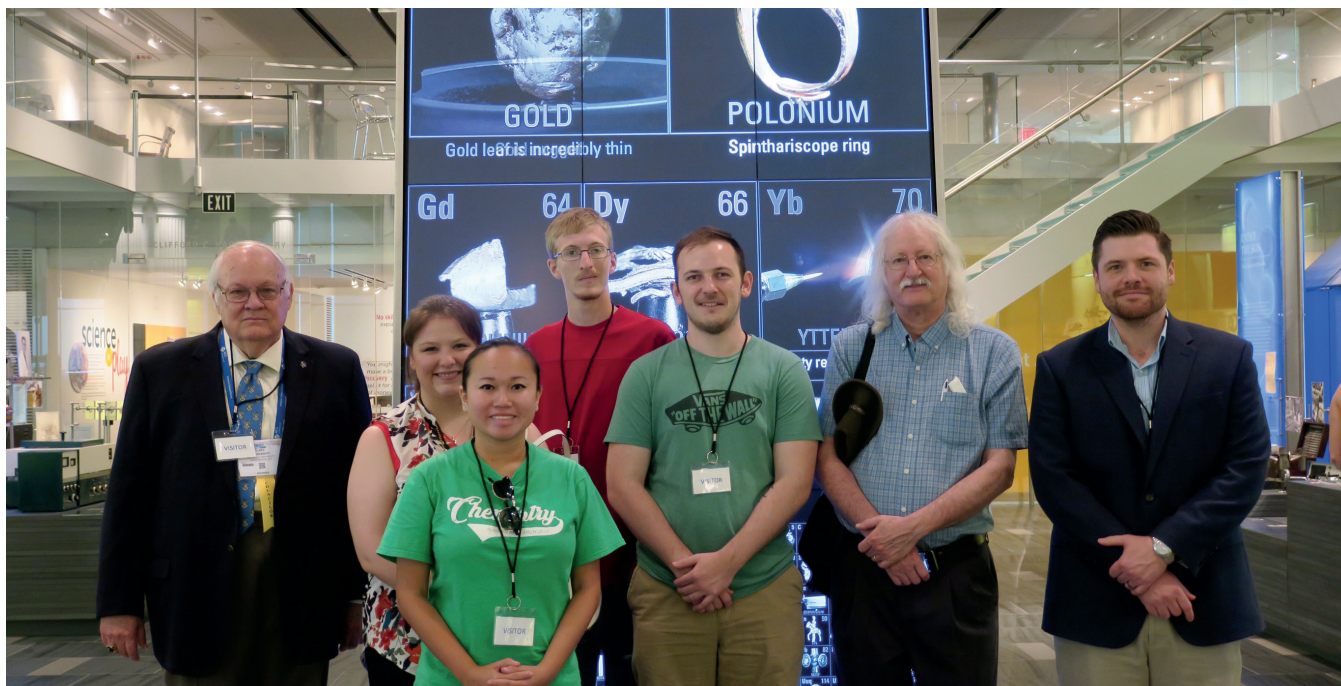


MU Chemistry

year-in-review

Spring 2017

Students and Faculty Present at National and Regional Meetings



Amanda Smythers, Sarah Cole, Zach Runyon, and Nick Kegley (left to right) at the Chemical Heritage Foundation Museum with Professors Anderson, Norton, and Kolling.

Chemistry students and faculty have traveled all over the country in the past year to share their research and develop professional skills at national conferences. These trips were made possible by the Babb Trust, which was established by the late Professor Dan Babb to support student travel and scholarships.

In April 2016, professor John Rakus accompanied three members of his lab – Nick Kegley, Brandon Murdock and Shelley Naylor – to the 2016 National Meeting of the [American Society for Biochemistry and Molecular Biology](#) in San Diego, CA. The students presented posters on their research and attended talks by such luminaries as Emmanuelle Charpentier, Peter Walter, Ronald Breaker, Aziz Sançar and Francis Collins. Nick and Shelley shared an Outstanding Thematic Poster Award for their session!

In May 2016, seven students attended the [Central Regional Meeting of the American Chemical Society](#) in Cincinnati. Undergraduate students Aaron Holland, Ethan Adkins, Eric Sias, Noah Searls, Jordan Martinez, Amanda Smythers, and Samantha Garretson represented several chemistry faculty labs by presenting talks and posters.

Three students from professor Derrick Kolling's laboratory attended the [6th International Conference on Algal Biomass, Biofuels and Bioproducts](#) in San Diego in June 2016. Ethan Adkins, Aaron Holland, and Amanda Smythers were able to compare their methods and procedures with other groups and learned further about the advancement of algal biofuels. While in San Diego, Amanda took a tour of the Scripps facility and was joined by individuals from five other countries performing research on microalgae.

