chemistry distillations

Newsletter of the Department of Chemistry at the College of William & Mary • www.wm.edu/chemistry • Fall 2015

Photo taken by Shelley Svoboda. Painting images courtesy of Colonial Williamsburg

Chemistry Faculty and Staff 2015

Current Faculty

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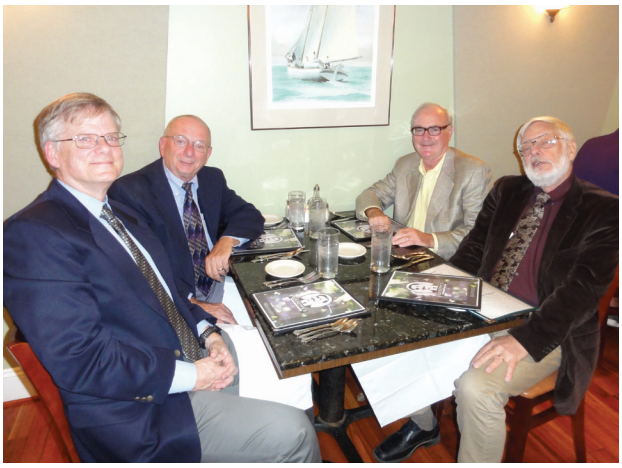
Homecoming 2014 and Class of '74 Alumni Dinner

Over dinner Allan Howe said that he did not recall a student:faculty ratio of 1:3 when he was a chemistry student. But, as the sole representative of the Class of 1974, he was happy to discover that ratio 40 years later at the Alumni Dinner. Alan and the three faculty reminisced about doing chemistry in Old, Old Rogers Hall, now Tyler Hall and Alan shared interesting insights on changes in medicine during his years of practice.

As is evident from the photos on page 15, we had a good turnout for the Alumni Reception at Homecoming 2014. We tried to be sure that everyone was pictured, but regretfully a couple of alumni escaped the camera. We hope to see many of you at Homecoming 2015.



Allen Howe '74, Randy Coleman, Dave Kranbuehl and Bob Orwoll

Cover picture: Diana Roh '16 works with Kristin Wustholz and is shown analyzing pigments from a Colonial Williamsburg painting.

From the Chair

Another year, another column! I very much enjoyed the four months and twenty-one days I had for research leave last fall. I am not sure how much Gary Rice enjoyed being chair again, but I appreciated his willingness to step in the role. Gary was busy in the fall while filling in for me. He submitted two internal grants for funding to drag our general chemistry labs kicking and screaming into the twenty-first century. The outcome was to completely support the purchase of Vernier's LabQuest system and associated sensors for data collection and analysis using modern digital technology. This equipment was vetted in the summer session labs, and the full roll-out is this fall. One of the big issues that arose was what to do with all the time that was saved by incorporating the technology. Students can do experiments very quickly when they don't have to use strip chart records or to write down every data point in their lab notebook. Fear not—we found ways for them to use the extra time. The Vernier system funding was very timely because it freed up funds to replace our ancient Fourier Transform infrared spectrometer with two systems, one for general use and one in Bill McNamara's lab.

Progress on ISC III

In the spring of 2014 the College was awarded another five year grant from the Howard Hughes Medical Institute for the advancement of undergraduate science education. The focus of this grant is to ensure retention in STEM disciplines for all students. The HHMI grant has established the Wren Scholars Program with an integrated set of initiatives that includes, among other things, a scholarship to take chemistry during the summer session. As the Chair, I was happy to see another round of HHMI funded, but petrified about the staffing for the summer session, which was already running at historic highs in enrollment. The powers that be took pity on me and came up with an inventive solution. The College had also received a grant to help implement the College Curriculum by providing for non-tenure eligible faculty positions. As a result we were able to hire Professor Jordan Walk. If you go to our alumni website, you will see Jordan's name listed on the 2008 "Destination of Graduates." Jordan stayed to get a Master's degree here, then moved to Michigan for his PhD. He joined us in July, and taught General Chemistry II in Summer Session II. Summer enrollment was up nearly 80% in the introductory courses. We expect this trend to continue.

The pitiful sounds I made when talking about enrollment pressures may have also helped to get another faculty search authorized. We will be looking for help in the area of physical chemistry. Of course, that is a statement often made by junior chemistry majors as well. I was under the illusion that hiring of tenure-eligible lines would end after Tyler Meldrum two years ago. That was delusional thinking. The streak of hiring one faculty member every year since 2009 continues. That kind of record also means that five years down the road from each hire comes a tenure decision. Jonathan Scheerer made it through this process with flying colors last year. He is receiving an Alumni Award, often given to outstanding recently-tenured faculty, this September.

As usual, several of our faculty received special recognitions this year. The Research Corporation designated Rob Hinkle and J.C. Poutsma as Cottrell Scholars (CS).While this program had excluded primarily undergraduate institutions (PUI), they made a decision to expand the designation to PUIs by inviting the top 50 PUI faculty who earned Cottrell College Science Awards over the last twenty years to join the CS program. As Cottrell Scholars they are eligible to apply for funding through the Frontiers in Research Excellence and Discovery program. Rob Hinkle was also awarded a Plumeri award for Faculty Excellence. Jonathan Scheerer just won an Alumni award and a Dreyfus Teacher-Scholar award. Two faculty were designated with special professorships:

Carey Bagdassarian as a Clark G. and Elizabeth H. Diamond term professor and Elizabeth Harbron as an English-Stonehouse fellow.

