

MU Chemistry

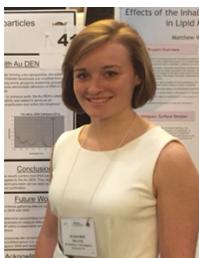
year-in-review

Spring 2015

Faculty and Students Present at the ACS Central Regional Meeting

Undergraduate students Destiny Carte, Marjorie McCoy, Cynthia Peck, Noah Searls, Eric Sias, Emily Wright, and Brian Warner presented posters on their research conducted in departmental laboratories at the Central Regional Meeting of the American Chemical Society in Pittsburgh. The Department of Chemistry now sends many students to professional conferences every year. This gives students the opportunity to present their research, explore career options, and learn about new discoveries in chemistry. Faculty members [Rosalynn Quiñones](#), [Laura McCunn](#), and [Mike Norton](#) joined the students at the meeting. The Norton Laboratory was well represented by graduate student Joshua Botkin, along with research technician William Patterson and postdoctoral fellow Masudur Rahman. Eric Mendenhall, a graduate student working with [Bin Wang](#) also presented. Dr. Rosalynn Quiñones was selected to be a Chair for the Surface Chemistry: Polymer and Biointerface session at the meeting.

The undergraduate students enjoyed an entire day of programming planned specifically for them. After showcasing their research in the Undergraduate Poster Session, they participated in many social and educational events, such as the Network and Resume Luncheon, Graduate School and Recruitment Fair, and a tailgate party.



Chemistry Joins the John Marshall Society!

Late last year, the Department of Chemistry became the first unit in Marshall University history to be inducted into the [John Marshall Society](#). This recognition is granted to individuals who donate at least \$25,000 over three years or groups that donate at least \$50,000 over 5 years. For ten years, we have been writing to solicit your help in improving the education of our students. Along the way, we have been collecting royalties from our lab manuals and contributing them to the MU Foundation for the same reason. While preparing for the review described earlier in this newsletter, we realized we had reached the \$50K threshold and then found that no other group on campus had ever achieved this feat. The plaque recognizing the Department now hangs in our main office. Between alumni donations, our contributions, and match funds from West Virginia we have endowed well over \$300,000 over the last decade.



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James E. Douglass, 1930-2014



James E. (Jim) Douglass, 84, professor emeritus of chemistry, died on Nov. 7, 2014 in Sarasota, Florida. Born in Corpus Christi, Texas, Jim received a B.A. degree from Rice University in 1952. After serving three years in the United States Navy as a communications officer, he entered the University of Texas at Austin, from which he earned the Ph.D. in chemistry in 1959. Following a year as a postdoctoral fellow at the Hickrill Chemical Research Foundation in New York, he taught at the University of Kentucky before moving to Marshall in 1965 as an assistant professor. His research concerned tautomerism in quinaldyl ketones and electrocyclic ring closures in styryl quinolines. He was chair of the

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Department of Chemistry 1977-1982. After retirement in 1997, he remained in Huntington until moving to Sarasota in 2002.

In 1961, Marshall was granted university status. The following year, John Wotiz was hired as Chair of the Department and given the charge to increase its research productivity. Jim was among the group of faculty recruited for this purpose. At the time, there were no Colleges of Science and Liberal Arts, only a College of Arts and Sciences. When the two new colleges were established in 1977, the Chair of Chemistry (Steve Hanrahan) was promoted to Dean of the College of Science. Jim did not seek to become Steve's successor, but the candidate elected by the Department was not ratified. Jim was then persuaded to assume the position. He served quite capably and with considerable grace, exercising admirable patience with his sometimes unruly colleagues—including the one who had actively aspired to be Chair!

In those days, some of the senior members of the Department tended to express dissatisfaction, and a couple of them ultimately left to pursue other opportunities. Their advice to a probationary colleague, whether solicited or not, tended to be along the lines of "leave while you can". Under these conditions, Jim proved to be a sober and dependable source of wisdom concerning how one might best proceed. His guidance was fundamentally important for reaching the status in research, teaching, and service necessary for attaining promotion and tenure.

Jim was highly regarded as a teacher of organic chemistry, a considerable achievement for anyone who attempts to convey the wonders of this subject to those who may doubt its ultimate worth. He was slow to take umbrage in this as in all of his endeavors. About the closest he ever came to an outright expletive was the familiar "well, hell's bells!"

Jim was quite a fan of operatic music and faithfully listened to the live broadcasts from "The Met" on Saturday afternoons (when one could still do that). More recently, when the "Live in HD" broadcasts came to theaters nationwide, it is reported that he enthusiastically attended those with friends and family.

Jim was a member of Sigma Xi and Alpha Chi Sigma (Beta Theta 1957). He was an emeritus member of the American Chemical Society, which he joined in 1958. While at Marshall he was active in the Central Ohio Valley Section of ACS, including serving as Chair.

In addition to his wife of 60 years, Jean, he is survived by sons Richard and David; four grandchildren; two great-grandchildren; one brother; and one sister.

