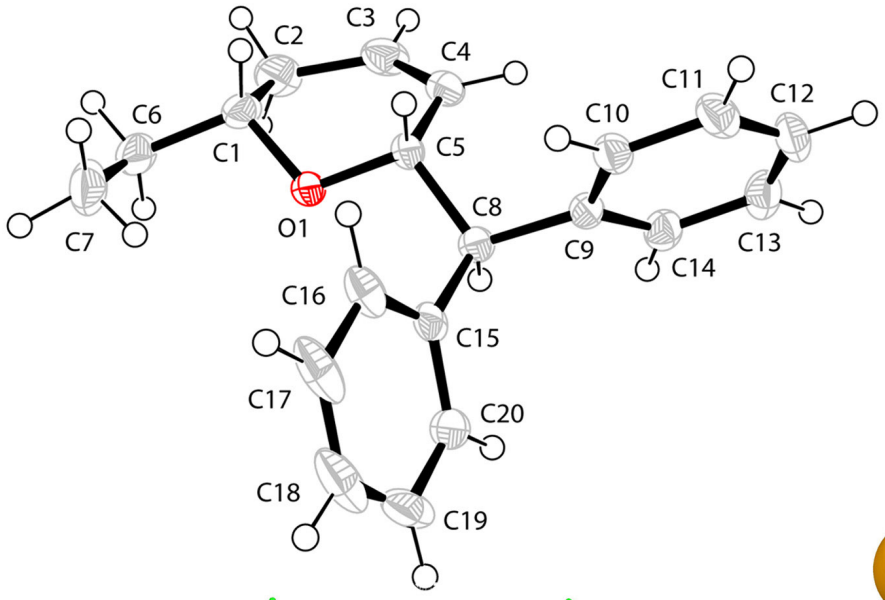
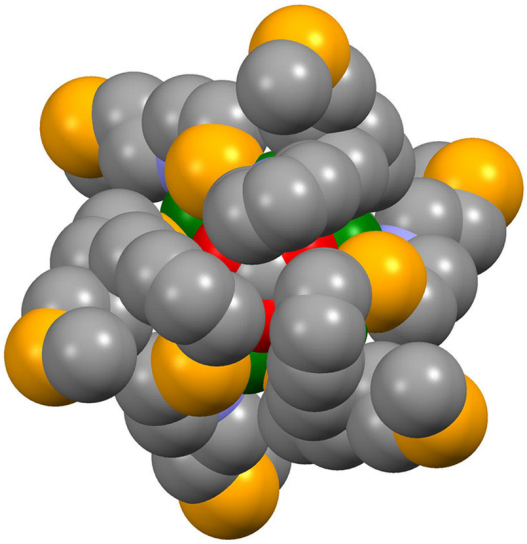
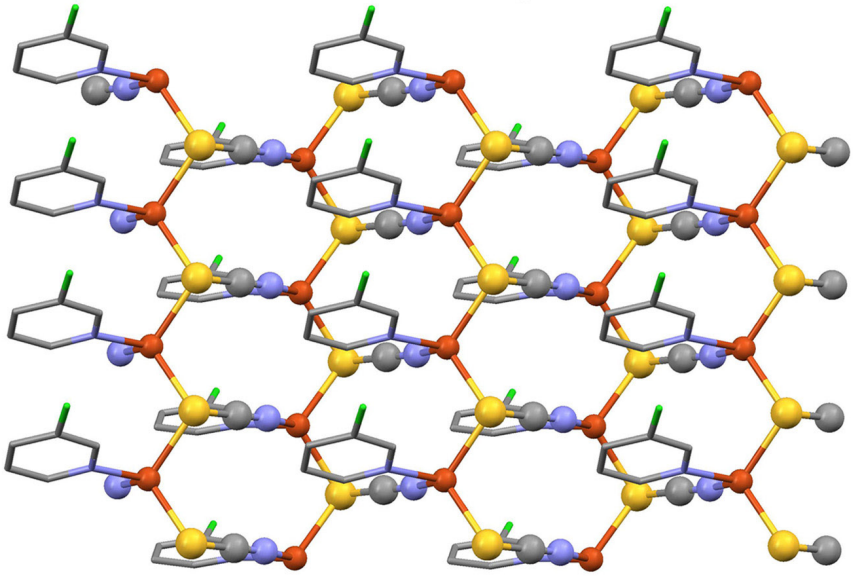
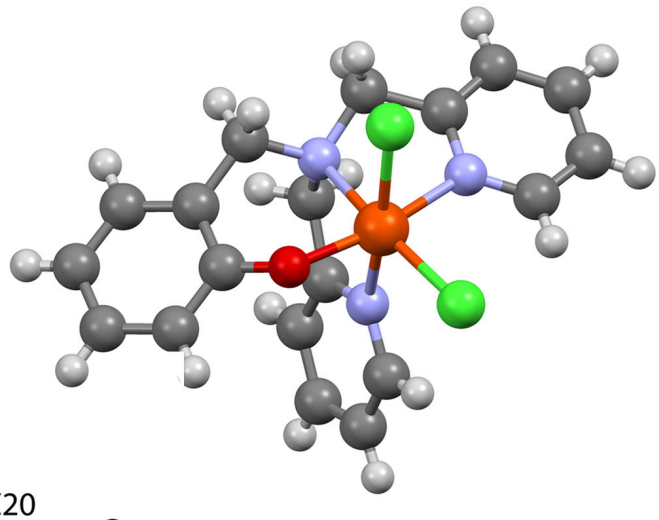
chemistry distillations