The third phase of the Integrated Science Center is looking like a real building. As of this writing, they have even put red bricks, perfectly matching ISC I, on the front face. The engineers keep saying that the building will be ready for occupation on March 17th. The issues that remain are choosing the furniture and the timing of the moves into the new building. The expectation is that the building will be fully functional for research next summer. At the same time, our presence in Millington Hall will end. We will have to check carefully that everything and everyone is out of the building because it is being razed to the ground.

Recently, William & Mary won a challenge grant with the Cabell Foundation to support equipment in the interdisciplinary areas of neuroscience, molecular biology and environmental science. The Cabell Foundation will match contributions at a rate of 1:2 up to a total of 1.5 million dollars. While you will notice that the word chemistry does not appear on this list, in fact nearly half of our faculty are impacted by this grant. Randy Coleman continues to be actively involved in the neuroscience program. Kristin Wustholz and Bill McNamara are researching solar cells as a form of clean energy in the environmental area. The biochemistry faculty are part of the molecular biology area. The challenge grant will help secure equipment for these chemists.

We hope that many of you will be able to attend Homecoming weekend and will drop by the Chemistry Department for our annual Chemistry Homecoming Reception—see back page for more information. Other events during Homecoming include the public launching of the College's largest fundraising campaign in its history.

As always, thank you for reading.

Chris Abelt

Faculty News

Carey Bagdassarian has been named a Center for the Liberal Arts Fellow. The Center for the Liberal Arts (CLA) supports the creation and maintenance of a robust liberal arts education throughout the new undergraduate College Curriculum. Appointed from the faculty for two-year terms, CLA Fellows provide intellectual leadership and representation from the arts and humanities, social sciences, and natural and computational sciences, along with interdisciplinary programs. A Clark G. and Elizabeth H. Diamond Term Professorship augments Professor Bagdassarian's appointment as a CLA Fellow.

Congratulations

Elizabeth Harbron has been named an English-Stonehouse Professor, a Fellowship that has been made possible by the generosity of Cory English of Alexandria, Virginia. Cory created this program to support the collaborative research between faculty and their students. Professor Harbron is a physical organic chemist who studies stimulus-responsive fluorescence. Her lab develops dyes and macromolecular systems that undergo major changes in fluorescent intensity and/or color in response to stimuli that include light, metal ions, and acid.

Rob Hinkle received the Plumeri Award this spring. He is the sixth chemistry professor to win this award since its inception in 2009. It recognizes exemplary achievements in teaching, research and service and provides funds to faculty members to use for research, summer salaries and other stipends associated with scholarly endeavors.

J.C. Poutsma and **Rob Hinkle** have been named Cottrell Scholars in 2015 by the Research Corporation for Science Advancement (RCSA). The Cottrell Scholars comprise an exceptional group of teacher scholars who are role models for early career faculty across the country. RCSA is a foundation that supports innovative scientific research and scientists in higher education to advance American competitiveness in science and technology and improve science education.

to All!

Jonathan Scheerer received tenure and was promoted to Associate Professor this summer. He is also receiving an Alumni Award for his outstanding achievements this fall. And last but not least he has been named Henry Dreyfus Teacher-Scholar. This award is given to U.S. chemists who are accomplished researchers and who incorporate undergraduate students into their research.

Welcoming New Faculty

Jordan Walk joined the Chemistry Department this summer as a Lecturer of Chemistry. Jordan is a former student of William & Mary (B.S. '08, M.S. '09) and completed a Ph.D. in organic chemistry from the University of Michigan in December 2014. His research at Michigan focused on a combination of organometallic catalysis and carbohydrate synthesis.

Jordan excitedly returns to William & Mary to teach the same general and organic chemistry classes that he attended ten years ago. In addition to teaching, he hopes that his position as an alumnus of the College helps to provide opportunities for making contributions to the campus community as a whole.

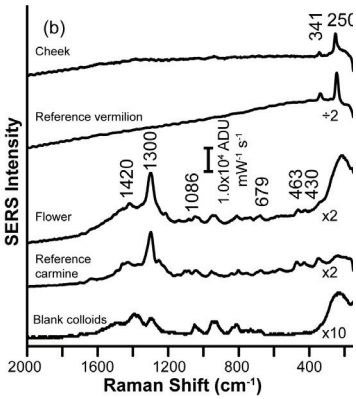
Faculty Features

Kristin Wustholz

Kristin Wustholz is an experimental physical chemist who uses laser spectroscopy to study pigments in art and dye-sensitized solar cells (DSSCs). Kristin and her research students use surface-enhanced Raman spectroscopy (SERS) to identify fugitive pigments in historic oil paintings in collaboration with the paintings conservator at Colonial Williamsburg.

