chemistry distillations
Newsletter of the Department of Chemistry at the College of William & Mary • www.wm.edu/chemistry • Fall 2019

Chair's Letter

We begin the 2019-2020 academic year without Professor Gary Rice. He and his wife, Tonya, moved to the West Coast to be closer to their children and grandchildren. Though Gary officially retired in 2016, we continued to benefit from his teaching skills in General Chemistry I & II. He remained a fantastic colleague and a beloved figure among students, who especially loved his sense of humor and creative demonstrations. Gary started at W&M in 1984 and contributed greatly to the knowledge of environmental pollution levels in the region. We all miss him, but wish him and Tonya the best as they make the transition to a new home and state.

This fall we welcome Visiting Assistant Professor Amanda Thorsen to teach Gen. Chem. I & II as well as the associated labs. The administration has also approved our request to hire another assistant professor. We hope to find someone who will not only expand the types of research opportunities for our students, but who can also teach biochemistry as well as either analytical or inorganic chemistry.

I am extremely happy to announce that we have yet another Henry Dreyfus Teacher-Scholar in the department – Associate Professor Bill McNamara! He is the ninth member of our department to garner this honor. Even before Bill earned this distinction, previous winners, Doug Young, Kristin Wustholz and Jonathan Scheerer had already made W&M the only department in the country to have as many faculty win this prestigious award. Most importantly, these recognitions show our commitment to both research and teaching, which led our external reviewers to describe our department as an elite research-active PUI (Predominantly Undergraduate Institution) chemistry department. Though not in Chemistry, I'd also like to acknowledge Professor Myriam Cotten, who was designated a Henry Dreyfus Teacher-Scholar while at Hamilton College, but migrated south and joined the W&M Applied Science Department in 2017. She runs the solid-state NMR facility in Physics, does biochemically-related research and teaches an upper-level laboratory course in our biochemistry lab.

Other faculty members continue to excel with Elizabeth Harbron's NSF and Jonathan Scheerer's NIH grants renewed. Both of these awards will support numerous student projects during the academic year and the summer research sessions. In the current funding climate, federal grants are increasingly difficult to obtain, so these awards are noteworthy. Other faculty members (Young, Wustholz, Poutsma, McNamara, O'Brien, Meldrum) continue their work on active federal grants while others of us work with help from smaller agencies.

Other indicators of faculty excellence include Bob Pike being named the English-Stonehouse Fellow in Chemistry for the next two years and Doug Young being named the Cornelia Brackenridge Talbot Term Distinguished Associate Professor. Doug and Bob both show their commitment to W&M by performing many, many duties in the department as well as elsewhere within the university.

Thanks in part to Doug Young's NIH award as well as donors, we now have a separate lab space and hood suitable for mammalian cell cultures. This area allows for students to test a variety of molecules for biological activity. The

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Chemistry Faculty and Staff

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Professor, biochemistry

Randy Coleman
Professor, biochemistry

Elizabeth Harbron
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Rob Hinkle
Chair, Professor, organic

Nathan Kidwell
Assistant Professor, physical

Lisa Landino
Professor, biochemistry

Dana Lashley
Senior Lecturer, organic

Bill McNamara
Associate Professor, inorganic

Tyler Meldrum
Assistant Professor, physical

Jeff Molloy
Instructor and Director of Labs and Instruments, analytical

Rachel O'Brien
Assistant Professor, analytical

Bob Pike
Professor, inorganic

J.C. Poutsma
Garrett-Robb-Guy Professor, analytical

Amanda Thorsen
Visiting Assistant Professor, inorganic

Jonathan Scheerer
Associate Professor, organic

Beverly Sher
Senior Lecturer, organic

Jordan Walk, *Lecturer, organic*

Kristin Wustholz
Class of 1964 Distinguished Associate Professor, physical

Doug Young
Cornelia Brackenridge TalbotTerm Distinguished Associate Professor, bioorganic

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DerHong Shieh
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Claudia Smith
Administrative Coordinator

Contact Us

William & Mary
Dept. of Chemistry
PO Box 8795
Williamsburg, VA 23185
chemistry@wm.edu
www.wm.edu/chemistry
757-221-2540

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Chair's Letter Cont'd

addition of this capability allows us to interact more extensively with each other in our own department as well as with departments such as Biology. It also opens the door to new avenues for collaborative funding.

Chemistry remains a robust department at William & Mary. During the commencement ceremony in May, we awarded 55 Chemistry undergraduate and six master's degrees. Ten of those undergraduates completed Honors projects, with 22 planning on earning post-graduate degrees. Seventeen more are entering medicine, and 24 are joining the workforce – at least for now! Fourteen neuroscience graduates also received their diplomas at our ceremony since these students were heavily influenced by members of our department. We wish all of them the very best as they embark on the next journey in their lives.