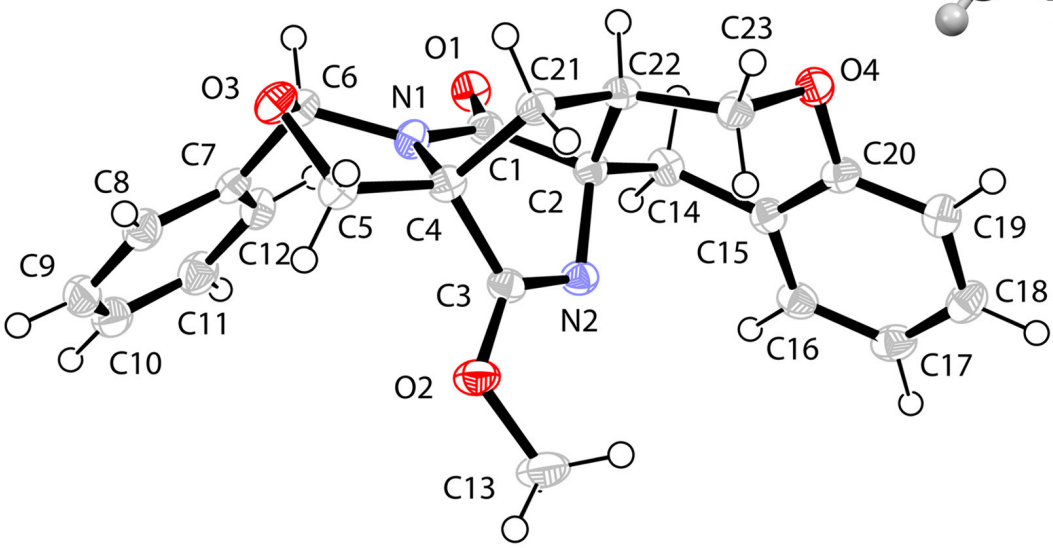
Newsletter of the Department of Chemistry at the College of William & Mary • www.wm.edu/chemistry • Fall 2014











Chemistry Faculty and Staff 2014

Current Faculty	
Chris Abelt, organic *Chancellor Professor and Chair*	*cjabel@wm.edu*
Carey Bagdassarian, biophysical	*ckbagd@wm.edu*
Debbie Bebout, biochemistry	*dcbebo@wm.edu*
Randy Coleman, biochem	*racole@wm.edu*
Elizabeth Harbron, organic	*ejharb@wm.edu*
Rob Hinkle, organic	*rjhink@wm.edu*
Lisa Landino, biochemistry *Garrett-Robb-Guy Professor*	*lmland@wm.edu*
Dana Lashley, organic *Visiting Assistant Professor*	*dlashley@wm.edu*
Bill McNamara, inorganic	*wrmcnamara@wm.edu*
Tyler Meldrum, physical	*tkmeldrum@wm.edu*
Bob Pike, inorganic *Floyd Dewey Gottwald, Sr. Professor*	*rdpike@wm.edu*
J.C. Poutsma, analytical	*jcpout@wm.edu*
Gary Rice, analytical *Interim Chair Fall 2014*	*gwrice@wm.edu*
Jonathan Scheerer, organic	*jrscheerer@wm.edu*
Kristin Wustholz, physical	*kwustholz@wm.edu*
Douglas Young, bioorganic	*dyoung01@wm.edu*

Professional Faculty	
Jeff Molloy, analytical *Instructor and Director of Labs and Instrum.*	*jcmolloy@wm.edu*

Emeritus Faculty	
Gary DeFotis, 2013 *Garrett-Robb-Guy Professor Emeritus*	*gxdefo@wm.edu*
Cirila Djordjevic, 1992	
Dick Kiefer, 2003	*rlkief@wm.edu*
Steve Knudson, 2010	*skknud@wm.edu*
Dave Kranbuehl, 2009	*dekran@wm.edu*
Bob Orwoll, 2010	*raorwo@wm.edu*
Bill Starnes, 2006 *Floyd Dewey Gottwald, Sr. Prof. Emeritus*	*whstar@wm.edu*
Dave Thompson, 2012 *Chancellor Professor Emeritus*	*dwthom@wm.edu*

Staff	
Janet Hopkins	*jlhopkins@wm.edu*
Beverly Laws	*bllaws@wm.edu*
Susan Mulholland	*smulholland@wm.edu*
DerHong Shieh	*dxshie@wm.edu*
Claudia Smith	*csmith01@wm.edu*

'73 Reunion Dinner and Homecoming 2013

Mike Edens and Art DiNapoli - two members of the 40-year reunion class of 1973 - joined some of their former chemistry professors for dinner on the Friday of Homecoming Weekend. Their classmate Judy Auping joined them on Saturday at the chemistry reception. The Saturday reception was well attended and all seemed to have a great time. We look forward to another fun reception this October.

Judy Auping, Mike Edens and Art DiNapoli

From left: Anne and Chris Abelt, Martha and Mike Edens, Dick Kiefer, April and Randy Coleman, Art DiNapoli and Bob Orwoll

Cover Picture: In honor of UNESCO's proclamation of 2014 as the International Year of Crystallography, X-ray structures from Profs. Bebout, Hinkle, McNamara, Pike, and Scheerer are shown.

Editor's Comment: Several alumni noted the safety violations in last year's staged cover picture. No experiments were actually being conducted but we will endeavor to follow proper safety protocols in future pictures just like we follow them in all laboratory practices.

From the Chair

I guess that even hinting that last year was going to be my final year writing this column as chair of the department was too much of a jinx. As it turns out, I am not writing currently as chair of the department. That honor goes to **Gary Rice**. On the other hand, he will carry out these duties only through December, after which they boomerang back to me for two and a half more years. I will be on scheduled semester research assignment for the fall. I was supposed to have a leave in 2010, but I deferred it four years until the end of my term. Deferring it for another three years seemed not in the interest of my mental health. Gary was nice enough to volunteer to give me a break before I broke.

As usual things are afoot in chemistry. I am happy to say that we have finally gotten our long awaited nuclear magnetic resonance spectrometer installed. The Agilent technician commissioned the instrument in what has to be a record short time. It took much longer to figure out how to use it even though the software is an updated version of what we were currently using. Fortunately, the NMR was operating at full capability over the summer with the exception of the automatic sample changer. Not having a sample changer was of little consequence since the now sixteen year old spectrometer was still running. The new NMR, being state-of-the-art, let several groups do decisive experiments on their molecules that revealed their three dimensional structures. And each of these experiments required very little spectrometer time. The biggest time saver has to be the fact that shimming the magnet now takes one click (gradient shimming) rather than a laborious back and forth between the operator and the spectrometer.

The hole for ISC 3 with the ISC 1 on the left (our current home) and ISC 2 on the right (our former home). Photo provided by Whiting-Turner Contracting.