This research garnered recent national attention through an interview at With Good Reason, a

Painting image courtesy of Colonial Williamsburg

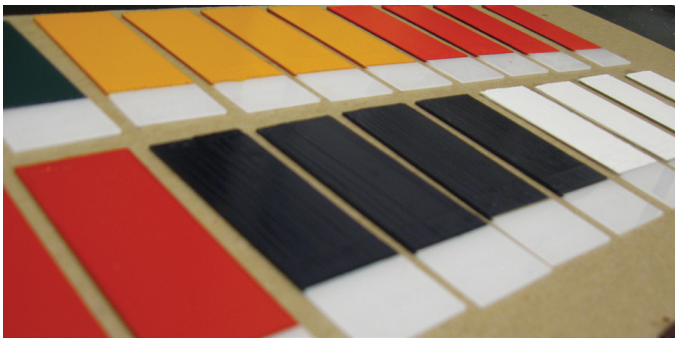


National Public Radio show based in Charlottesville. Students in the Wustholz lab also use single-molecule fluorescence spectroscopy to understand the photochemistry of organic dyes and pigments that are relevant to art as well as DSSCs.

Since arriving at the College in 2010, Kristin has mentored 23 undergraduate and two M.S. students in research and published seven manuscripts (with 12 student co-authors). For Kristin, mentoring students is the most fulfilling part of being an educator. Kristin teaches in the physical chemistry curriculum and is looking forward to developing courses for the new College Curriculum.

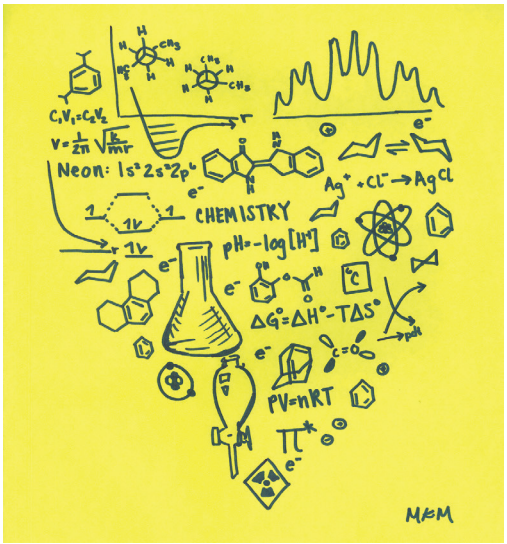
Tyler Meldrum

Tyler Meldrum asserts that most people turn to chemistry either for its explosions or its colors; he became a chemist because of the latter. Now, his research combines physical chemistry of materials with art conservation. Using portable, single-sided magnets (analogous to an MRI scanner), he investigates the cleaning of paintings, the curing of paints and coatings, and the structure of mortar in a non-invasive, non-destructive manner. So far, his research has led to collaborative projects with Colonial Williamsburg and with the National Gallery of Art in Washington, D.C. As his technique is relatively new, he also spends some time developing methods for portable NMR measurements that are faster and more robust than the status quo.



Oil paint samples—some traditional, some a modern formulation designed to be water-mixable—add color to Prof. Meldrum's lab. In collaboration with the National Gallery of Art in Washington, DC, he studies how chemical changes to oil paint formulations affect their long-term physical properties—information that is vital for museum collections.

Tyler teaches general chemistry (CHEM 103) to scores of students in the fall and, in 2015, returned CHEM 341: Physical Chemistry for the Life Sciences to the departmental offerings. CHEM 341 hadn't been taught for a decade, and Tyler was thrilled to restore and reinvent this course.



STUDENT DOODLE by Mary Matecki

Dick Kiefer and Bob Orwoll

Along with 4–6 undergraduates and sometimes a graduate student or two, "retired" faculty Dick Kiefer and Bob Orwoll have been synthesizing and characterizing polymers with the goal of developing light-weight shielding materials for protection against radiation in space. The research has mostly been in collaboration with International Scientific Technologies (IST) of Radford, Virginia, where former student Eugene Aquino, (BS '88 and MA '91) is a Senior Research Scientist. Support has come through subcontracts from Small Business Innovative Research (SBIR) grants secured by IST with assistance from William and Mary. Currently, two of the collaborative experiments are scheduled to be flown for a year on the International Space Station (ISS) as part of the Materials on the International Space Station Experiment-Flight Facility (MISSE-FF). The launch is tentatively set for 2017. Additional funding, in the form of summer stipends for undergraduates, has come from the generous support of Ken ('76) and Gale Updike.

With Chemistry's space severely limited in the Integrated Science Center I, the Kiefer-Orwoll group carries out their experiments in two former biology labs in Millington Hall. With the planned demolition of Millington in mid-2016, the future home for this research, if funding continues, will be the new ISC III building.