Undergraduate research, large numbers of chemistry majors, and close faculty/student interaction remain three of our greatest strengths. However, addressing large enrollments at nearly all levels of our curriculum has become our biggest challenge. Over the last few years, we have added Friday afternoon labs for Organic Chemistry I, night labs for Organic Chemistry II, and have run 20 different first-year laboratory sections each fall. Accommodating all students into general and organic chemistry is increasingly difficult as we are continually pushing the limits of our lab spaces. Even the upper-level Instrumental Analysis labs are at full capacity this fall.

As many know, this past academic year marked the 100th anniversary of Women at W&M. With significant funding from The Speaker's Task Group of the 100th Anniversary of Women at W&M, we were able to invite three prominent women speakers for our weekly seminars: alumna Anne J. McNeil (`99), the Arthur F. Thurnau Professor of Chemistry, and Macromolecular Science and Engineering at the University of Michigan; Geraldine Richmond, a 2018 ACS Priestley Medal winner and the Presidential Chair in Science and Professor of Chemistry at the University of Oregon; and Karen Goldberg, the Vagelos Professor of Energy Research at the University of Pennsylvania. These three women have earned so many accolades that there just isn't room to list them, but I encourage you to look at their university profiles. Six other invited seminar speakers (Janis Louie, Kathyrn Cole, Renee Frontiera, Ella Mihailescu, Theresa Evans-Nguyen and Claudia Turro) rounded out our long list of invited women speakers for 2018-19.

Yet again, alumni and friends of the department have been extremely generous and we thank all of you who have supported us and the young chemists we mentor. More specifics of how donors have helped students and how the department benefited appear later in the newsletter.

We thank all of you for your support and interest in Chemistry at William & Mary. We hope that many of you will drop by the Atrium of the Integrated Science Center (ISC-3) during Homecoming. Seeing you, meeting your family members and hearing about your careers is a true pleasure.

Rob Hinkle

Alumni Panel

Several alumni volunteered to sit on a panel during Homecoming 2018 weekend to discuss their career paths with current chemistry majors. Their advice was invaluable.

From left: Josiah Piceno `16, Eugene Aquino `88, Greg Ginsburg `13, Jennifer Gundersen `85 and Michael Amendola `95

Faculty News

Doug Young has been named the Cornelia Brackenridge Talbot Term Distinguished Associate Professor. This professorship is awarded for a three-year term and recognizes and rewards excellence in research or creative activity as well as a demonstrated commitment to teaching.

Bill McNamara has become the 9th Camille and Henry Dreyfus Teacher-Scholar in the W&M Chemistry Department. With this award, Bill is recognized for excellence in involving undergraduates in research. His group is currently studying catalyst-sensitized metal oxides for photocatalytic hydrogen generation.

Jonathan Scheerer was awarded a grant from the National Institutes of Health to advance work toward the synthesis of bioactive nitrogen-containing molecules. Some molecules to be prepared include particular structures with pyridine ring system and pyrrolodiketopiperazine. Jonathan also received the Phi Beta Kappa John D. Rockefeller, Jr. Award for Advancement of Scholarship.

Elizabeth Harbron received a National Science Foundation grant that she will use to develop nanoparticles doped with photoreactive molecules to optimize the competition between reaction efficiency and control in her lab. Photochemical reactions can be useful when the precise location and timing of a chemical reaction must be controlled. For example, chemotherapy drugs can be attached to photoreactive molecules, which release the drug only at the site of the tumor instead of throughout the body. Photoreactive molecules need to react efficiently so that the dose of light can be minimized, but not so efficiently that they react when exposed to normal room lighting.

Jordan Walk and **Dana Lashley** were chosen as W&M Confucius Institute Ambassadors to China. This spring they visited Beijing Normal University campuses in both Beijing and Zhuhai where they met with university administrators and faculty to promote W&M and initiate discussions for future collaboration.

Dana Lashley's term as Visiting Assistant Professor expired this summer. We were fortunate to be able to rehire her and she was promoted to Senior Lecturer. Dana continues to teach two large sections of Organic Chemistry II for life-science concentrators along with the corresponding labs. She also piloted a new course in drug discovery last spring and will offer it again this year. Last spring Dana was elected by the graduating seniors of the class of 2019 to be the Honorary Graduation Marshall.

