

CHEMISTRY DEPARTMENT NEWSLETTER

September, 2017



From the Department Chair (Wally Novak)

Welcome to the reboot of the annual Chemistry Department Newsletter. It was a roller coaster of a year. Ticking up, we welcomed Paul Schmitt to our ranks as our new Assistant Professor of Analytical and Physical Chemistry. We then headed down the first drop which began with the dramatic quenching of our NMR. Large amounts of liquid helium boiled off uncontrollably in just a couple of minutes, rendering the NMR inoperable. Rather than attempt to repair the 15-year-old instrument, we decided it was more prudent to procure a new JEOL ECZ-400 MHz Spectrometer (Yay!). We then cruised back up with the successful tenure of Laura Wysocki, our Organic Chemist. We couldn't be happier to have her on board for the long haul. Recently, we hired Alicen Teitgen as Laura's sabbatical replacement for the 2017-18 academic year, and we are excited to have her with us. Rounding out the 2016-2017 year on a high note, Ann Taylor (our fearless Division Chair) was promoted to Full Professor.

Inside the newsletter you'll find faculty highlights from last year and a variety of updates from our last newsletter (some years ago!). Our department would like to thank Emeritus Professors David Phillips and John Zimmerman for putting this newsletter together. Lastly, I hope that you enjoy hearing from us, but **we also want to hear from you!** Did you just graduate from Med School? Are you celebrating a promotion or a new position? Did you recently get married? I would like to encourage our chemistry alumni to send me or one of my colleagues an email with any personal or professional news that you would like to share with our community. We hope to have an expanded Alumni Updates section in our next newsletter.

Chronicle of Recent Years

Because it has been some time since the publication of our last newsletter, we are including a chronicle of recent important events and changes in the department.

Retirements – **Bob Olsen** retired in 2011, and **Rich Dallinger** followed him in 2015. We'll have a bit more to say about them and their replacements later on in this report.

William J. and Wilma M. Haines Professor in Biochemistry – Bill Haines '40 was the first chemistry major to earn a Ph.D. in biochemistry (U of I). Bill enjoyed a spectacular career at Johnson & Johnson and served as a Wabash trustee for 21 years (1972-93). Throughout the years, Bill and his wife Wilma ("Shorty") were extremely generous to the department, establishing a fund in the seventies to support undergraduate research, and endowing a lectureship in biochemistry in 2001. Their final gift was the professorship in 2009. Appropriately, Ann Taylor, the department's first biochemist, is also the first occupant of the chair. The College awarded Bill the ScD degree in 1970 (along with his Wabash mentor "Doc" Howell). Bill and Shorty are now deceased. Ann was able to attend a remembrance of Bill.

Biochemistry Major – Established in 2011, the biochemistry major includes most of the core courses required of chemistry majors, as well as two advanced half-courses in biochemistry and a group of courses in biology. Although most of our majors choose chemistry, in recent years every graduating class has included at least one biochemistry major.

Chemistry Week, the Hovey Chemical Society, and the Hovey Lectureship – From 1985 through 2012, Wabash and DePauw had a joint chapter of Phi Lambda Upsilon, a national honor society in chemistry. Each spring, deserving junior and senior majors were inducted into the society. When continued membership in PLU became untenable, the department decided to abandon its affiliation and set up its own honor society, the Hovey Chemical Society. This was named in honor of Edmund Otis Hovey, a Founder, one of eight original Trustees (1832-77), and one of the College's three original professors, teaching, among other subjects, chemistry. (Later he would be named the first Rose Professor of Chemistry and Geology.) For more on Hovey,

check <https://www.wabash.edu/academics/uploads/chemistry/Hovey.pdf> (brief article) or https://www.wabash.edu/academics/uploads/chemistry/Hovey_Chapel_Talk.pdf (longer).



Early in the fall semester we celebrate Chemistry Week. Activities include two Hovey Lectures, one for a general audience and one of a more technical nature, as well as a dinner at which deserving seniors, new members of the chemistry staff, and our guest lecturer are initiated into the Hovey Chemical Society. (This year's initiates are pictured above.) The lectures are given by a distinguished American chemist.