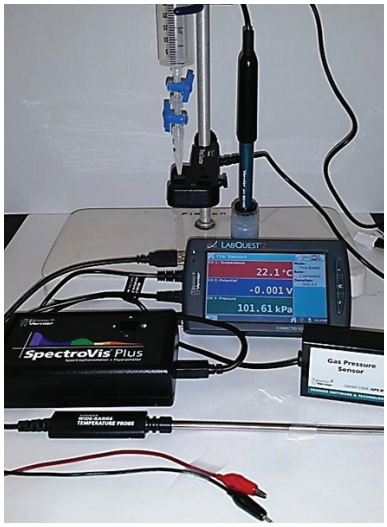
In addition to his research activities, Bob has also taught classes in Polymer Chemistry and taken an occasional section of the Physical Chemistry lab since retiring in 2010.

Around the Department

Lower Division Labs Go Digital

What can you do with fairly new technology that operates a multitude of sensors from a data collection and analysis system with a footprint the size of a cell phone? Incorporate it into a large number of the general and organic teaching labs to allow for digital recording of temperature, pressure, pH, absorption spectra, voltage, and titrations; just a few of the many applications available through the LabQuest2 system provided by Vernier Software and Technology.

The drive to move the lower division labs to modern and reliable digital technology was spearheaded by Jeff Molloy and Gary Rice. Thanks to exceptionally generous support from the Dean's office through the Equipment Trust Fund, and the Charles Center from the Morton Science Lab Funds, all of the Vernier equipment necessary to completely replace aging equipment and glassware was received in May. Half of the first semester general labs were modified and tested by Gary Rice over the spring, and most of the sensors were immediately "beta tested" with great success in many of the summer school labs. Even with this significant initial investment, the department will eventually save over $100K over the next 10 years by not continuing the practice of piecemeal replacement of far more expensive traditional equipment. In addition, substantial savings in chemicals and waste will be realized, and all students will use exactly the same equipment.



The capability of these systems is truly phenomenal relative to past lab practices. For example, instead of measuring the absorbance of solutions at one wavelength (remember the "huge" Spec 20s?), the entire visible absorption spectrum can be obtained in several seconds, and multiple spectra overlaid for analysis. A drop counter can be coupled with pH or redox electrodes to generate real-time titration curves in a manner of minutes. Time-domain functions can be used for such things as calorimetry and kinetics, allowing more time to focus on lab calculations and results rather than redundant plots. Cost-effective pressure sensors and voltage probes can be used for a variety of applications. Digital temperature probes will replace analog thermometers for virtually everything, eliminating the 30–40 broken thermometers that must be replaced annually! Numerous data analysis options are incorporated into the LabQuest2 as well. The total space (footprint) of all the sensors and the LabQuest2 unit is less than a conventional pH meter (see picture).

Student response to the new systems has been very positive thus far. The true beauty of the technology is that students will progressively become more adept

at using the LabQuest2 and sensors with each passing semester. We also hope to modify several upper division labs over the next year, as well as using the systems for the collection and integration of data even from gas chromatographs in the teaching labs (the LabQuest2 also has WiFi capabilities to print data). In essence, the lower division labs have been bought into the 21st century with digital capabilities far beyond anything imagined just 10–15 years ago.

Endowments and Donations to the Chemistry Department

Endowments

The Chemistry Department benefits from some very generous donors who have established endowments enabling us to further our academic mission. Endowments provide student research opportunities, reward academic achievements, support the chemistry seminar program and help us buy new equipment. Our students and faculty feel so fortunate to be the recipients of such generosity.

Debra L. Allison Summer Fellowship in Chemistry
Scott H. Andrews Chemistry Undergraduate Teaching Fellowship
Marga Larson Bales Scholarship Endowment
Patricia Pound Barry Chemistry Scholarship
James T. & Evelyn A. Cranmer Memorial Scholarship
Ferguson Chemistry Endowment
Charles E. Flynn '34 Memorial Chemistry Endowment
Robert L. Greene Endowment
William G. Guy Endowment
Hillger - Roberts - Kranbuehl Chemistry Endowment
Kranbuehl - Thompson Graduate Fellowship
Gene J. & Frances E. Schiavelli Memorial Endowment

Donors

We are very grateful to the many donors to the Chemistry Department and the Chemistry Honors Research Projects through the Charles Center. Your generosity makes a significant impact on our educational enterprise.

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Mary Carol Gregory Williams '64
Daniel G. Wise
Natalie Z. Wong '14
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Kristin L. Wustholz
Natalie M. Yahnke
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Anna V. Youngblood '77
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Support Chemistry!

Endowed funds and gifts to the department or for programs like our undergraduate summer research make a significant impact on our educational enterprise. Alternatively, annual giving offers some level of financial security and allows the department the opportunity to conduct longer term planning. The Chemistry Department benefits directly from donations to the following funds:

Chemistry Fund #2967

This is an unrestricted fund that allows us the flexibility to use funds where they are needed most.

Cabell Challenge - ISC Special Equipment Fund #3968

The Cabell Foundation has made a challenge grant of $500,000 toward equipment purchases for the Integrated Science Center (ISC) requiring the College to raise an additional $1,000,000 in matching funds pledged by December 31, 2016. The $1.5 million total will be used to acquire more than 40 pieces of essential science equipment that will benefit faculty in several departments (biology, chemistry, psychology and applied science) and programs (neuroscience and environmental science), and more than 2,000 students annually. To make an on-line gift towards the Cabell Challenge, please go to www.impact.wm.edu/cabell.