Amanda Thorsen joined the Chemistry Department as a Visiting Assistant Professor in August. Amanda's studies in chemistry began at Pennsylvania State University (B.S. 2008) and continued with research at the University of Washington where she earned a Ph.D. in inorganic chemistry in 2014. She specialized in synthesis and characterization of colloidal

semiconductor quantum dots. Throughout her graduate studies, Amanda also cultivated her passion for teaching. Since then, she has taught introductory general chemistry classes in both large and small college settings, and she is currently interested in developing ways to encourage student engagement by integrating technology and online resources into her general chemistry classes at W&M.

Department News

Chemistry Club

It's been another outstanding year for the W&M Chemistry Club! In addition to our annual Halloween Magic Show (featuring a Sherlock Holmes theme), the Chem Club has been active in numerous outreach projects as well as social events on campus. One of the highlights was the liquid nitrogen ice cream flavor competition, which was especially competitive this year. Most importantly, the Chem Club was recognized by the American Chemical Society as a top tier "Outstanding Student Chapter" as well as received their "Green Chapter Award" for helping to educate the general community about Green Chemistry. The Outstanding Student Chapter award is the first time the club has obtained the designation in over 10 years and is one of the very few student chapters nationwide to receive the prestigious designation.

Chem Club students fun-draising at Homecoming reception

NOBCChE

Our local chapter of the National Organization for the Professional Advancement of Black Chemists and Chemical Engineers (NOBCChE) aims to increase diversity in STEM at W&M by providing opportunities to students of all backgrounds. Under the leadership of Prof. Dana Lashley, NOBCChE became an official chapter in Fall 2018 at W&M and was recognized at the National NOBCChE conference in Orlando. The group consists of 20 active and enthusiastic members and is growing steadily. This year, a group of five W&M students were awarded the "Advancing Science Grant" and will present their research at the National NOBCChE Meeting in St. Louis.


NOBCChE students participating in the Homecoming Physics Fest 2018.

Our NOBCChE chapter was founded with the intent of increasing the number of graduating Chemistry majors of color by building connections and sharing opportunities directed towards underrepresented populations across campus. We hope to expand our reach across campus as well as into the community, to provide education and mentorship to underrepresented students in the Greater Williamsburg area. Outreach highlights include our annual participation in Physics Fest with chemistry demonstrations during Homecoming Saturday in Small Hall. Please come see us! We also partner with Campus Kitchen, allowing us to bring children from underprivileged families to the ISC and share fun and exciting chemistry demos with them in hopes that our love for chemistry is contagious and inspiring.

Destinations of 2019 Graduates

Chemistry Majors

Alessandra Bournigal	Gap year as an EMT, then medical school
Madeline Brass	Applying for jobs
Haley Brennan	Not reported
Caleb Burns	Masters studies in chemistry at William & Mary
Joseph Chibueze	Gap year, applying to medical school
Aaron Cole	Applying for jobs and to graduate schools
Jessica Cruzado	Not reported
Andrew Dahik	Applying for jobs
Kentrell Darden-Askew	Working in the Applied Science Department at William & Mary
Alfredo Fallorina	Applying to medical schools
Kalie Fikse	Veterinary school
Rose-Marie Fuchs	Working in financial consulting
Alexander Galas	Working for SGS North America's Environmental Division
Frank Geisler	Not reported
Davis Gold	Not reported
Zhenyu Han	Ph.D. studies in chemistry at Northwestern University
Christian Harris	Applying for jobs
Ryan Haynie	Working as an imagery analyst for the Department of Defense
Robert Korb	Not Reported
William Lake	Ph.D. studies in theoretical chemistry at Yale University
Nadege Lebert	Applying for jobs
Alison Leighty	Applying for jobs in the pharmaceutical industry
Miguel Locsin	Dual MD/MPH studies at Emory Medical School
Danielle Long	Medical Masters studies at EVMS
Kristen Lum	Working as applications engineer at Henkel
Pauline Lynch	Ph.D. studies in chemistry at University of Minnesota
Hendrik Ma	Applying for jobs and later to graduate schools
Anna Martin	Applying for jobs
Rachael McCarthy	Masters studies in public health-epidemiology at George Washington University
Henry Melzer	Teach for America in Hawaii
Rebecca Merriman-Goldring	Applying to conservation intern programs
Amin Nasser	Applying to postbac programs and medical schools
Paul Negulescu	Working in laboratory research in pharmaceutical industry
Samuel Obbin	Working at LSE (Health Policy), then medical school
Elizabeth Owens	Not reported
Sophie Padilla	Masters studies in environmental science at SUNY-ESF