Because of our increased enrollments in chemistry (e.g. thirty-three majors in 2012 vs. sixty-five in 2014) chemistry was allowed to hire a visiting professor to help deal with the large number of students, especially at the introductory levels. We are happy that Professor Dana Lashley joined us in late July. Dana will be teaching primarily organic chemistry courses. She is profiled later in this newsletter. Her search has continued the streak of now six faculty searches since 2008. I suspect we may do another search this fall, if for no other reason than it would not feel right not to do one. This wave of hiring will lead to another wave over the next five years, and that is promotion and tenure decisions. Jon Scheerer is being considered for tenure this year and each subsequent year another will be considered. Next year, Kristin Wustholz is scheduled. Kristin is on leave this fall having welcomed with her husband Josh Patterson their son Matthew who was born on June 24. Kristin's new addition brings the number of chemistry faculty children under three years of age to five.

Two of our faculty received special recognitions this year. Debbie Bebout was awarded an Arts and Sciences Faculty Award for Teaching Excellence in addition to a Plumeri award for Faculty Excellence. Rob Hinkle was chosen as the recipient of the Jennifer and Devin Murphy Faculty Award for his outstanding integration of teaching and research.

Last year saw the Arts and Science Faculty approve a new set of general education requirements. While a few of the new COLL courses (College

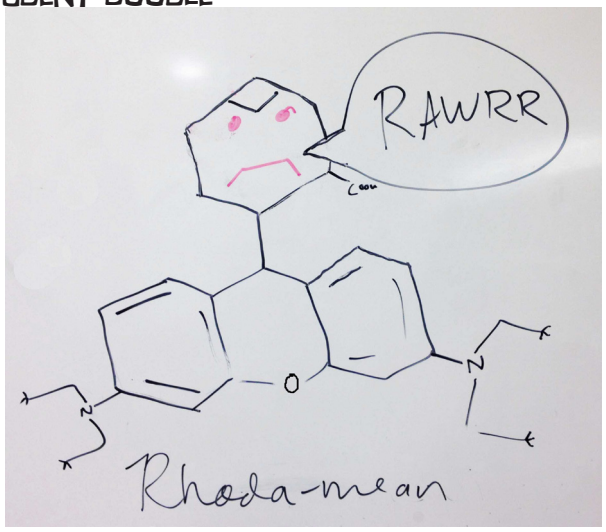
From the Chair - cont'd

courses are what the new set of requirements are called) will be piloted this year, the curriculum will not begin in full until the following year. Chemistry will see little impact from the new curriculum. It is too bad that our general chemistry course, which now satisfies a General Education Requirement, will not satisfy a College course. The COLL 200 level courses, the closest fit to CHEM 103, must look outward to one or both of the humanities and social sciences. We will continue to teach freshman seminars (now COLL 150) and our non-majors course will morph into a COLL 200 course, and its title will change to Chemistry, Energy and the Environment.

The construction of ISC3 seems to be going forward. Construction may be too generous a term. Before you can build anything there has to be extensive site preparation. This usually means a lot of destruction. Over the summer all of the concrete and brick pathways, pine trees and the storage building that were behind old Rogers Hall were dug up and removed. The main sewer water pipe was relocated under Landrum drive. Since this has happened in the early to mid-summer, I have watched daily rearrangements of dirt outside my window. Large piles would appear, then disappear, sometimes in the same day. I got worried when the excavator that was removing the concrete path just outside of my window got within a foot of the glass, but I am happy to say that ISC1 and ISC2 have not been damaged yet. Hopefully this fall they will start making the actual structure.

Chris Abelt

STUDENT DOODLE



Faculty News

Professor Hinkle Receives Murphy Award

Rob Hinkle stands out in the chemistry department in the quality of students he attracts to his research and in what these students have gone on to achieve with their William and Mary degrees. In the sciences both the national Goldwater Scholarship and the internal Beckman Scholarship are indicative of highest potential for students. These programs are extremely selective, and the scholarships few in number. It is remarkable that Rob has mentored four Beckman Scholars and two Goldwater Scholars in his career. Most of these students have gone on to complete Ph.Ds. and are now working in academia, medical and pharmacology research. Many of his other research student were or are Monroe or Dow Scholars, Phi Beta Kappa inductees, completed Honors in Chemistry or went on to M.S. degrees in chemistry.

Rob also stands out in bringing his research into his courses. Beginning in May of 2008 a group of William and Mary scientists, administrators, and outside energy consultants began to pursue funding to investigate using algal biomass for environmental remediation of the Chesapeake Bay. The consortium includes William & Mary, VIMS, University of Arkansas, University of Maryland, Western Michigan University, and the Smithsonian Institute. Statoil provided $1,000,000 in October of 2009 to evaluate algal growth systems at VIMS (Chesapeake algae project or ChaP) and later an additional $2,000,000 for scale-up and analytical studies. An additional $625,000 was provided through DOE to study growth and natural degradation of algal species. Rob's role involved the analysis of lipids and carbohydrates in the algae and to find the expertise necessary to dewater and lyse the algal cells. At the same time Rob began offering a Freshman Seminar course entitled "Beyond Petroleum as a Fuel" (Chemistry 150W). This class covers a broad range of topics concerning the petrochemical industry. Alternative energy sources are presented as are geopolitical considerations for our current energy infrastructure and its associated costs. One topic, in particular, is alternative fuels and feedstocks. Rob's involvement

in ChAP makes him a world expert in this area. His knowledge and experience in the area are incorporated directly in the course.

Rob's outstanding record with student mentorship and his translation of forefront research directly into Freshman Seminar topics earned him the Jennifer and Devin Murphy Award.

Professor Bebout Receives Two Awards

Deborah Bebout was awarded both the Arts & Sciences 2014 Faculty Award for Teaching Excellence and the Plumeri Award for Faculty Excellence this past year.

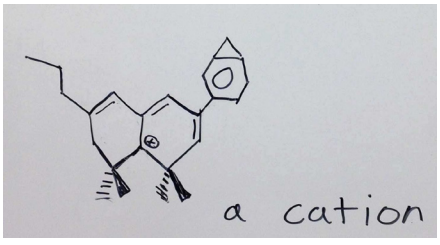
The Faculty Award for Teaching Excellence honors faculty members in Arts & Sciences who devote special efforts to teaching and inspiring their students through lectures, seminars, laboratories, independent studies, and mentoring. One of Professor Bebout's notable teaching contributions has been a course entitled "Drugs: Panacea or Scourge", the first Freshman Seminar offered by the Chemistry Department. Teaching this class inspired her to alter the format of her Advanced Biochemistry course from a traditional lecture course to one where students stay abreast of the forefront of the discipline by reading original journal articles and presenting the research in class. Much of the course content comes from these presentations, providing students with an experience that will serve them extremely well in the future. In addition, her teaching of the difficult second semester course of general chemistry for life science majors deserves high praise and regularly wins students' appreciation. Also noteworthy are the numerous students she has mentored in research at both the undergraduate and graduate level, preparing them to excel in a wide range of professional pursuits.