We are pleased to announce that this year both our Hovey and Haines lecturers will be chemistry alumni. **Manish Mehta** '86, Professor of Chemistry at Oberlin College, will give the Hovey Lectures later this month. Next April **Dale Dorsett** '76, Professor of Biochemistry at St. Louis University, will give the Haines Lectures.

Other Wabash chemists who have given Haines Lectures are: 2001 – **Rick Dahlquist** '64 (Oregon); 2004 – **Ralph Yount** '54, ScD '03 (Washington State); 2009 – **Gyanu Lamachhane** '99 (Johns Hopkins Medical Institute); 2011 – **Chris Halkides** '83 (UNC Wilmington); and **Tom Roberts** '70, ScD '03 (Dana-Farber Cancer Institute, Harvard). **Geoff Coates** '89, ScD '13 was the Hovey lecturer in 2013.

The Faculty

Ann Taylor (biochemistry, 1998-), *Haines Professor of Biochemistry*. Ann is currently serving as *Chair of the Division of Natural Sciences and Mathematics (Division I)*. In this role, she has participated in many job searches and tenure reviews, as well as coordinating the submission of grant applications benefiting the Division. In addition to teaching general chemistry and upper level biochemistry courses on a regular basis, Ann recently developed a Survey of Biochemistry course, Chemistry 106, for non-science majors.



Newly promoted to the rank of full professor, Ann is an active participant in the field of biochemistry education. Recent publications include a report on reinforcing prerequisite knowledge in biochemistry (<http://onlinelibrary.wiley.com/doi/10.1002/bmb.20992/abstract>) and a case study on the ricin mechanism (<https://goo.gl/vC2iCB>). Forthcoming works include a case study on RNAi and a book chapter on Next Generation Science Standards in college science teaching. Ann also serves on the editorial board of *Biochemistry and Molecular Biology Education*.

This last academic year Ann gave two Chapel talks – one each semester. In her spare time she enjoys running, often as a mode of transporting her children – Henry, Harmony and Hope – to baseball games, Scout outings, and musical performances. Ann and Patrick recently celebrated their 20th wedding anniversary with a trip to Italy.

Scott Feller (physical chemistry, 1998-), *Dean of the College and Lloyd B. Howell Professor of Chemistry*. [To learn how Scott's professorship links him to earlier chemistry professors, check https://www.wabash.edu/academics/uploads/chemistry/4_profs.pdf. Scott is beginning his fourth year as Dean, the College's chief academic officer. While this position makes it difficult for him to devote time to classroom teaching, last spring Scott did team teach in the second-semester general



chemistry course (CHE 211). Scott has maintained an active research program involving chemistry and biochemistry majors who have served as summer interns. Focusing on properties of highly polyunsaturated fatty acids and their role in cell membrane structure and function, Scott's research continues to be funded by an NSF grant.

Away from campus, Scott and his wife Wendy operate a small farm north of Crawfordsville, where they raise sheep, chickens, and vegetables. The farm, and the local food store they opened with three partners last fall in downtown Crawfordsville, is in part a response to becoming "empty nesters". Following the arrival of grandson Gus, Scott and Wendy are also adjusting to a new role as grandparents.

Lon Porter (inorganic & materials chemistry, 2003-), *Associate Professor of Chemistry*. Winner of the **McLain-McTurnan-Arnold Excellence in Teaching** Award in 2016, Lon continues to work with students on innovative projects in the Wabash College 3D printing and Fabrication Center (3D-PFC). Students **Mazin Hakim, Doug Rourke, Hasan Irtija, and Earnest Banks** accompanied Lon to the spring national meeting of the ACS, where they presented posters sharing newly-developed 3D-printed analytical instruments. This work has been showcased in two recent articles published in the *Journal of Chemical Education*. The research also led to a successful Materials Research Society (MRS) grant aimed at providing high schools with instrumentation developed by Lon and his student collaborators. In addition, Lon presented his work at the MRS fall meeting, the first 3D printing conference for educators (Duke University) and published a paper on introducing 3D-printed instruments into early chemistry courses. As a fun project, Lon worked with collaborators at St. Olaf College using 3D printing to conserve ancient Roman artifacts. Finally, he enjoyed working with **Ken Crawford '69** on a 3D printing project aimed at assessing the stability of highway bridges, a project that led to his fourth publication of the year.