Chemistry Majors Cont'd

Steven Paredes	Gap year
Elijah Parker	Not reported
Anwar Radwan	Applying to dental school
Vanessa Rivera	Working in the chemical industry, future plans for graduate school
Eric Roos	Ph.D. studies in chemistry at University of North Carolina-Chapel Hill
Christina Rubio	Gap year, applying to medical schools
Joshua Sacks	Dual Ph.D. studies in oceanography and astrobiology at the University of Washington
Jacob Shusterman	Ph.D. studies in chemistry at Virginia Commonwealth University
Indira Stevens	Ph.D. studies in chemistry at University of North Carolina-Chapel Hill
Carlo Tampubolon	Getting a job using chemistry and economics majors
Michelle Townsend	Ph.D. studies in organic chemistry at University of North Carolina-Chapel Hill
Christopher Travis	Ph.D. studies in chemistry at University of North Carolina-Chapel Hill
Anna Tsutsui	Gap year, applying to medical school
Mikayla Vanhooke	Gap year studying French, applying to medical schools
Hunter Voslow	Not reported
Xiye Wang	Ph.D. studies at Columbia University
Robert Wiley	Ph.D. studies in organic chemistry at University of North Carolina-Chapel Hill
Evan Woods	Gap year, applying to medical schools
Hall Zhang	Scribing/volunteering, applying to medical schools

Masters in Chemistry

Kenneth Blackshaw	Applying for environmental jobs
Alison Gerhard	Applying for positions in materials characterization and quality assurance
Lisa Graves	Ph.D. studies in chemistry at Virginia Commonwealth University
Amy Schienschang	Not reported
Morgan Shelton	Working as a medical technician in opthalmology, applying to medical schools
Emma Walhout	Seeking a career in bioanalytical chemistry

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Thank you!

Where Your Donations Go!

Chemistry donors have allowed us to change students' lives for the better. In 2019, we were able to award six academic-year undergraduate scholarships; two graduate fellowships; generous wage supplements to three outstanding undergraduate teaching assistants; monetary prizes to the top graduating senior chemistry major and top graduate teaching assistant; and 11 undergraduate summer research stipends! In addition, donated funds allowed the department to provide numerous opportunities for students to interact with invited seminar speakers over snacks or a pizza lunch. Endowments and other gifts further allowed us to buy several key pieces of equipment for the biological testing lab as well as order a new inert-atmosphere glovebox, which replaces a unit that is decades old. Inorganic chemists rejoice! Other funds were used to repair and update major research instrumentation such as the NMR spectrometer and X-ray diffractometer. Our next large purchase will very likely be a mass spectrometer with a liquid chromatography front-end (LC-MS).

We are very grateful for the generosity of all our donors.

How to Give

The Chemistry Department has several funds listed on our Support webpage at www.wm.edu/chemistry. One-time, regular or annual contributions may be made online or by mail. To contribute by mail, make your check payable to William & Mary. Please be sure to note the fund number to which you are designating your gift in your check's memo area and send it to:

William & Mary
P.O. Box 1693
Williamsburg, VA 23187-1693

You may want to consider the unrestricted Chemistry Fund #2967 which helps us to be flexible and apply funds to areas with greatest needs.

Faculty Feature

The **Poutsma** group is interested in determining structure/energetics relationships in small biological molecules in the gas phase. For the past 20 years we have been measuring intrinsic gas-phase acid-base properties of unusual amino acids in an effort to understand how the structure of the differing side chains affects the overall properties of the molecules. Starting in 2006, we began incorporating these unusual amino acids into small peptides to use as probes for investigating peptide fragmentation behavior in mass spectrometers. Peptide fragmentation is used in automated peptide sequencing-based proteomics experiments, and an enhanced understanding of the energetics and mechanisms for these fragmentations can lead to better sequencing. Most recently, we have incorporated infrared multiple-photon dissociation (IRMPD) spectroscopy into our toolbox, which allows us direct spectroscopic measurements of the structure of amino acids, peptides, and their fragmentation products.

Student researcher in the Poutsma lab

Our two most recent papers involved the use of IRMPD to examine the structures of cationized canavanine molecules (Smith, Z. M.; Steinmetz, V.; Martens, J.; Oomens, J.; Poutsma*, J. C. *Int. J. Mass Spectrom.*, **2018**, *429*, 158.) and the structure of b_2^+ and b_3^+ fragmentation products from ornithine-containing peptides (Smith, Z.M. et al. *J. Am. Soc. Mass Spectrom.*, in press, http://link.springer.com/article/10.1007/s13361-019-02244-0). Canavanine (cav) is an oxy-analog of arginine that is a potent natural insecticide and has been tested as an anti-tumor drug. The oxygen atom in the side chain reduces the basicity of canavanine by more than 40 kJ/mol as compared to arginine. In the mass spectrometer, this decreased basicity results in a different tautomeric structure

of the side chain (versus arginine). We were able to show using IRMPD spectroscopy that the cavCs$^+$ cation adopts a salt-bridged structure in which cav adopts a zwitterionic structure (Figure 1). This marks only the second amino acid that has been shown to adopt a zwitterionic structure