How to Give

There are two mechanisms through which you can make one-time, regular or annual contributions. To contribute by mail, make your check payable to The College of William and Mary. Please be sure in your check's memo area to note the fund and number to which you are designating your gift and send it to:

The College of William and Mary
P.O. Box 1693
Williamsburg, VA 23187-1693

In addition, online donations can easily be made by going to the chemistry web site at www.wm.edu/chemistry and clicking Support Chemistry in the left navigation bar.

News of Our Alumni

It is wonderful to hear from so many of you. Please continue to keep us up to date by sending us an email to chemistry@wm.edu, contacting your favorite professor or filling out the form on our website at www.wm.edu/chemistry/sendnews. You can also send us a note to the address on the back of the newsletter.

Are you on Facebook?

Consider joining the "William and Mary Chemistry Alumni" Facebook interest group. It's a good way to keep in touch with the department and with other Chemistry alumni who have already joined.

Class of 1944

Nancy Baum Delain let us know that her father, **Parker B. Baum,** passed away on August 13, 2014. Parker was a professor at Skidmore College in Saratoga Springs where he taught chemistry and astronomy. He retired in 1987 with "the reputation of being a superb teacher" as his obituatry notes. His full obituary can be found on the www.timesunion.com website.

Class of 1954

Winfred (Dusty) Ward wrote that he is "Still at work, three days a week, clinician in Chest and Tuberculosis Clinic in the City of Richmond. For the past four years have co-authored medical/legal thrillers with Adrian Eissler, '02. Can't say it's relaxing but very much a diversion. Regret I can't be at Homecoming but will be away and I'm away a lot. Since 2000 I've worked with Physicians For Peace doing 37 missions in 16 countries."

Class of 1979

Kathy (Dalton) Mika wrote last fall, "I am still working full time as a general pediatrician and managing partner of Pediatric Associates of Charlottesville, but achieved "senior" status in September and no longer have to take call. (No middle of the night phone calls or trips to the hospital!) Aging has its rewards. We are looking forward to celebrating the marriage of our daughter, Alison, W&M Class of 2009, on Oct. 4, and we are also celebrating no more kids in college. Our youngest, Jason, graduated from the business school at VCU in 2014. We are the proud grandparents of four-year-old Dalton Mika and enjoy seeing him when we visit our son, Matthew, in Richmond."

Class of 1984

Karen Luebs wrote, "After successfully finishing a Masters' in Forensic Science I was disappointed to find that with our current economic climate, federal labs and forensic units are only hiring those with top secret security clearance. So for now I work as a bookkeeper while working on getting my youngest (age 15) through high school. I won't say the Master's degree was easy, but it was easier than I expected even though most of my classmates were half my age. Thanks to William and Mary and my professors for preparing me for whatever comes my way!"

Vince Sullivan has three kids and works at Becton Dickinson R&D in Cary, NC.

Class of 1986

Dr. Roger Emory visited his favorite professor, Randy Coleman, who gave him a tour of the ISC. Roger now lives in Williamsburg and is a plastic surgeon.

Class of 1991

Alan Veeck has a daughter, Emily, at W&M—Tribe '18!

Class of 1992

Janice Moseley Langer has been a family physician in the US Air Force for 22 years. She recently took command of the Medical Operations Squadron at Joint Base Langley-Eustis.

Class of 1994

Kimberly Johnson has two kids, is an allergist/immunologist and recently retired from USAF after 20 years of service. Her husband is still an active duty physician.

Robyn (Roarke) Manke has five kids and lives in South Carolina.

Meredith Brendley Nathaniel has three kids and lives in Lexington, KY. She is serving with Athletes in Action at Kentucky State and University of Kentucky.

Class of 1996

Emily Buehler became a bread baker after completing grad school at UNC, and published a

book on the science of bread making. Since then she has been working at a food co-op and doing freelance editing of science journals, reports, and books. She has several writing projects of her own in the works. She currently lives in North Carolina and hopes to realize her dream of spending summers at the beach in Connecticut.

Class of 1997

Leslie Sombers sent Gary Rice a message with news that she and **Owen Duckworth** , both now professors at North Carolina State University, have teamed up to work on a "cool project that was just funded by NSF! It's titled: Elucidating the Effects of Structure on the Redox Reactivity of Mycogenic Mn Oxide Nanoparticles."

Class of 1999

Anne McNeil sent us this news: "My husband (Matt Soellner) and I welcomed our second child — Emily Anne Soellner — into our family on May 14, 2014. In other exciting news, I was recently named a 2014 Howard Hughes Medical Institute (HHMI) Professor. At Michigan, I received a 2014 Provost's Teaching Innovation Prize and was named an Arthur F. Thurnau Professor."

Cathy (Sullivan) Bloedorn is now in her tenth year of teaching high school chemistry and in her second year of teaching forensic science.

Class of 2004

John Slavin moved to Richmond, VA, from Chicago and started Indie Lab RVA non-profit.

Kelly (Kennett) and **Matt Lastrapes** have a daughter, Emma, who was born in May 2014. Kelly is finishing a pediatric oncology fellowship.