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National and Regional Meetings *continued from page 1*



Amanda, Sarah, Zach, Derrick, and Nick near the Philadelphia Convention Center

In June, 2016, Dr. Rakus and Nick Kegley traveled to that [National Institutes of Health](#) in Bethesda, MD, to present posters at the [NIH/FDA GlycoSciences Research Day](#). This annual meeting brings together researchers from around the country focused on studying carbohydrates.

We kicked off the new academic year by sending a delegation to the [252nd National Meeting of the American Chemical Society](#) in August 2016. Undergraduate students Sarah Cole, Nick Kegley, Zach Runyon, and Amanda Smythers attended the meeting with Derrick Kolling. Several of the students presented their own research in poster sessions. They also learned about "How to Make Plastic Transistors and Solar Cells" from Dr. Tobin J. Marks, Northwestern University, at the Eminent Scientist Luncheon and Lecture. A highlight of the trip was a VIP tour of the [Chemical Heritage Foundation](#) with Marshall's own emeritus professor of chemistry, Gary Anderson, who is a member of its [Heritage Council](#).

Sending students and professors to national meetings is a great way to raise the national profile of our department by showcasing the quality of our undergraduate research program. It also provides invaluable opportunities for students to network and learn as they prepare to embark on their own careers. Ethan Adkins expressed his appreciation for the experience, "Attending and presenting at a national conference taught me how the scientific community gathered and communicated. It really changed my perspective." Amanda Smythers also provided excellent feedback, "I enjoyed presenting at the National

ACS conference immensely. I was surprised at the number of people who stopped by to see my poster and seemed genuinely interested in what I was doing. I received a lot of great feedback and some ideas to bring back to the lab."

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 and Samantha Garrettson (senior biology majors working with Rosalynn Quiñones), Ethan Adkins, Aaron Holland, and Amanda Smythers (Senior Biochemistry majors, with Derrick Kolling), Andrea Hensley (BS, Major in Chemistry, with Mike Norton), Eric Sias (BS, Major in Chemistry, with Laura McCunn), and Jordan Martinez (senior chemical sciences major, with Mike Castellani). Andrea and Jordan were DOW-MU STEM Scholars.



Amanda Smythers, Ethan Adkins, and Aaron Holland discussing their research with MU Pres. Gilbert at WV Undergraduate Research Day at the Capitol

Mike Castellani attended the [Council on Undergraduate Research's](#) Biannual Conference and annual business meeting. With Melvin Druelinger of Colorado State University - Pueblo he presented a workshop on "How to Get Started in Research with Undergraduates in the Natural Sciences."

Rosalynn Quiñones participated in the [Content Development Conference](#) for the [Chemical Educational Foundation](#) (CEF) in preparation for the "You Be the Chemist National Challenge®" event in July 2017. This is "an interactive academic contest that encourages students in grades 5-8 to explore chemistry concepts and their real-world applications." She also participated in the National Science Foundation sponsored [Art as Context for General Chemistry](#) workshop. Finally, she and John Rakus again served as facilitators at the ACS Fall national meeting for the American Chemical Society Postdoc to Faculty (P2F) workshop.



Student and Faculty Achievements

This year, three Chemistry faculty published four papers. Laura McCunn and students Sarah Cole (BS Biochemistry, 2017), Eric Sias (Chemical Science major), Brian Warner (BS Chemistry, 2015), and Emily Wright (BS Chemistry, 2015) published an article entitled "[The Effect of Aldehyde Structure on Pyrolysis Reactions](#)," in the Journal of Analytical and Applied Pyrolysis. This paper describes how the pyrolysis mechanism can change for branched-chain aldehydes isovaleraldehyde and pivaldehyde. Rosalynn Quiñones, a high school student, Abdullah Hijazi, and his teacher Tamara Westfall, and several other co-authors published a paper in the Journal of Chemical Education: [Integrating Elemental Analysis and Chromatography Techniques by Analyzing Metal Oxide and Organic UV Absorbers in Commercial Sunscreens](#). Abdullah is now a freshman biochemistry major at Marshall. Abdullah and Ms. Westfall were participants in West Virginia's [TREK program](#) (Teachers Research Experience in the advancement of Knowledge). Finally, Mike Norton's group published two papers in the past year. The first, a review article, [Towards DNA Methylation Detection Using Biosensors](#) was published in The Analyst and a second, [DNA Origami Reorganizes upon Interaction with Graphite: Implications for High-Resolution DNA Directed Protein Patterning](#) appears in Nanomaterials. The paper discusses the interaction of DNA, and particularly DNA folded into two dimensional objects by a process known as DNA Origami, with the surface of graphite.

Chase Boster (BS, Major in Chemistry, 2016) was Conference USA's baseball [scholar-athlete-of-the-year](#) in 2016. Award winners are selected by a vote of the faculty athletics representatives of the 14 member universities. Grace Behnke (BS, Major in Chemical Sciences working with Dr. Quiñones) and Justin Conte (BS, Major in Biochemistry working with Dr. Frost) were awarded WV NASA Student Fellowships.