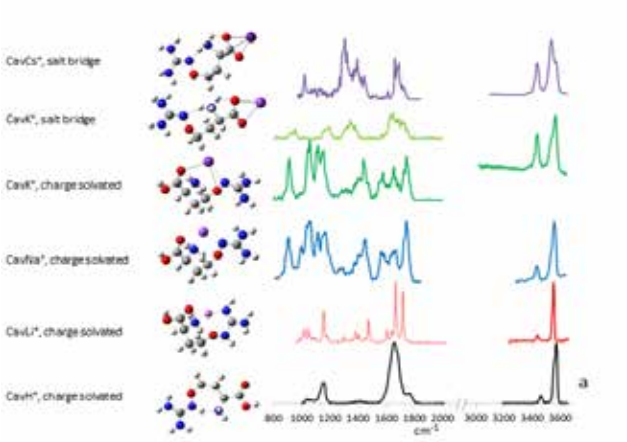


Figure 1

under any conditions. CavK$^+$ was shown to adopt both salt bridged structures and charge-solvated structures in which the cav is in a canonical

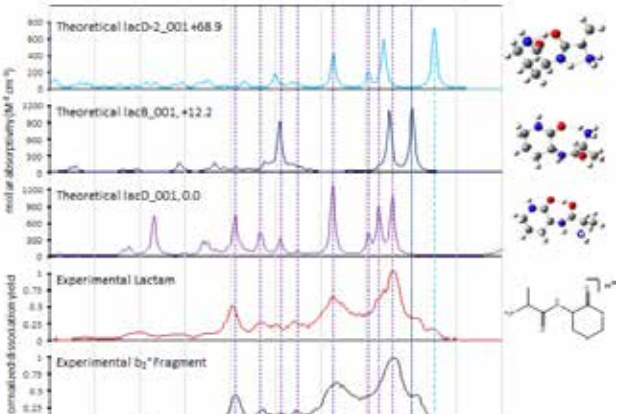


Figure 2

(non-zwitterionic form). CavNa$^+$, CavLi$^+$, and CavH$^+$ were all shown to adopt charge solvated structures. This study clearly shows the sorts of structure/energetic relationships that we have been studying in our lab.

In our most recent paper, we showed that the b_2^+ from AOAA tetrapeptide and the b_3^+ ion from the AAOA tetra peptide adopt a novel lactam structure as shown in Figure 2. To date all b_n^+ ions that had been characterized by IRMPD spectroscopy had been shown to adopt either protonated oxazolone or protonated diketopiperazine structures. Professor Sheerer synthesized an authentic AO lactam for us and we compared its IR spectrum to that of the b_2^+ from fragmentation of the AOAA tetrapeptide. Comparing the bottom two traces from Figure 2 shows almost perfect agreement between the two spectra confirming the lactam structure for AO b_2^+. High-level density functional theory calculations confirm that the b_2^+ ions in the mass spectrometer comprise a mixture of several different lactam conformers. Similar results were found for b_3^+ ion from dissociation of AAOA.

News of Our Alumni

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 or join the "William and Mary Chemistry Alumni" Facebook interest group.

Class of 1968

Rodger McKain was unable to attend last year's Homecoming celebrations but wanted to express his appreciation for the good start that chemistry at W&M provided for him.

Class of 1969

Chemistry majors from the Class of 1969, including **Paul Danier, Helen Rhea Getz**, **Clifford Lindsay**, **Carolyn Koehler Offutt**, and **Fred Simpson**, gathered in the Integrated Science Center (ISC) on April 6, 2019, as part of William and Mary's Traditions Weekend and the 50th Reunion of 1969. They were joined by Professors David Thompson and Richard Kiefer, both of whom were in the faculty in 1969, Professors Randy Coleman and Dave Kranbuehl, who joined the faculty by 1970, and Department Chair Robert Hinkle. The visit included a tour

of the ISC, which according to them is a far cry from old Rogers Hall. Others in the Class of 1969 heard from, but unable to join us, include **Bettijoyce Breen Lide**, **Bill Gillespie**, **Bob Kieffer**, and **Lynn Miller.**

Class of 1983

Brian Failon's daughter Caroline graduated from the W&M Biology Dept. last spring. Brian is running his own chemical business, True North Foliar (liquid N-P-K). He has volunteered with the W&M Cohen Career Center for Chemistry Career Chats with students. The chats help students explore career paths with their science major.