Class of 2005

Hillary Huttenhower made the news when she won on Jeopardy! She is now a material engineer in Manchester, CT.

James Manning writes, "After I served my term as a Chemical Officer in the U.S. Army and did several tours to Iraq, I decided to go to graduate school. I settled on the University of Pennsylvania. I was accepted into their Master's of Environmental Studies program. It's a two-year program. After the first year if you have demonstrated satisfactory academic performance in your courses, you can apply for a study abroad section. In this section, you spend time in Beijing at Tsinghua University and in Paris at Mines ParisTech. I am currently working for a research institute in Versailles, France."

Class of 2006

William Bylund and Tatsiana got married in August 2014. He is beginning residency in emergency medicine in summer 2015.

Ellie Browne is starting at the University of Colorado in Boulder as an assistant professor in atmospheric chemistry in fall 2015.

Class of 2009

Najiba Murad attended the Homecoming Reception and told us that he published his first paper in the FEBS Journal.

Jake Kuperstock made a donation to the chemistry department literally from the confines of his "on-call" room at Boston Medical Center. He says that he wouldn't be an M.D. if it weren't for the W&M chemistry faculty's contributions to his education.

Matt Bernier finished his Ph.D. at Ohio State University.

Omar Hamdy finished his Ph.D. at University of California, Riverside.

Class of 2010

Chris Collins finished his Ph.D. at Purdue University.

Class of 2011

Matthew McMillan works for Agilent as a field service engineer. He had the opportunity to travel to Germany, Singapore and California for training and now works close to home in the Maryland/Northern Virginia areas.

Class of 2014

Chris Komatsu is a graduate student in chemistry at Texas A&M. His lab has 40 people working in it, including post-docs, grad students and senior scientists, and because of its size there are different subgroups. Chris works in the anti-biofouling and the natural product polycarbonate subgroups, takes classes and finds being a teaching assistant in freshman chemistry lab classes a lot of work but rewarding.

2015 Graduates and Their Destinations

Chemistry Majors

Christopher Ayres	Pursuing a career in music
Daniel Brophy	Investment banking analyst at BB&T
Robert Bujosa	Graduate studies in education at Johns Hopkins University and teaching HS chemistry
Andrew Cavell	Graduate studies in chemistry at University of Wisconsin
Christian Chamberlayne	Graduate studies in chemistry at Stanford University
Ashton Chappell	Work in medical field, then medical school
Sarah Coffee	Summer research in the Orwoll/Kiefer lab at William & Mary
Jahan Cooper	Ph.D. studies in chemistry at Ohio State University
Patrick Crossland	Graduate studies in chemistry at University of Minnesota
Marisa Daneri	Graduate studies or job
Jacob Daniels	Graduate studies in pharmacology at Columbia University
Ali Drissi	Technical specialist engineer at Chemtreact
Alba Evans	Ph.D. studies in chemistry at Ohio State University
Matthew Freedman	Scribing
Alice Fuller	Lab technician at GlaxoSmithKline
Stephanie Gianturco	Pharmacology school at Virginia Commonwealth University
John Gray	ICU unit coordinator, then medical school
Malia Hain	Pharmacology school at University of Minnesota
Isabel Hardee	Research assistant at NIH
Rachel Hicks	Graduate studies in education at William & Mary
Alexander Hoffman	Working first, then graduate school
Natalie Hudson-Smith	Graduate studies in chemistry at University of Minnesota
Hae Seong Kim	Engineering studies at Columbia University
Yi Ram Kim	Applying for graduate school
Stephanie Kolb	Scribing, then medical school
Taylor Lain	Quality assurance analyst at AB InBev, Williamsburg
Maren Leibowitz	Medical school at University of Virginia
Michael Lichstrahl	Graduate studies in chemistry at Johns Hopkins University
Agatha Loose	Assistant manager at White House/Black Market
Kathryn Mayer	Graduate studies in chemistry at University of California, San Diego
Johnathan Maza	Graduate studies in chemistry at William & Mary
Meredith McMahan	Graduate studies in chemistry education at Virginia Commonwealth University
Tyler McPhillips	Interning at CHAT after school programs
Matthew Mendonca	Ph.D. studies in chemical and biological engineering at Northwestern University
Zachary Montebell	Interning in market and client analysis at Viridity Energy
Meghan Montoya	Dental school
Pei Pang	Graduate studies in materials science at University of California-Davis
Komal Parhar	Medical school at Virginia Commonwealth University
Emily Parrish	Taking a year off, then graduate school
Carson Powers	Graduate studies in chemistry at Emory University

Benjamin Raliski	Ph.D. studies in chemistry at University of California, Berkeley
Leah Rambadt	Finishing English double major at William and Mary
Jarrell Raper	Scribing
Greta Schneider	Medical school
Amanuel Shitaye	Medical school at Georgetown University
Benjamin Silliman	Search for job in environmental/energy policy
Alexa Silva	Travel, then dental school
Grace Taumoefolau	IRTA postbac position at NIH
Stephanie Till	Dental School at Virginia Commonwealth University
Jordan Turner	Teaching high school chemistry
Nicholas Udell	Graduate studies in chemistry at William & Mary
Jordan Villa	Ph.D. studies in biochemistry at University of Texas, Austin
Patrick Warner	Getting a job
Alexander Weech	Work at NIH IRTA
Catherine Wise	Graduate studies in chemistry at Yale University
Congqi Yang	Graduate studies at University of Hong Kong
Wanji Zhang	Graduate Studies in chemistry at William & Mary