Lon continued to champion undergraduate research through his chairmanship of the Celebration of the Ides of August Committee. In that role he also oversaw a research grant and travel program providing more opportunities for students to pursue research projects on campus and to gain experience in presenting their results at regional and national professional meetings. He also took on some significant work with Admissions, organizing the first Scarlet Honors Weekend, an event that brought over 100 prospective students to campus. Despite his busy schedule, Lon still finds time to mentor the Dork Club, the campus tabletop-gaming club.

Walter Novak (biochemistry, 2009-), *Department Chair and Associate Professor of Chemistry*. Last fall Wally returned from his sabbatical year in David Baker's lab at the University of Washington, where he studied protein design and conformational switching. Despite a busy year as department chair, he managed to publish four papers: two in *Biochemistry and Molecular Biology Education*, and one each in the *Journal of Chemical Education* and *Acta Crystallographica F: Structural Biology Communications*. In April, Wally and Ann took five students to



the meeting of the American Society of Biochemistry and Molecular Biology in Chicago. This summer Wally spent eight weeks working with three research students: **Isaac Hunter, Nhan Nguyen,** and **Joe Whitaker.**

Wally remains actively involved in the community, and he enjoys spending time with his family and shuttling kids to their myriad practices.

Laura Wysocki (organic chemistry, 2011-), *Associate Professor of Chemistry.* For Laura, the biggest professional news of the year was her earning tenure. Laura continues to work on projects supported by two grants that were awarded in 2015: a Research Corporation Cottrell Science Award and an NSFIUSE grant. Since coming to Wabash, Laura has mentored more than 25 students in her laboratory. Her most recent projects focused on the investigation of fluorogenic dyes that could be efficient, water-soluble enzyme substrates for cytochrome P450 or phosphatase. Laura was the corresponding author on an article in the *Journal of Chemical Education* which discussed the use of deliberation in a non-majors class as an educational tool. Coauthors were Wally Novak, Sara Drury (Rhetoric), Ryan Rush (Psychology) and two members of the Class of 2017: Kyle Stucker (Rhetoric major, Chemistry minor) and Anthony Douglas (Psychology major, Chemistry minor).

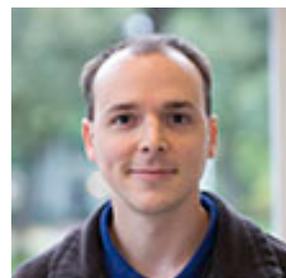


Using their NSF funds, Laura and Sara created a program called “Speaking Science” that brings 6-8 students to campus the summer before their freshman year. After a brief research experience and communication workshops, the students present their work at a poster session. At the ACS National Meeting last fall Laura gave an invited presentation on her research with fluorescent dyes. In 2016 she also presented work related to her NSF grant at the Council of Undergraduate Research Biennial Conference, the NSF/AAAS Envisioning the Future of Undergraduate STEM Education Symposium, and the National Communication Association Conference.

Laura’s teaching has been focused on Organic chemistry (the core courses CHE 221/CHE 321, and CHE 421 – Chemistry of the Pharmaceutical Industry) as well CHE 101, the course for non-majors.

Recently Laura became an honorary member of the Sphinx Club, and last semester she gave a chapel talk, her second since coming to Wabash. But certainly for Laura the most important event in 2016 was her marriage to **Olmy Olmstead** ’04, offensive line coach for the football team. Those of you who were here in the early 2000s may recall that Olmy was the placekicker. Laura will be on sabbatical leave this academic year.