Class of 1992

Janice Moseley Langer retired from 25 years as an Air Force physician and is now a family physician with Sentara Medical Group in Williamsburg.

Class of 1993

Wendy Kraus Pelton wrote Prof. Hinkle a note last fall: "It has been a busy season, as I've gone back to school at Duke University to obtain a master's degree in nursing informatics. I also work as a nurse in a post-anesthesia care unit part-time. The rest of my time is spent making sure that my four children are in the right place at the right time. The youngest is now six and is especially interested in anything related to science... Keep an eye out for her in one of your chemistry classes in about twelve years."

Richard Vachet wrote last fall "I am currently a Professor of Chemistry at the University of Massachusetts Amherst. For the last 2 years, I've served as the Head of the Department. I typically teach courses in Analytical Chemistry, and I also run a research group that has interests in protein aggregation and nanomaterials for drug delivery purposes. My research group specializes in the development of new methods based on mass spectrometry. Over the years, I've had the pleasure of working with several William and Mary grads who've attended grad school in Chemistry at UMass."

Class of 1997

Michael Gaylor got in touch with Prof. Abelt last fall and writes: "I hope this message finds you and the entire department oscillating harmoniously with the cosmos. Michael Gaylor (MA Class of 97) here checking in from the windswept and already snowy Great Plains (first snowfall Oct 11th… Toto, we're not in Virginia anymore!). I received my latest installation of Chemistry Distillations today and catching up on all of the astonishing growth, diversification, and achievements in the program inspired me to drop a line with a quick update. I'm simply astounded at the remarkable happenings in the program since my days there so many years ago. Well done!

After meandering a circuitous path from MA to PhD – which encompassed a 2-year stint in industry (SONY Electronics), a 5-year stint as a national touring label-signed pro rock drummer (chasing my childhood dream of becoming a "rock star"), running my own private teaching and consulting business, a 4-year stint as a stay-at-home dad, and a 2-year stint as a post-doc teaching fellow – I finally touched down on the tenure track at Dakota State University in 2012. I serve as the entire Chemistry Program here. Talk about wearing all the academic hats – simultaneously! ☺☺

Since landing here, I have reinvigorated a moribund Chemistry program and built a recognized undergraduate research program where none had ever existed at this teaching-intensive school. I've produced Dakota State's first Goldwater Scholars (in back-to-back years), first NASA Space Grant Consortium Undergraduate Research Fellows, first EPA Undergraduate Research Fellow, first Mayo Clinic Post-Baccalaureate Fellow, first Fermi Lab Post-Baccalaureate Fellow, and first scientific undergrad publications. And all of my lab alums to date have matriculated in respected MD, PhD, PharmD, and PA programs. These efforts recently helped me secure tenure and promotion to Associate Research Professor – the first-ever

such academic appointment at Dakota State. So, life's been pretty good, and my program is gaining ever more momentum. Good stuff!
Suffice I'm exceptionally proud of these achievements, but they would not have been possible without the bounty of inspiration and training I received from you and so many others there. I am forever grateful for those experiences and inspirations. Please convey my gratitude to all and keep doing all the awesome scholastic things with awesomely awesome awesomeness!"

Class of 1999

Anne McNeil presented a seminar in the W&M Chemistry Department last spring. After her undergraduate studies at W&M she went on to earn a Ph.D. in physical organic chemistry with Prof. Dave Collum at Cornell University. She was a L'Oreal post-doctoral fellow with Prof. Tim Swager at MIT from 2005–2007. In 2007, she joined the faculty at University of Michigan where she is now an Arthur F. Thurnau Professor of Chemistry and Macromolecular Science and Engineering, as well as an HHMI Professor. She has won numerous awards for excellence in both teaching and research. Her most recent award was being inducted as a Fellow into the AAAS. She is also the proud mom of two wonderful children – Evie (6) and Emily (4).

Class of 2008

Jordan DeButts lives in Richmond, VA, with her husband, Robert McMillan, and teaches chemistry and algebra II at Freeman High School in Henrico County, VA. She got married in 2017.

Joe Tucker sent an update to Prof. Abelt that he has been working at Pfizer since 2012 and is the lab head in one of their discovery groups, focusing on synthetic technology development.

Class of 2013

Sofia Garakyaraghi completed her Ph.D. at NC State University working with Prof. Felix Castellano and a postdoctoral position at Princeton University with Prof. Gregory Scholes. She is now Managing Editor at the American Chemical Society, managing daily operation of ACS Central Science.