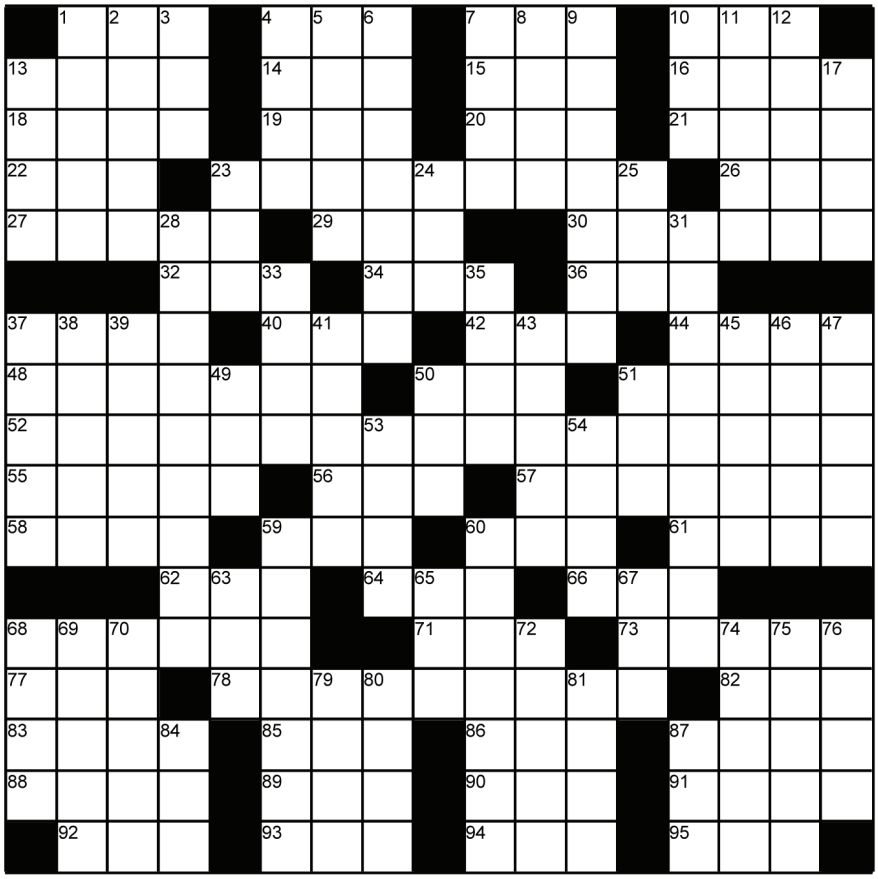
Masters in Chemistry

Patrick Blank	Graduate studies in chemistry at University of Pennsylvania
Douglas Cheek	Law school at Georgetown University
Yuzhou Chen	Quality control chemist at MTC Industries
Brittani Collins	Applying to pharmacology schools
Kristen Frano	Applying for chemistry jobs in industry
Jessica Lampkowski	Lab chemist at Columbia Chemical in Brunswick, OH
Dan Liu	Graduate studies in chemistry at Emory University
Mary Pisano	Seeking career in education, analytics or chemistry

Other 2014 B.S. Graduates

John Brosnahan	**Zackery Perkins**
Trevor Chang	**Jamison Smith**
Micah Luedtke	**John Tomlin**
Aaron Miller	**Ryan Tyler**
Charles Miller	**Morgan Uland**

Chemistry in Action by Robert Pike



ACROSS

1. Undergarment
4. Jerry Rice holds this NFL record, abbr.
7. Program for your phone
10. Fed Chair 2006-2014 Bernanke
13. When doubled, it's a delicious fish dish
14. Bauxite or chalopyrite
15. ____ faim!
16. 602,000,000,000 molecules, abbr.
18. Sour compound
19. Supporter
20. European peak
21. "Mama Mia" group
22. It's mine in France
23. Skin protection compound
26. Whitney of cotton gin fame
27. An electrode
29. "It's beautiful!"
30. ____ Joe's
32. Program file extension
34. ____ ipsa loquitur
36. Beach memento
37. Elevator door signal
40. ____ deferens
42. Application
44. 27th president
48. Branch of chem.
50. Tavern potable
51. Alternative to YouTube
52. Irresistible chemistry!
55. Friction sound
56. A zodiac sign
57. Apprentice
58. Mrs. Truman
59. Old, old car
60. Nascent nation of 1861, abbr.
61. "Sanford & Son" actor Foxx
62. Before, poetically speaking
64. Born
66. Pod content
68. Caught
71. Comedian Shaffir
73. Take on
77. Apex
78. Redolent compound
82. Scooby's coif?
83. Current units
85. To do this is human
86. Little red book author
87. Bitter compound
88. A big storm
89. Sargasso ____
90. "____ Gadda Da Vida" (Iron Butterfly)
91. "Planet of the ____" (1968, 2001 films)
92. Morning condensate
93. Walmart founder Walton
94. Animation frame
95. Pig's abode