The Plumeri Award recognizes twenty William & Mary faculty members each year for exemplary achievements in teaching, research and service. Professor Bebout was recognized for considerable devotion to her students, the College and the field of chemistry since coming to William & Mary in 1993. In addition to the diverse teaching contributions summarized above, she has broadened academic opportunities for students as the Director of the College's interdisciplinary Biochemistry minor for more than 15 years and as the Director of Graduate Studies for the Chemistry Department for the last five years. In her research, Bebout uses a powerful combination of nuclear magnetic resonance, X-ray crystallography and mass spectrometry to expand understanding of zinc, cadmium and mercury coordination chemistry, addressing toxicological concerns associated with society's increasing dependence on metal resources. She has published research papers in a variety of top scientific journals, in many cases recognizing the significant contributions of William & Mary undergraduate and master's level students as coauthors. Her research has garnered grant funding from both the National Science Foundation (NSF) and the National Institutes of Health (NIH).

Welcome to Professor Lashley

Dana Lashley joined the Chemistry Department this August as a Visiting Assistant Professor. She earned her Ph.D. in Organic/Medicinal Chemistry from Auburn University in 2014 where her research was focused on the development of nucleosidic antiviral drugs for the treatment of emerging deadly viral diseases such as Ebola. Professor Lashley's area of expertise includes synthetic organic chemistry and drug development. She has been involved in many outreach projects and is interested in furthering the advancement of women and minorities in the sciences. Her teaching assignments at W&M will include courses in Organic Chemistry for Life Science majors. Moreover, she will conduct research in Professor Scheerer's lab working on natural product synthesis.

STUDENT DOODLE



Professor McNamara

Bill McNamara is an inorganic chemist who is researching methods for harvesting solar energy and storing it as a fuel in the form of hydrogen. The resulting hydrogen can be combined with oxygen in a fuel cell to generate electricity, or it can be combusted directly leaving water as a product. Students in his group have discovered a family of highly active and earth-abundant iron catalysts that electrocatalytically convert protons into hydrogen gas. Recently, the Research Corporation has jointly awarded a major grant to study the photocatalysis of these complexes in collaboration with the Wustholz group.

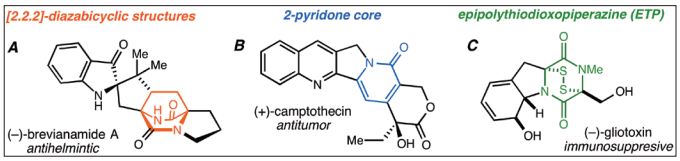
Bill teaches freshman honors chemistry (335) and descriptive inorganic chemistry (305). Teaching at William and Mary has been a wonderful experience for him and he believes that he is very fortunate to teach two classes that contain a large number of chemistry majors, an incredibly talented group who are highly motivated.

Professor Kranbuehl

David Kranbuehl continues to direct the research of chemistry undergraduates and applied science graduate students since retiring - or getting off the W&M payroll as he describes his retirement. In June he was awarded a two year American Chemical Society PRF grant to Understand the Effect of Graphene Oxide's C:O Ratio on Nanopaticle Polymer Intermolecular Forces and Resulting Macroscopic Properties. In June with Professor Schniepp, they were awarded a Virginia Center for Innovative Research grant to study the effect of these nanoparticles on improving the durability of paints and increasing polyamide's (nylon) resistance to degradation in flexible pipes used to transport crude from the ocean floor to offshore platforms. The work was initiated during the past academic year with US Dept. of Commerce funding for Virginia's Innovation Partnerships, a VIP award.

Professor Scheerer

Jonathan Scheerer was recently awarded a major grant from the National Institutes of Health to study new reaction methodology for the assembly of three different polycyclic bioactive structures (see A, B, C below) from the same simple starting materials. The funds will enable more than a dozen undergraduate students to participate in research over the next three years.



Since his arrival at William & Mary in 2009, Scheerer has worked with 27 W&M students and published 8 manuscripts (6 with W&M co-authors).

He is very happy to live his "dream job" and finds the bonds he has formed with research and classroom students to be the most valuable part of his experience as an educator.

Sad News

With great sadness we report the death on August 23rd of our good friend and colleague **Ted Putnam**, 70, following a heart attack. Ted was a vital member of William and Mary's Chemistry program for thirty years. He joined the Department as an Instructor in 1980. Until his retirement in 2010 Ted kept Chemistry running by monitoring its budget, being responsible for the smooth operation of the teaching labs, overseeing all the Department's purchasing, shipping and receiving, and ensuring that the Chemistry building was problem free.

Many people think that the faculty are the heart of a successful department, but the reality is that faculty rely heavily on and are extremely grateful for the support provided by long-serving members of the staff such as Ted. As one faculty member summed it up: "Ted was the anchor of our department."

Endowment Donors

The Chemistry Department benefits from some very generous donors who have established endowments enabling us to further our academic mission. Our students and faculty feel so fortunate to be the recipients of such generosity.

Debra L. Allison Summer Fellowship in Chemistry

Supported an academically distinguished chemistry student participating in summer research.

Scott H. Andrews Chemistry Undergraduate Teaching Fellowship

Provided awards to two dedicated undergraduate chemistry teaching assistants.

Marga Larson Bales Scholarship Endowment

Supported a senior majoring in chemistry with an identified interest in teaching.

Patricia Pound Barry Chemistry Scholarship

Provided four annual scholarships to academically distinguished undergraduate students majoring in chemistry.

James T. & Evelyn A. Cranmer Memorial Scholarship

Funded the balance of three partial stipends, in addition to one full stipend, for students participating in summer research in chemistry.

Ferguson Chemistry Endowment

Funded the renewal of the chemical structure drawing software site license for the department.