The Daniel P. Babb Trust for Undergraduate Education

We are saddened to report that Dan Babb passed away on November 18 after a brief illness. His obituary appeared in



the [Huntington Herald-Dispatch](#) and we reported a retrospective on Dan's career in last year's [newsletter](#).

As many of you will remember, Dan provided a first-rate education to many thousands of students over his career. However, Dan's greatest legacy may be in his final gift to this Department.

Upon his death, Dan created the Daniel P. Babb Trust with an endowment of over \$1.2 million to be split evenly between scholarships and travel to professional chemistry meetings for undergraduate students. We estimate that this will provide approximately \$30,000 each for student scholarships and travel per year. With rising tuition rates there is never enough money to reward our best and hardest working students, but this bequest will help many talented students for whom there is not sufficient university scholarship funds.

The travel funds will also be very important. Over the past decade, we have significantly increased the number of chemistry majors both engaging in research and presenting their work at professional meetings. Unfortunately, a lack of travel funds has severely constrained the number of students because our budget has no funds for travel. The creation of this private Trust will allow us to provide the opportunity to experience a professional meeting to more students and a greater variety of conferences. Brian Wilt (MS, '97) is the fund's trustee and has been working with the Department on ensuring a smooth start to these programs.

Student and Faculty Achievements

This year, another eight more students co-authored research publications with faculty. Benjamin Woodworth (BS Biochemistry 2012), Rebecca Mead (MS Forensic Science, 2012) and Courtney Nichols (BS Chemistry, 2011) reported with [Derrick Kolling](#) that "Photosynthetic light reactions increase total lipid accumulation in carbon-supplemented batch cultures of *Chlorella vulgaris*." This research furthers knowledge in the area of biofuels and was published in *Bioresource Technology*. Brian Warner (senior chemistry major), Emily Wright (senior chemistry), Hannah Foreman (BS Forensic Chemistry, 2014) and Courtney (Hatten) Wellman's (BS Chemistry, 2013) research with Laura McCunn was published in the *Journal of Physical Chemistry A*. Their work examined the pyrolysis of propionaldehyde as part of an attempt to better understand combustion reactions. Finally, Patrick Kirk (B.S. Chemistry, 2006) and [Mike Castellani](#) reported a new, highly flexible synthetic method for the classic compounds $(C_5R_3)_2Mn(CO)_3$ in *Inorganic Syntheses*.

Shane Kagen (senior Biochemistry major) and Aaron Holland (Cell Molecular Medical Biology major) attended the 40th Midwest/Southeast Photosynthesis Meeting at Turkey Run State Park, IN with Derrick Kolling. Both presented posters in the undergraduate session and

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Achievements *continued from page 2*

Aaron became the second of Derrick's students to win the award for best undergraduate poster at the conference in the past three years. He was invited to make a 10 minute presentation to the conference as part of the prize. Both presentations concerned Derrick's ongoing research in using algae in the production of biofuels and understanding fundamental processes in molecular photosynthesis.

Heath Blankenship (Valluri, Biology), Joshua Botkin (Norton), Rebekkah Brown (Valentovic, Pharmacology), Hannah Foreman (McCunn), Cody Harrison (Wang), Michael Hineman (Murray, IST), Eric Mendenhall (Wang), Michael Parsons (Rakus), Curtis Pelfrey, Jr. (O'Connor), Karl Shaver (Valentovic), Brian Warner (McCunn), Ben Williams (Rakus), Emily Wright (McCunn), and Andrew Vess (Frost) presented their research in poster format at the Marshall Chapter of Sigma Xi's 24th Annual Research Day. For the second year in a row, chemistry majors took first (Karl Shaver) and tied for third (Emily Wright) places in the undergraduate poster category. Sumaiya Chaudhry (Zill, Biochemistry) presented a talk that took top honors in the undergraduate oral presentation category.

[Leslie Frost](#) published two papers as a result of collaborations with Menashi Cohenford (Integrated Science and Technology) and Navindra Seeram (Pharmacology, Univ. of Rhode Island). Mike Norton has published three papers on his work with DNA origami and quantum dots.

[Ken O'Connor](#) published a study on the stress experienced by students taking organic chemistry tests with Steve Mewaldt and Massimo Bardi (Psychology). Rosalynn Quinoñes reported a new experiment in the *Journal of Chemical Education* with her former post-doctoral advisor Robert Luliucci (Washington and Jefferson College). Finally, Bin Wang edited the new book *RNA Nanotechnology*, which included an article by her.

As always, Mike Norton was very active on the funding front. Notably, he obtained a \$210,000 grant to operate a summer program called SURE (Summer Undergraduate Research Experience) from the WV Higher Education Policy Commission. Mike manages this program of 8 students each summer on a variety of projects. The funding places the students in individual research labs in the STEM disciplines and psychology each summer for 10 weeks. It is a major piece of service to the university and chemistry majors routinely are accepted into the program.