John & Jenifer Markiewicz and Stacy Good Join the Department



Two new faculty members joined the department in the fall: John and Jenifer Markiewicz. John is a native of Goshen, New York and received a Bachelor of Science degree in chemistry from the State University of New York at Stony Brook (Stony Brook University). He earned his Ph.

D. from the University of Notre Dame and then served a one-year visiting professorship at Southeast Missouri State University. He held two postdoctoral research positions: one at Ludwig-Maximilian's University in Munich Germany, and one at the University of California, Santa Barbara before joining the faculty at Marshall. John is an organic chemist whose research seeks to develop new methods to synthesize highly conjugated molecules for materials science. The use of functionalized Grignard reagents and organozinc reagents for [cross-coupling reactions](#) is a major theme. Many of the targets are polycyclic aromatic hydrocarbons and heterocycles. Students in John's lab gain experience working with air-sensitive reagents, and they will produce new molecules with interesting electrical and optical properties.

Jenifer is a native of Jackson, Michigan and graduated from Sienna Heights University. She earned a Master's degree from the University of Notre Dame and has worked as a lab technician in Munich and Santa Barbara. She teaches chemistry in the freshman and non-majors sequences at Marshall's new [South Charleston campus](#). There students majoring in athletic training, biology, chemistry, computer science or engineering may complete the first one to two years of courses before transferring to Marshall's main campus in Huntington.

Stacy Good joined the Department as its new office manager. Stacy has an associate's degree in computer technology from Marshall University Community and Technical College.

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

Gary Anderson Wins the John R. Kuebler Award



Professor Emeritus Gary Anderson won [Alpha Chi Sigma's](#) most prestigious award in 2016. The [John R. Kuebler Award](#) is "presented for outstanding service to the Fraternity and outstanding service to the profession or accomplishment in the science of chemistry." Alpha Chi Sigma (AXΣ) is the only national chemistry

professional fraternity and is over 100 years old with over 70,000 members. The award was introduced in 1961 and is presented biennially. Gary's many accomplishments include having served in numerous offices within AXΣ including its president (Grand Master Alchemist) and president of the Board of Trustees for its educational foundation. Gary founded and was faculty advisor to the local chapter of AXΣ for many years and has performed scores of chemical magic shows in the region for people of all ages. Likewise, Gary has been quite active in the American Chemical Society and has served on many of its committees, including "Meetings & Expositions" and "Divisional Activities."

Amanda Smythers Wins National Award



Amanda Smythers, a senior biochemistry major, won [Iota Sigma Pi's](#) 2017 [Member-at-Large Re-Entry Award](#). Iota Sigma Pi is a more than 100 year old national honor society for women in chemistry. The award "recognize(s) potential excellence in chemistry and related fields achieved by a woman at the graduate or undergraduate level."

Award criteria include having returned to academic studies after an absence of three or more years and exhibiting exceptional qualities of interest, excellence, and professional potential in chemistry. Amanda has been a student leader as Master Alchemist (president) of our local [Alpha Chi Sigma professional chemistry fraternity chapter](#) and has worked in Dr. Kolling's research lab since first year as a science major. She has presented her research at numerous professional meetings. Amanda will enter our Master's degree program in fall with the intent of pursuing a doctorate immediately thereafter.

Alpha Chi Sigma Update



The Gamma Eta Chapter of Alpha Chi Sigma has spent the last year continuing its tradition of volunteerism to the Chemistry Department and local community. We ended last year in celebration, as our highly successful Pie-a-Professor fundraiser raised over \$400 for chemistry outreach, with a sizable donation made to our local rape crisis center. Drs. Day, Kolling, McCunn, Quinones, and Rakus were all pied... with Associate College of Science Dean Dr. Bora also taking one for good measure. Some of these funds were used this summer when AXΣ was featured among the Cabell County Library's science-themed summer reading events in a magic show extravaganza.

Last semester, Gamma Eta started a new tradition and began volunteering for the Ronald McDonald House. Once per month, Gamma Eta members work together to cook a full meal for the house, allowing residents to enjoy a home-cooked meal without worrying about cooking or cleaning. Last semester also featured Gamma Eta's largest magic show to date as we took the stage at the opening

ceremony of Hite-Saunders Elementary's Mad Scientist Day, sharing our love of chemistry with over 200 K-5 students. This semester we judged several components of the state-wide Science Olympiad including the entirety of the forensic chemistry challenge as well as participated as judges for Fairland High School and Middle School's annual science fairs. Later this spring, we will be welcoming students from Cabell County's Gifted Elementary program for a full day of chemistry fun!

Gamma Eta members have continued to be among the most active members of the department. The majority of the department's teaching assistants and learning assistants are AXΣ members as well as the department's paid student tutors. AXΣ members have been volunteering as student leaders for Marshall recruitment events since last year and nearly every lab in the department has at least one AXΣ student researcher. We consider active participation in departmental life a key part of our organization and look forward to continuing this next year!

– Amanda Smythers - AXΣ Outreach Coordinator

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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