Charles E Flynn '34 Memorial Chemistry Endowment

Funded the purchase of two replacement flammable materials storage refrigerator/freezers and a tube for the department x-ray system.

Robert L. Greene Endowment

Supported a promising chemistry student in summer research.

William G. Guy Endowment

Funded an annual chemistry prize to one of our top graduating seniors.

Hillger - Roberts - Kranbuehl Chemistry Endowment

Funded expenses for our Chemistry Seminar program.

Kranbuehl - Thompson Graduate Fellowship

Supplemented stipends for two chemistry graduate students.

Gene J. & Frances E. Schiavelli Memorial Endowment

Supported an additional academically distinguished chemistry undergraduate summer research student.

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. If you are interested in contributing to the needs of the department on a regular or annual basis, please consider donating to the unrestricted Chemistry Fund (Account 2967). There are two mechanisms through which you can make such contributions. To contribute by mail, make your check payable to The College of William and Mary Foundation. Please be sure in your check's memo area to note how you are designating your gift.

Mailing address:
The College of William and Mary
P.O. Box 1693
Williamsburg, VA 23187

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.

Donors to the Chemistry Department Since Summer 2013

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

Robert D. Abbott '12
Caitlin Freeman Adelson '95
Jordan Adelson
Debra L. Allison '77
Lisa Trevey Alty '82
Marjorie H. Andrews
Lester S. Andrews
Eugene C. Aquino '88, M.A. '91
William M. Atkins '80
Elizabeth Austin-Minor '92
Jay Austin
Mark A. Baghdassarian '95
Marga Larson Bales '60
William B. Bales
Patricia Pound Barry '63
D. Marshall Barry '61
Jefferson E. Bates '08
Marissa L. Beale '14
Kathryn L. Beers '94
Marriah O. Binek '14
Kathleen Armstrong Bishop '93
Barney M. Bishop '91
Patrick N. Blank '14
David F. Boerner '72
Wyndham H. Boon '70
Brian D. Borne '02
Edith V. Bowers '03
Robert W. Owen '03
John Bozarth
Thomas J. Bradshaw '77
Heather Ames Brennan '85
William J. Brennan '85
Robert H. Brewer '72
Rebecca Coggin Brinkman '05
Lamont A. Brown
David L. Burns '92
Stephen P. Cameron '14
Sandra Cappelli
Rebecca L. Casaubon '97
Andrew C. Cavell
Emil L. Cekada '59
Parker Chamberlin '87
Andrea L. Emanuele '07
Laurie Ishee Christesen '77
Steven D. Christesen '76
Sandra Woodle Clarke '62
Catherine P. Bessant
John E. Clay
Crystal Cobb
Ralph W. Cook IV '12
Evan A. Cordulack '03, M.A.'06, Ph.D.'13
Deborah Tice Crowder '89, M.Ed.'91, Ed.S.'92
Michael W. Crowder '88
Thai-Huy C. Dao '12
Erin E. Cox '03
Geoffrey A. David '02
David A. Dessler
Raymond D. Dyer III '79
Michael W. Edens '73
Marlene Kiesel Edmonds '89
Sean M. Evans '09
Christopher A. Farley '14
Joyce M. Farley
Paul J. Farley
Aven W. Ford '01
Scott T. Forrest '90, M.A. '92
Kathryn M. Fox '08
Michaela X. Francis
Alexandra M. Gade '08
Christine R. McFarlane
Patricia R. Goodwin '05
Geordie P. Grant '68
Katherine Moynihan Gray '04
Travis J. Grubbs '10
Carrie M. Gudenkauf
Jennifer L. Gundersen '85, M.S.86, Ph.D.'95
Marsha Haynes Hann '87
Ronald K. Hann Jr. '86, M.A. '87
Carol A. Harbert
James D. Harbert '76
Thomas V. Harris '73
Sean M. Hart '90, M.A. '93
Courtney J. Hastings '05
Douglas S. Hawkins '86
Catherine L. Higgins '99
Carol Bova Hill '80
Barry H. Hill
Margaret J. Hobson
Fred A. Diehl
Melinda Gooding Hodges '83, M.A.Ed.'02
Stephen L. Hodges '82, M.A. '86
Ryu S. Holani
Sisilia Holani
Linda Hollingshad
Nicholas Hollingshad
Kathryn R. Holmes
John L. Holmes
Daniel J. Horgan '06
Blace B. Houle '14
Elizabeth Gunn Howe '74
Allen K. Howe '74
Hsiu L. Huang
Thomas L. Hudson
Adriana Tatum Jacobs '98
Rachel A. Janis
Joseph T. Janney
Thomas P. Jarvie '84
Robert E. Johns III
Anika E. Armstrong '09
J. Brent Justus '97
Karl E. Kador '02
Megan E. Kardine '07
Lauren A. Katkish '08
Richard L. Kiefer
Ann M. Kilbourne
Hitoshi G. Koshiya
Stefan D. Kosovych '02
David E. Kranbuehl
Justin L. Krieger '95
Christopher J. Kub '06
David R. Kuhn '76, M.B.A. '77
Margaret L. Lachowicz
James R. Lachowicz
Jesse H. Laeuchli
Daniel A. Lameyer '14
Donna K. Oishi
Ian H. Leibowitz
Sally Leibowitz
Steven M. Lewis '06
Jordan T. Lex '05
Carol Humphries Lindsay '80
Walton C. Lindsay '80
Cheryl Lisi
Thomas Lisi
George A. Lock Jr. '72, M.A. '75
Marguerite McLaughlin Logan '55
James Logan
Scott E. Lyle '03
Yvonne Y. Mack '14
Justine Jokl Magurno '74, '74
Anshul A. Mainkar '12
Robyn Roarke Manke '94
Samuel W. Marcuson '72
Tammy M. Martin
Beth Matthews
Betty Buntin Matthews '43
Hannah E. Mayhew '14
Matthew A. McCarron '14
Walter F. McClean III '09
Robert B. McFarlin '79
Gail Holder McPeters '73
Hamlin L. McPeters '73
Nicholas A. Mele '99
Morra Aarons-Mele
Caroline P. Merryman '14
Felipe E. Mesa-Morales
Deana Hadley Miller '07
Stuart K. Miller
James K. Moran '90
Mary McNeil Morgan '88
John A. Morgan Jr. '88
Amy Morris Musiek '99
Erik S. Musiek '99
Zachariah B. Nealy '12
Hong An A. Nguyen '10
Isra M. Nikoolkan
Philip Oakley
Calvin S. Oishi
Palak Oza
Jane Muse Partin '72
Mary K. Pettitt '86
Antigone Kriss Peyton '96
Glenn J. Pfadenhauer '81
Lynn P. Pfadenhauer
Jennifer Brock Planert '85
Karen Caufield Porzio '64
Megan Fikse Potteiger '07
Samuel J. Pressler
Grace E. Purnell '14
Katherine B. Ragan '14
Barbara L. Ramsey '75
Beth Le Ogura Regina '94, M.A. '96
Frances L. Robb '48
Kevin J. Roche '82
Benjamin C. Rothermel '04
Mark E. Ruddel '70
Scherer Sanders '77
Richard Santilli
Salvatore Santilli
Dominic F. Sanzotta
Eric Sauer
William H. Saunders Jr. '48
Karl A. Schellenberg '53
Beth A. Schraeder '74
William W. Schwarz '49
William Scott
Randy Shangraw '85
Matthew B. Siano '96
Kristin C. Siano
Mary Mann Smith '73
Sherry V. Smith
Thomas Hudson
Cynthia Martin Southern '96
Pia F. Spinner '13
Nancy Howard Stearns '73
Richard M. Stimpfle '75
Wangxiaoqi N. Sun
Stephen D. Tableman Jr. '13
Timmothy J. Taps '12
Grace H. Taumoefolau
Nofomuli Taumoefolau
Isabelle J. Thibau '11
Carmi M. Thompson
N. Ross Thompson III '74
Elizabeth McAdams Tomlin '02
Gregory M. Tomlin '01
Tristan A. Tronic '07
Julia M. Truelove
Kenneth R. Updike '76
Gale Updike
Robert A. VanGundy '13
Sarah Robinson Vicente '05
Diego A. Vicente '05
Priya H. Vyas '14
Joel D. Wagner '14
Sarah Moore Walk '77
John R. Walk '77
Brianna F. Waller
Cynthia A. Watson
Zoe Trollope White '85
Paul D. White
Margaret J. Willhide '58
Mary Carol Gregory Williams '64
Joel M. Williams Jr. '62
Carol P. Wise
Daniel G. Wise
Natalie Z. Wong '14
Hargsoon Yoon
Katherine A. Young