External Department Review, Version 2.0

Six years ago, the Department hosted an [external review team](#), whose recommendations have been implemented over the past several years. We felt the exercise was valuable and combining resources with the College of Science dean (Chuck Somerville) and Vice-President for Research (John Maher) brought in another team. Silvia Ronco ([Program Director, Research Corp. for the](#)

[Advancement of Science](#)) and Mark Bussell ([Professor of Chemistry](#), Western Washington University) were asked to provide guidance on how to build on the progress we have made in both teaching and research.

The review team found that "it was evident that the department has embraced the teacher-scholar model (excellent teachers and productive researchers), [and we] applaud this emphasis." They recommended that we focus on building the ACS degree and biochemistry major. They also suggested that we revamp the course distribution among faculty (for example to have more of the newer faculty teaching at the freshman level). In research, their major recommendations were for faculty to become more aggressive in publishing and seeking external grant support because chemistry is an expensive endeavor and external funding will provide resources unavailable as part of the normal budgeting process. They also recommended that we develop a strategic plan with regard to expanding our research capacity and seek ways to expand our M.S. program. We are currently exploring ways to implement each of these suggestions and have already made progress on a few (such as teaching schedules).

Scott Day, Laura McCunn, and Ken O'Connor Promotions



Scott Day



Laura McCunn



Ken O'Connor

Last spring, [Scott Day](#), [Laura McCunn](#), and [Ken O'Connor](#) were tenured and promoted to Associate Professor. Each is a remarkable individual who makes our department stronger.

Ken's greatest strength is as an instructor that students seek out. He has also been a leader in the adoption of personal response device ("clicker") technology into the classroom and has been so successful that he was a finalist for the 2013 Marshall & Shirley Reynolds Outstanding Teacher Award, Marshall's most prestigious teaching award. His research area is chemical education and he has published three articles on organic laboratory experiments that he has incorporated into our sophomore organic class.

Laura's area of research is gas-phase physical chemistry of pyrolysis reactions, so it may be a surprise to find out that her research group is populated by a large number of students who plan medicine as a career. This speaks to her ability to reach out to students with different career goals and give them an opportunity to improve their understanding of chemistry. She has been a very successful mentor with an amazing 75% of her students co-authoring

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Promotions *continued from page 3*

a paper with her. Our senior administration has sought her out for special service projects and she is the faculty advisor for the ΔZ sorority. Laura was named Marshall's Greek life faculty advisor of the year and her sorority's Region IV advisor of the year.

Scott Day was hired as an analytical chemist and halfway to tenure volunteered to switch to physical chemistry so that we could hire another faculty member. Curiously, Scott didn't change his research area to do this because his work and training are truly interdisciplinary. Still, it meant changing his teaching focus at a time when junior faculty members want stability. Despite this, students consistently rate him highly as an instructor and his research group is typically one of the largest in the Department and over three-quarters of his students work with him for two or more semesters. A result is that he already has coauthored four research papers.

Faculty and Students *continued from page 1*



More fun was had by the entire Marshall delegation during dinner at the famous Primanti Bros. Sandwich Shop. A day was reserved for sightseeing after the conference. Students rode the Duquesne Incline and enjoyed a spectacular view of Pittsburgh from Mt. Washington, then they spent hours exploring the Carnegie Science Center.

The Department has now established a tradition of sponsoring student travel to professional conferences. These trips enhance the students' education and open their eyes to the wide array of career possibilities available to chemists. Conference participation also helps the department to develop a national reputation for providing a quality education in chemistry.

Alpha Chi Sigma Update



It was a big year for the Gamma Eta chapter of Alpha Chi Sigma, the co-ed chemistry professional fraternity on campus. In a reorganization by the national fraternity, our chapter left the East Central District and joined the newly-created Bluegrass District, which currently consists of Marshall and Ohio University as the only collegiate chapters. The fraternity inducted 19 new members during the fall and currently has 34 new pledges this semester. This year, the group continued to perform chemical demonstrations for school groups, judge local science fairs, and volunteer at the local soup kitchen at the Johnson Memorial United Methodist Church, but also added new activities including helping with the National Science Olympiad, and social nights that include board games, video games, and movies. The chapter is particularly proud of hosting the inaugural Nerd Herd Cook Off. Chemistry professor Phil Alexander won the event with his pumpkin upside-down cake and was named the first Chef Heisenberg. Several Gamma Eta members attended the 52nd Biennial National Conclave from July 27th to August 1st, hosted by the Alpha Kappa chapter at the University of Virginia in Charlottesville. In addition to that trip, student members visited Cincinnati in the fall to go to Kings Island's Halloween Haunt and traveled to Pittsburgh this spring to go to Carnegie Science Center, and visit the Pittsburgh Zoo and Aquarium. The fraternity has a website that is linked off the main Department of Chemistry website under professional societies and we'll be posting monthly updates from AX Σ on our news page.

Transitions

Tina Hall, our stockroom manager for the past two years, returned to high school teaching in Lawrence County, KY. We thank Tina for her help and wish her the best in her future endeavors. Wade Alexander was hired as interim stockroom manager as we search for a permanent replacement.

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 and MS programs in the nation by integrating teaching with research experience.



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