Charles Weiss (inorganic/organic chemistry, 2015-), *Visiting Assistant Professor of Chemistry.* Charlie is beginning his third year at Wabash, filling in while Scott serves as Dean of the College. In addition to teaching in the introductory courses for major and minors, Charlie developed and taught a new course – Scientific Computing for



Chemists, which was well-received by the students. The course resulted in the publication of an article outlining the course and curriculum in the *Journal of Chemical Education* (*J. Chem. Educ.* **2017**, 94 (5), 592-597). Charlie is teaching the course again this semester.

Charlie and Wally have begun a collaboration with students aimed at developing an automated method for finding and correcting errors in the solutions of protein crystal structures. Last spring the two students presented a poster at the American Society of Biochemistry and Molecular Biology conference.

At a meeting of the Indiana Academy of Sciences last spring, **Wes Deutscher '17** presented research he had conducted with Charlie on the development of nickel catalysts for alcohol oxidation.

Paul Schmitt (analytical/physical chemistry, 2016-), *Assistant Professor of Chemistry, Byron K. Trippet Scholar*. In addition to team-teaching the non-majors and general chemistry courses, Paul taught Physical Chemistry (CHE 351), Advanced PChem (CHE 451), and Advanced Analytical Chemistry (CHE 331). A graduate of Hillsdale College (MI), Paul is the department's third Purdue Ph.D., joining Ann Taylor and Lon Porter.



Paul is author of a review article published in *Molecular Pharmaceutics* (<http://pubs.acs.org/doi/abs/10.1021/acs.molpharmaceut.6b00809>) and coauthored a research paper submitted to the *Journal of Pharmaceutical and Biomedical Analysis*. This summer Paul worked with two research students, **Connor Ray Smith** and **Alex M. Pittsford** on developing new optical instrumentation for detecting crystallinity in pharmaceutical materials, setting up the lab and obtaining the first results. These (and related) measurements can help improve the stability and efficacy of many modern drug products. Connor received a grant from the Lilly Undergraduate Research Fund, which supported him this summer.

Paul and Laura Wysocki are co-advising the Chemistry Club. Paul and Charlie Weiss have restarted the Journal Club, studying the primary literature in chemistry with students of all ranks.

Paul lives outside Indianapolis with his wife Nicole, a fourth-year medical student at Marian University. He enjoys putting time into his hobbies, which include fly fishing, cooking, and playing the guitar.

Alicen Teitgen (organic chemistry, 2017-), *Visiting Instructor in Chemistry*. A born and bred Hoosier, Alicen grew up on the north side of Indianapolis and did her undergraduate work at Saint Mary's College in South Bend. (During her freshman year our future President Pat White was Dean at Saint Mary's, and Alicen developed friendships with Pat's daughters.) After College she worked at AIT laboratories (Indianapolis) for a year before pursuing a Masters at Ball State. Having



developed a passion for teaching undergraduates, Alicen decided to pursue a Ph.D. in organic chemistry at Purdue (IUPUI), her ultimate goal being to teach at a small liberal arts college. The defense of her dissertation on using organic synthesis to provide insights into plant natural products is imminent.

Alicen currently resides in Noblesville with her husband Jake and two daughters, Julia (4) and Genevieve (2). Jules and Eve are already proudly sporting Wabash T-shirts. Between completing a Ph.D. and raising two kids, Alicen doesn't have a lot of free time, but she runs when she has a spare moment. She has completed 6 marathons and hopes to do more in the future. She is an avid fan of Indy's professional sports teams (Colts, Pacers, Fever). Her family is active in their church, and they love hosting Thursday night community dinners.