Thank You!

NMR

As the Chair's column mentioned, a new NMR spectrometer was commissioned in late April. Funds for the instrument came from a grant from the NSF, the College and the Department, including gifts from alumni. The instrument is an Agilent (formerly Varian) DD2 400.

While the spectrometer shares the same room as the old Varian Mercury 400 NMR, the magnet is actively shielded so the fields do not interact with each other. Advances over the last sixteen years have resulted in significant increases in signal-to-noise and lineshape (resolution). All building vibrations have been eliminated by the magnetic legs that float the Dewar on a cushion of air. The spectrometer is so good that it exceeded specifications even without spinning the sample. Tuning the probe for a different nucleus is now done by robotics (ProTune) rather than by manually twisting a capacitor stick. A 12 unit sample changer will allow us to run samples overnight.

The suite of advanced NMR experiments that are available is truly amazing. Improvements in the science (really, mathematics) behind these experiments have also made it possible to do these experiments in very short order. Our first test of these features was to do a COSY experiment that took all of twenty-seven seconds. With the other instrument, it would take at least ten minutes for a comparable quality spectrum.

We had a large crop of student researchers this summer. Most who regularly used NMR as part of their research transitioned easily to the new system. Of course, no new system comes without gremlins. Interfacing a complex instrument with an incredibly wide range of capabilities isn't easy. We have learned to recognize when the spectrometer gets into a fugue state and how to apply a reversible lobotomy when it does.

We are looking forward to all that this instrument will do for us in the future.

News of Our Alums

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 or contacting your favorite professor. 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 1972

Jane Muse was a chemist all of her life. She recently retired from her last job at Glaxo-Smith-Kline and now lives in Beaufort, NC. She stopped in last fall to say hi to Prof. Coleman.

Class of 1973

Chris Bracken could not attend last year's Homecoming and 40th reunion. He says: "I started my family late, and still have two high school charges. Consequently I am still working and can't get the time off. Someday?!"

Class of 1976

Ken Updike visited Prof. Orwoll last December. He had just retired and is now doing some consulting.

Class of 1977

Craig Dennis teaches AP Chemistry in Culpepper, VA. He brought his class to W&M for a tour of the department and for them to attend a couple of classes. It was a great success!

Class of 1982

James Comey was awarded the Alumni Medallion last February, the highest honor given by the William & Mary Alumni Association. Read about all the award winners in the News at www.wm.edu/chemistry.

Class of 1982/84

Mary (Manson) Sweigart visited in summer . Her son, Nathaniel, is a sophomore at W&M. He took some chemistry last year but doesn't know yet if he wants to pursue chemistry for a major.

News of our Alums - cont'd

Class of 1983

Brian Failon attended last year's Homecoming Reception. He lives in Richmond since 1988.

Thomas Wong was sorry to miss the 30th reunion last year. He writes: "With my high honors BS degree (Chemistry/Fine Arts) from W&M, I was equipped continue further study in chiropractic. After conferring my doctorate degree in 1988, I began to practice chiropractic and Chinese medicine in Hong Kong.

Upon returning Hong Kong, I became the Hon. Secretary of Hong Kong Chiropractors Association. I became one of the chief negotiators to lobby the Registration Bill for Chiropractic profession. In 1993, the first Chiropractic Registration Bill in Asia was enacted in Hong Kong. I was invited as a Chiropractic Councilor and began to draft the Code of Practice of the profession and thereafter became the Registrar in the Council for ten years.

I became an International Chiropractic Sport Physician. I was invited to serve as the Medical-in-Chief of the Gambia National Sport Team in both 1996 and 2000 Olympic Games.

In 2011, I was elected as the International President of Serra International, which is a 78 year old lay faithful apostolate organization for vocations in the Catholic Church. It is a global organization with 20,000 members in 46 countries; I was the first Chinese President. One of the highlights of my presidency was the honor to address in the Vocations Congress for the 70th anniversary of the Sacred Congregation of the Catholic Education of the Vatican. During the Congress, I had the honor to meet His Holiness Pope Benedict XVI in the Holy See.