DOWN

1. Pork strips
2. Nasal prefix
3. Assistance
4. Soy milk coagulate
5. Clog-busting product
6. Compounds detecting other compounds
7. Not quite closed
8. Washed-out
9. Way to transfer liquid in the lab
10. Polymer additive of current concern, abbr.
11. Place within
12. Kind of gas
13. Baby's first word, often
17. Hangout
23. Master's & Johnson topic
24. Guevara
25. Gun grp.
28. Clean-up compound
31. Healing compound
33. Type of rte.
35. Takei character on "Star Trek"
37. Special features DVD
38. Become accustomed to
39. Uh-uh's
41. Green/brown lizard
43. Denominations
45. Alkaloid, e.g.
46. Celebrated
47. Considered, with "with"
49. Frat syst.
50. Shakespearean comedy title word
51. By way of
53. An example of 12-down
54. Admiral Ackbar: "It's a ____!"
59. Bill of Rights: "a ____ of grievances"
60. Refractory compound
63. Sports offic.
65. Corn unit
67. Dir. from W&M to ODU
68. Solo dance-goer
69. Wanderer
70. Jobs' & Wozniak's company
72. Pointless
74. Adjust to
75. Not minding one's own business
76. Piggies
79. UFO site ____ 51
80. Bacterium specifier as postive or negative
81. A fossil fuel
84. Stitch
87. A kind of relief

Homecoming Reception 2014

Katherine Nenninger ‘12 and Erin Morris ‘12 also attended the reception.

Rob Abbott ‘12, Alan Veeck ‘91 and Gary Rice

Tom Jarvie ‘84 and Randy Coleman

Kathy Dalton Mika ‘79

Robert Van Gundy ‘13, Debbie Bebout and Najiba Murad ‘09

Lisa Landino and Rob Abbott ‘12

Olivia Harding ‘13 and Carey Bagdassarian

John Slavin ‘04 and Family

Eileen and Eugene Aquino ‘88

Jenine ‘02 and Jonathan ‘99 Maeyer and Family

William ‘06 and Tatsiana Bylund and Debbie Bebout

Rhonda Winstead ‘85/’87, Stephanie ‘15 and Daniel Gianturco ‘87

Jackie Blake-Hedges ‘13, Elizabeth Harbron and Carey Bagdassarian

Eric and Bryn (Reinecke) Douglass ‘04

Cathy (Sullivan) Bloedorn ‘99 and Sandeep Saggar ‘95/’00

Lisa Landino, Kt (Moynihan) Gray ‘04 and Family

Gail and Ken Updike ‘76 and Bob Orwoll

Janet Hopkins ‘77 and Bill Drake ‘85

Sandeep Saggar ‘98/’00, Chris Kontos ‘84 and Chris Abelt

Matt and Kelly (Kennett) Lastrapes ‘04 and Baby and Lisa Landino

Kimberly Lyons Johnson ‘94 and Bob Pike

Allen Howe ‘74 and Tom Eppes ‘74

Jennie Call ‘99 and Family

Janice Mosely Langer ‘92 and Kimberly Lyons Johnson ‘94

Phyllis Putnam, Christina Howard ‘17 and Allison Kelley ‘16

Vince Sullivan ‘84 and Gary DeFotis

Brett Prestia ‘14 (biochem minor) and Debbie Bebout

Eric Mendenhall ‘13, Robert VanGundy ‘13 and Taylor Broome ‘13 (Neuroscience)

Jonathan Maeyer ‘99 and Rob Hinkle

Vike Vicente ‘94 and Family and Gary Rice

Susan Ritneour Barker ‘94, Robyn (Roarke) Manke ‘94, Meredith Brendley Nathaniel ‘94 and Bob Orwoll

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Chemistry Homecoming Reception

The Chemistry Department is hosting a pre-game reception for chemistry graduates and friends of the department in the Integrated Science Center on Saturday,
October 24, 2015, starting at 10 am in the second floor lobby. We look forward to seeing you there.

If you can join us, please try to let us know beforehand by emailing chemistry@wm.edu or by calling the Chemistry Office at 757-221-2540.

Even if you're unable to come, we would still like to hear from you!

Public Campaign Launch

William & Mary is ready to launch its largest fundraising campaign in the university's history. Taylor Reveley will host a Presidential Campaign Briefing on Saturday, October 24, from 11:30 am - 12:30 pm in PBK Hall. President Reveley and other notable leaders and alumni will discuss how the university plans to address current financial challenges while still providing an exceptionally rigorous and enriching educational experience for its students.

Meet the Future of William & Mary

The Arts & Science Dean's Office will host a Forum on Saturday, October 24, from 1:00 - 2:00 pm in Tucker Hall Auditorium to showcase the research and teaching mission of Arts & Sciences. The Forum will feature a series of short faculty conversations, similar to TED talks.

Join us!