Robert VanGundy wrote a note to Prof. Bebout: "I completed my PhD at the end of 2018 at Emory University. I am starting a post-doc at Pacific Northwest National Lab at the beginning of August in Alla Zelenyuk-Imre's lab using a single-particle mass spectrometer for climate science research."

Class of 2014

Yuzhou Chen let Prof. Bebout know that she started working at Bayer in New Jersey last fall as a Regulatory Affairs Manager. Her major responsibility is to ensure regulatory compliance of Bayer's dietary supplements and OTC products. She passed a Regulatory Affairs Certification test and got the credential.

Sharon Hartzell came to last year's Homecoming reception and told us that she had been working for the Environmental Protection Agency for two years.

Class of 2014/2015

Patrick Blank wrote to us: "I am starting a new job in New York City on September 30th. I am going to be an Investment Banking Research Associate covering the Biotechnology sector for Credit Suisse. It's a cool job, blending biochemical science with finance. I will defend my PhD at the University of Pennsylvania either right before or soon after my job start date. The MS program prepared me well for PhD studies and I will be forever grateful to the WM chemistry department! Hope to stay in touch. Maybe I'll bring my newborn son to homecoming!"

Class of 2016

Allison Kelley started a program in Art Conservation at Winterthur/University of Delaware this summer. This is a natural outgrowth of art conservation work she did in the Meldrum lab at W&M, Colonial Williamsburg and in Northern California.

Class of 2019

Madeleine Brass works in the Department of the Navy as an Operations Research Analyst. She uses data analytics, modeling, and forecasting to improve efficiency of Naval systems.

Homecoming Open House 2018

Another Homecoming Reception and another great turn-out of alumni!

Dick Kiefer and
Ginny Youngblood `77

Joe Piceno `16 and Debbie Bebout

Alex Chartrain `13
and Chris Abelt

Bev Sher, Mike Salamone `17 (BIOL)
and Janice Moseley Langer `92

Kim Lester `98
and family

Bob Pike and Jordan deButts `08

Randy Coleman and
Janice Moseley Langer `92

Jeff Gehring `17 and Jeff Molloy `90

Gary DeFotis and Brian Failon `83

Matthew Sturner `18 and
Jeff Molloy `90

Betsy Duckett `98
and daughter

Lisa Landino and
Hillary Clark `11

Jessica Armstrong `17, Aaron Bayles `17,
Bridget Thompson `17 and Elizabeth Harbron