Emeritus Professors

John Zimmerman H'67 (analytical chemistry, 1963-2004). In 1963 John joined legendary professors Ed Haenisch, Paul McKinney and Quentin Petersen as a member of the chemistry faculty. When John became an honorary alumnus, he chose to be part of the Class of 1967, who were freshmen when he was a rookie professor. Over his 54 years in service to the College, John taught hundreds of high-quality students. During that time there have been dramatic changes in the faculty and its teaching methods. In the sixties, the entire chemistry faculty participated in the Physics-Chemistry course. Slide rules had not yet been replaced by hand-held calculators. Run by Ed Haenisch, the general chemistry course met for two long labs each week, as well as "extra visits". Labs were goggle-free, and everyone pipetted by mouth. There was a strong focus on "hands on" individual effort. In time, instrumentation/computer support moved down from advanced courses to permeate the entire curriculum.



Along the way, John began using photography and videography to support his teaching. Since retirement, he has continued to employ cameras and video to document the College's departmental, athletic, and fine arts activities, as well as family travel. Some of John's work hangs in the local gallery.

David Phillips H'83 (inorganic chemistry, 1968-2004). Since retirement, David has become an archival historian, working to restore the College's institutional memory. A number of his articles have been published in *Wabash Magazine*, and he has put together two booklets – one a collection of biographical sketches of the men whose portraits hang in the chapel; the other, jointly with John Zimmerman, an illustrated tour of the College's buildings and important landmarks. An updated version of the tour guide may be found on the College's website: My Bash, About Wabash, Facts and Figures.



David enjoys cooking and listening to classical music, and he is an avid

walker. Since retirement he has become a world traveler, visiting the Galapagos, Australia, New Zealand, Argentina, Antarctica, Northern Italy (a tour led by Bill Cook '66), Spain, Costa Rica, Morocco, Peru, Chile, and Sicily. During the next year David will add Iceland, Ireland, and the Tanzanian Serengeti to the list. Together with the places visited with his late wife Pru (whom



many of you will remember from Chem 13 dinners), he's been to about 50 countries.

Robert Olsen (organic chemistry, 1979-2011). Bob and Julie (who served for a number of years as Registrar and Associate Dean of the College) continue to reside in Crawfordsville. However, they frequently travel to Georgia to visit their daughter and grandchildren.

Like her mother, Greta is a biochemist, serving as an associate professor at the University of North Georgia.



Richard Dallinger (analytical/physical chemistry, 1984-2015). After retirement, Rich and Edith moved to Ludington, Michigan.

Staff

Rochella Endicott (Academic Administrative Coordinator for Hays Hall, 1997-). Since moving into Hays Hall in 2003, the department has enjoyed having Rochella as a colleague and friend. Her work ethic, efficiency, independence, and unfailing good nature make her an ideal administrative coordinator. Two of Rochella's recent contributions were finding a way to reduce our expenditure for gases, and devising a system that protects the building's computer classroom and its valuable contents while continuing to offer easy access to legitimate users.



Rochella enjoys spending time with her family and two-year old grandson.

Bill Burke (Chemical Storeroom Manager, 2016-). Bill started at Wabash on June 1 of last year. In addition to his position as storeroom manager, Bill serves as an Assistant to the Dean of the College and Co-Chair of the Safety Committee.



After obtaining a B.A. at the University of Northern Colorado, Bill worked in industry for 35 years. He was at Eastman Kodak in Colorado for 19 years as a chemist, with various engineering titles. While at Kodak, Bill was appointed by the governor to a citizens' board charged with setting various environmental regulations. During his seven years on the board, Bill presided over the development of a number of controversial rules, addressing items such as animal feeding operations, hazardous air pollutants, and the reduction of Denver's "brown cloud".

Bill then came to Crawfordsville to be Environmental, Health and Safety Manager for Raybestos Powertrain. He managed the \$21 million remediation of PCBs in Shelley Ditch, and was directing the delineation of ethylene dichloride that had seeped into groundwater when he left for Wabash College. Cleanup negotiations with the US E.P.A. were underway when Bill left.

Music has been a part of Bill's life for many years, both as a listener and a performer. Currently he is president of the Crawfordsville Community Chorus. Other hobbies include woodworking and reading. Bill has two married children and eight grandchildren.