In October 2011, I was inducted as a Knight of the Sovereign Military Hospitaller Order of St. John of Jerusalem, of Rhodes and of Malta. This is a 900 years old organization. The aim of the Order is to protect the Catholic faith, assist the sick and help the poor.

Besides private practice, I am managing production of Chinese Herbal Medicine. I inherit the century-old family owned formulas and based on the authoritative Chinese medical classics to manufacture health supplements and herbal products. These health supplements enable the public to enjoy a healthier and more energetic life.

I was invited as Visiting Professor in Liaoning Chinese Medical University and The Medical College of Jinan University in Guangdong, China. Currently, I am teaching as Hong Kong University SPACE. I was recognized as an Outstanding Chinese Medical Doctor Award in Beijing in 2010.

With all these excitements, I recognize W&M was the ground gave me the chance to prepare my life beyond college. I appreciated with all the love, care and direction given from all teachers, professors, advisors and administrators. "

He sent us this picture of the Class of '83.

Class of 1985

Susan McKay came to W&M last February for a campus tour with her daughter Linda and to visit Prof. Orwoll. They remembered that she is one of four members for her class of '85 who are children of chemistry professors.

Class of 1985/86

Jennie Gundersen met Sharon, a W&M chemistry undergrad, at the SETAC meeting in Nashville last November and hoped that "we didn't sound too jaded about gov't life". Jennie thought that Sharon, did a great presentation and wished that they were hiring.

Class of 1993

Sarah (Gleason) Taylor attended last fall's Homecoming Reception. She got her MD in '97 from

Georgetown and is a Cardiac Electrophysiologist at the University of Rochester, NY.

Class of 1993/97

Christine Heath Bondi told us that she is still teaching science and math on and off when she came to the Homecoming Reception last fall.

Class of 1997

James Garrett sent us the following message: "I finished my first stint at the College in 1997 with a Chemistry degree and now find myself back every other weekend working on my MBA through the Mason School. I enjoyed the opportunity to do undergraduate summer research and honors research with Dr. Kranbuehl when I was here the first time and remember attending talks by guest speakers during the summers. I thought I would reach out and offer to speak to the undergrads if you were looking for speakers this summer, or anytime for that matter. Since I left W&M I earned a PhD at Penn State, did a post doc at the Naval Research Laboratory, worked at Bayer Material Science, and moved up through the ranks of a small business in Charlottesville to my current position of Vice President of Technology Development. I now oversee about 50 scientists and engineers developing a wide variety of technologies and am back working on my MBA trying to find a more efficient way to turn some of those technologies into viable products."

Michael Gaylor is an Assistant Professor of Chemistry at Dakota State University and sent us this message from the "Prairie Pothole Region": "... life on the windy (and frigid for far too much of the year!) Great Plains continues to stimulate and entertain. And, though quite stimulating most of the time, life on the tenure track has turned out not to be the "cushy" gig that I naively believed it to be as a bright-eyed/bushy tailed underclassman interacting with my profs whom I viewed as having the absolute perfect jobs. Well, for all the sacrifice and ups and downs in our business, in the final analysis, I can't seriously imagine having/doing any other job... Indeed, hardly a week goes by in my teaching life during which I do not talk to my students about all of you (and the profound influences you have had on me and on the development of my program/career and teaching approaches) and the uniqueness, excitement and efficacy (and legend) of the strong undergraduate research-based approach to inspiring and instructing that is a hallmark of the W&M Chemistry education/ experience."

Class of 2009

Cole Grinnell became a Lecturer of Chemistry at Morgan State University.

Class of 2011

Isabelle Thibau attended last fall's Homecoming Reception. She also shared the following news this summer: "I was accepted and will be attending the University of California, Berkeley for my master's in public health nutrition. I am very excited to further my education after three years as a policy analyst and science writer at the National Institute on Drug Abuse (NIDA)! I will continue to work for NIDA part-time while I get my degree. Many thanks to the chemistry department and it's excellent faculty and staff for providing me with a foundational degree in chemistry! I am proud to take it with me wherever I go."

Class of 2013

Camelia Drissi sent us the following email last May: "I just wanted to let you know that I got a job as an associate scientist. I will be working for Pfizer in their Richmond, VA facility starting in May as an Analytical Chemist. I am really excited about the opportunity! It's finally time to put my analytical skills to the test. I will be working on product stability and content uniformity of certain drugs and mainly doing LC work. "

2014 Graduates and Their Destinations

Chemistry Majors

Gerardo Ayala	Graduate studies in chemistry at William and Mary
Nicole Becher	Travel first then medical school
Naman Benday	Intern at PDI then graduate school in chemical engineering at UC Davis
Konark Bhasin	Law school
Marriah Binek	Graduate studies in applied economics, Georgetown University
Patrick Blank	Graduate studies in chemistry at William and Mary
Olivia Blazek	Temple University School of Medicine
Tyler Callahan	Intern for CRU Ministries and graduate school at William and Mary or UVA
Douglas Cheek	Graduate studies in chemistry at William and Mary
James Chesnut	Planning to work in chemistry job and applying to graduate programs
Charles Clark	Ph.D. studies in chemistry at University of Virginia
Gannon Connor	Graduate studies in inorganic chemistry at Yale University
Christopher Farley	Graduate studies in organic chemistry at University of Texas
John Ferrante	Working as research tech at University of Wisconsin-Madison
Ashley Fidler	Studies in Chem. Engineering at U of Cambridge then Ph.D. studies at UC Berkeley
Claire Fortenberry	Graduate studies in Energy Env. and Chemical Eng. At Washington University
Stewart Foster	Working as pharmacy tech then pharmacy school
Jason Fulbrook	Planning to work then graduate school
Geoffrey Geberth	Graduate studies in chemistry at University of Texas
Ryan Goodman	Working in environmental chemistry in Latin America
Sarah Hakkenberg	Medical school
Olivia Harding	Working as fellow in the Intracellular Membrane Trafficking Unit at NIH
Sharon Hartzell	Graduate studies in env. science and technology at University of Maryland-College P.
Devin Henry	Planning to work as physical therapy technician then attend Physical Therapy school
Erin Hills	Consulting at IBM
Kathy Huynh	Graduate studies in chemistry at William and Mary
Christopher Komatsu	Graduate studies in polymer organic chemistry at Texas A&M
John Low	Colony American Homes Mgt Training Program and MBA studies at Thunderbird, AZ
Yvonne Mack	Studying Dentistry at University of Pennsylvania School of Dental Medicine
Samantha Mayer	Applying to nursing school
Hannah Mayhew	Graduate studies in physical chemistry at Northwestern University
Caroline Merryman	Ph.D. studies in chemistry at Auburn University
Kelsey Miller	Graduate studies in analytical chemistry at UNC-Chapel Hill
Colleen Nofi	NYIT College of Osteopathic Medicine