Jonathan Maeyer `99 and Jenine Maeyer `02 with family and
Rob Hinkle

Ben Zhang `17 and
Kristin Wustholz

Jordan Walk `08 (Faculty), Rob Hinkle
and Michael Amendola `95

Sharon Hartzell `14

John Marsh `55, Karl Schellenberg `53
and Dick Kiefer

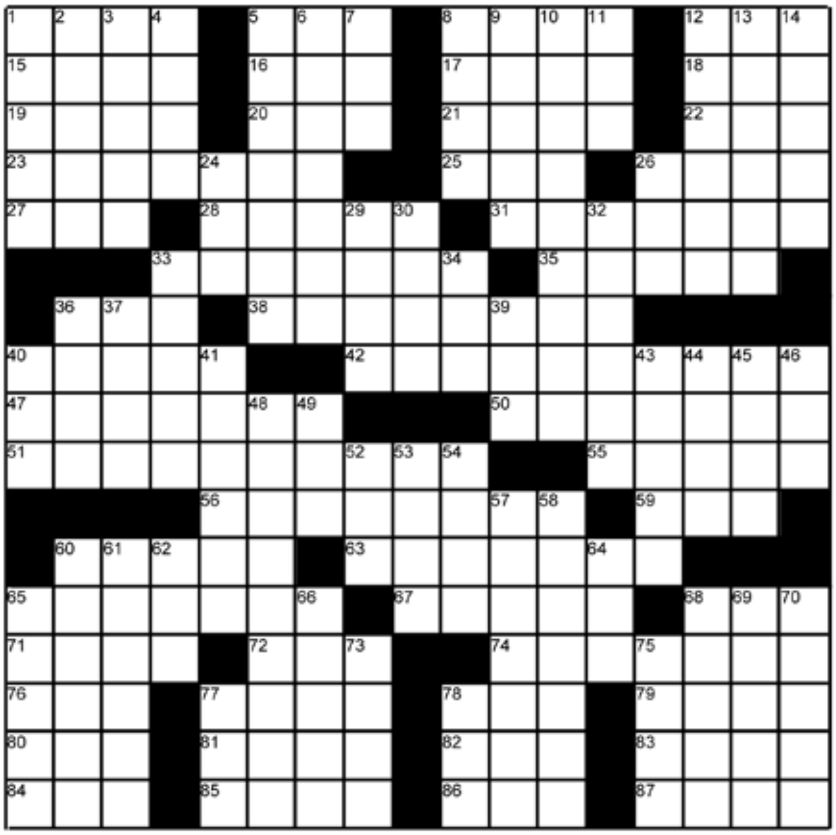
Ben Zhang `17 and Aaron Bayles `17

Warren Koontz `83

Rob Hinkle, Laura Gilbert `08,
Lisa Landino and John Giddens `10

Chemistry Puzzle by Robert Pike

Chemistry or Not? Robert D. Pike



ACROSS

1. Electron property or partisan lens?
5. Philosophical fad
8. KAl(SO4)2*12H2O
12. Courtesy title, abbrev.
15. Hiro-_____ 20th century Japanese emporer
16. Early Apple computer innovation
17. The _____ Ranger
18. Enviromental prefix
19. Force applied over distance, abbrev.
20. Hoops league
21. Norse All-Father god
22. Confederate
23. Blood-revealing compound in forensics
25. Narcissism
26. Kind of duck
27. Vinyl records
28. Kind of ballerina
31. Braid
33. Rolling musical effect
35. Smooths out
36. Sault _____ Marie
38. Portray as the bad guy
40. Vader to his friends
42. Ban from school or opaque mixture?
47. Seaweed-based polysaccharide gel
50. Add-ons to the docket
51. A time apart or chromatography?
55. Dive down rapidly
56. New companies
59. Radical sensing techn.
60. Gallic farewell
63. Addition to a motorcycle
65. Salon activity
67. Describing a developing ecosystem
68. Mao's country, abbrev.
71. As well
72. Fitting
74. Nickname for Vlad Dracula, with "The"
76. Institute legal proceedings against
77. French verb to be
78. Part of a drum kit
79. Spaghetti sauce brand
80. Reason for discount, abbrev.
81. A criterion for scholarship eligibility
82. Fruit juice
83. Wee bit
84. Those in France
85. Dentists' degrees
86. Newest computer drives, abbrev.
87. Large group of things or garden pest?

DOWN

1. Electron group or mullusk covering?
2. The most famous was Betty Grable
3. Things
4. Edible seaweed
5. Didn't listen to
6. Convert a solid to a gas or wonderful?
7. "Mamma _____"
8. Soothing plant extract
9. Henry Cabot _____
10. Neutral or dues-paying workers?
11. Human males
12. Contained inside
13. "_____ Eleven"
14. Kind of gas or of good blood?
24. High-brow radio
26. Third number in the Fibonacci series
29. Maters
30. Baseball family of Moises
32. They are found in graphs
33. Greek prefix for four
34. Toggle switch positions
36. Wise one
37. Snare
39. Hopsy brew
40. Prosecutors
41. _____ around (frolicked)
43. Underground system
44. Slang for non-functional device
45. Smell
46. Siesta
48. Full of solute or rich in color?
49. When you'll get there, abbrev.
52. Tax collection agy.
53. Elevator inventor
54. Pantyhose color
57. Columns on the table or full stops?
58. Cheated
60. Attraction
61. Dispensers of meds
62. _____ Jima
64. Swiss mountain
65. Alkaline or simple?
66. Site of first gas attack in WWI
68. Aristotle's teacher
69. Kingly
70. Impure or profane?
73. Talks by smarties
75. Biblical Syria
77. Terminus
78. Grad students in undergrad labs

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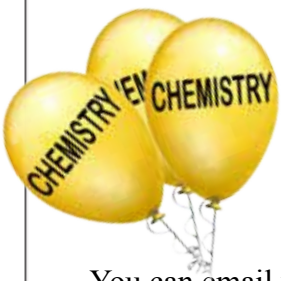
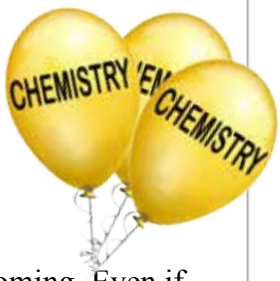
Integrated Science Center Homecoming Open House

The Chemistry Department would like to invite you to a combined ISC Homecoming Open House with Biology and Psychological Sciences. The Open House will take place on



Saturday, October 19, 2019, 10 am – 12 pm
in the first floor Atrium of the new ISC 3.



You can email us at chemistry@wm.edu if you want to let us know that you are coming. Even if you're unable to come, we would still like to hear from you!