Students

Class of '17 – The following majors graduated at commencement last spring. They are listed, along with their major (Chem or Biochem) and next destination (to the extent we know that).

Aaron Becker, C (IU Med)

Cameron Brown, C (IU Med)

Beidou Cheng, C (MS program in Germany)

Wes Deutscher, C (U of I grad school)

Jeff Dyke, C (Entering workforce)

Mazin Hakim, C (Purdue grad school)

Kenton Hicks, B (Northwestern grad school)

Justin Miller, C (U of I grad school)

Ben Washer, C (Purdue grad school)



Honors

Edgar C. Britton Award (Outstanding senior major going on to graduate school in chemistry) –

Justin Miller (Justin graduated *summa cum laude* with Distinctions in the chemistry and French comprehensive exams.)

Underwood Award (Outstanding junior major) – **Jacob Alaniz**

Borinstein Memorial Outstanding Freshman in Chemistry Award (new this year) –

Alex Pittsford

Howell Scholarships – **Zach Campbell '18**, **Connor Smith '19**, **Sergio-Steven Cobos '19**

Isaac Hunter '19, **David Vavrinak '19**

Initiation into the Hovey Chemical Society (initiates pictured on p. 2)

2016 Hovey Lecturer: **Catherine Murphy** (U of I)

Faculty & Staff: **Bill Burke**, **Paul Schmitt**, **Charlie Weiss**

Seniors: **Cameron Brown**, **Beidou Cheng**, **Wes Deutscher**, **Kenton Hicks**, **Justin Miller**, **Ben Washer**

Snyder Scholarship – awarded to **Sergio-Steven Cobos '19**, to complete an internship at the U of I last summer.

Alumni Updates

In May it was announced that **Geoff Coates '89** had been elected to the **National Academy of Sciences**. A **Tisch Professor** in the Cornell University Department of Chemistry and Chemical Biology, Geoff is an **Alfred P. Sloan** research fellow. Geoff has received numerous awards from the ACS, including the **A.C. Cope Scholar Award** and the **Affordable Green Chemistry Award**. He was inducted into the **American Academy of Sciences** in 1911 and received the honorary degree **Doctor of Science (ScD)** from Wabash in 2013.

Here are reports on two Wysocki Lab alumni:

Ryan Cloyd '14 is finishing his second year pursuing an MD/PhD at the University of Kentucky. Ryan has been working with MRI imaging agents, and he was a coauthor on a publication in *Neurobiology of Aging*.

Josh Santana '15 is finishing his second year in the PhD program at IU. Josh was first author on an article in *Langmuir* based on his work in materials.

We have identified the following chemistry alumni who were present at last June's **Big Bash Reunion**. (We apologize in advance to any attendees whose names were not included.)

Class of 1962: **Bruce Monroe**. We thank Bruce for his gift of books and a modeling kit.

Joining **John Zimmerman** in celebrating the 50th-year reunion of the *Class of 1967* were 5 of the 6 surviving chemistry alumni (graduate or professional school listed): Steve Hopper (MIT), Phillip Kucinski (MIT), Haines Lockart (Nebraska), Robert Pinschmidt (Oregon), John Sturman (IU Med).

David was privileged to attend the reunion dinner for the *Classes of 1972 and 1977* with **Gordon Vogel '72**, **Bill Catus '77**, **Mark Greaves '77**, and **Peter Trybula '77**. Other members of the Class of '77 who we believe were present at the Big Bash are **Kevin Burns** and **Bob Einterz**.

David also recalls conversations with **Frank Fish '79**, **Rick Sasso '82**, **Jeff Lampert '92**, **Deon Miles '97**, **Steven Rhodes '07**, and **Andrew Alexander '12**.

Other members of the *Class of '97* who were registered and we believe were present are: **Frank Duncan**, **Jeff Nicoson**, and **Jeremy Roscoe**.

**You are cordially invited to attend the Chemistry
Department Reception at next year's Big Bash.**