Alana Ogata	Graduate studies in physical chemistry at University of California-Irvine
Grace Purnell	Graduate studies in physical chemistry at Iowa State University
Katherine Ragan	Ph.D. studies in biochemistry at University of Texas
Anne Kelly Rhudy	Tulane University School of Medicine for dual MD/MPH degree
Carolina Rojas Ramirez	Graduate studies in biochemistry
Dmitry Royzman	Graduate studies in chemistry at University of Notre Dame
Sarah Schuessler	Medical scribe at Inova Fair Oaks Hospital in Fairfax
Carrie Sheeler	Planning on working in lab or as research analyst then graduate school
Emily Smith	Graduate studies in secondary science at W&M School of Education
Alexander Thomson	Applying to graduate schools
Connor Tribble	Seeking a career in the chemical industry
Matthew Van Dongen	Working as medical scribe then medical school
Joel Wagner	Youth Conservation Core Crew Leader, Wildlife Conservation
Emily Willard	Applying to nursing schools
Ethan Winter	Ph.D. studies in chemical biology at Harvard University
Natalie Wong	Weill Cornell Medical College
John Woo	Working and planning to attend medical school
Anthony Wright	Applying for scribe positions and to medical school
Benjamin Yeager	Working at a hospital then medical school
Alexandra Yoon	Eastern Virginia Medical School

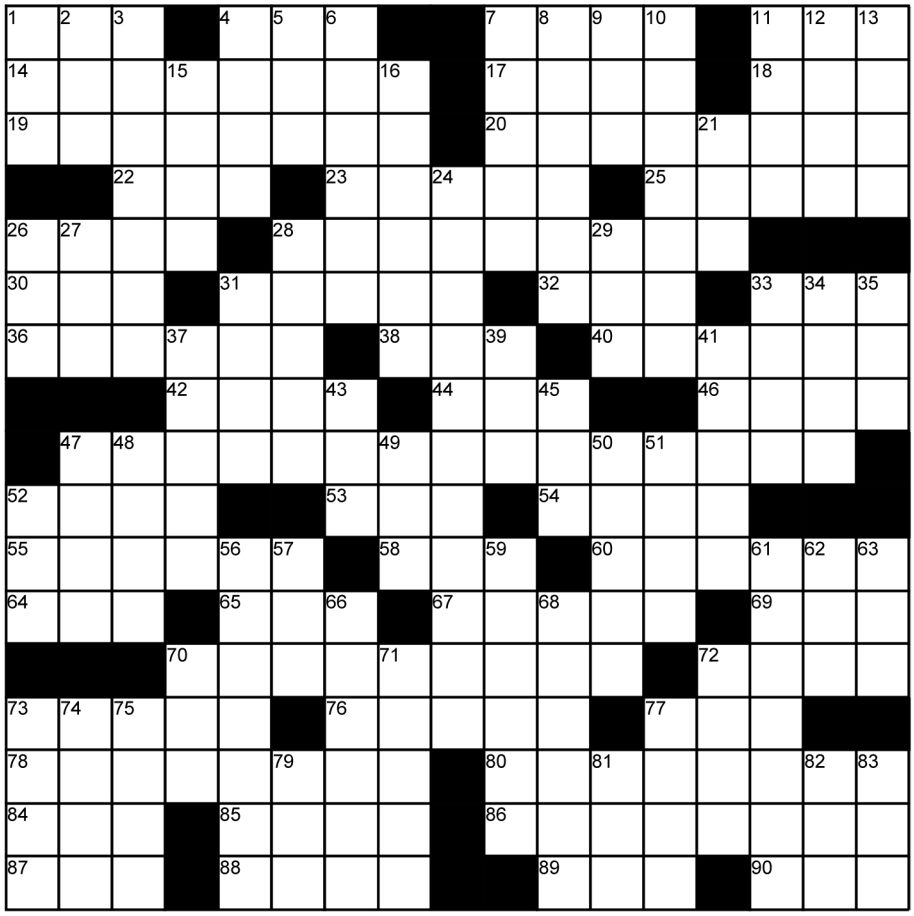
Masters in Chemistry

Carolyn Carta	Ph.D. studies in Materials Science and Engineering at UCLA
Yuzhou Chen	Planning to work in industry
Kylie Henline	Working as X-ray diffraction scientist at RJ Lee Group

Other 2014 B.S. Graduates

Michael Allen	**Elisa Enriquez Hesles**	**Jamison Smith**
Elizabeth Carter	**Nadine Latibeaudiere**	**Natasha Sotnychuk**
Alec Chase	**Rebecca Marshall**	**Matthew Suh**
John Dudley	**Matthew McCarron**	**Adam Tyree**
Thomas Dziura	**Matthew Richardson**	**Alex Watterson**
Kevin Furlong		

Chemistry Jokes Robert D. Pike



ACROSS

1. Self-assigned "greatest" boxer
4. Mai ____
7. Strong ____ ox
11. Reefer
14. Happy endings for 51-down
17. Indonesian resort
18. Lennon widow
19. Element not found on the periodic table?
20. Obviousness
22. Gunslinger's talent
23. Google competitor
25. Britain's war of the ____
26. Sharpen
28. Musical style incorporating multiple keys
30. Be unwell
31. Epoxyed
32. com alternative
33. Subdivision site
36. Possible consequence of wrong-doing
38. "Beats" Dr.
40. Chemistry lecture topic eliciting no reaction?
42. Tirade
44. Tired
46. Ingests
47. Hitler's treatise on organic stereochemistry?
52. It may be made from rags or porcelain, e.g.
53. Dickensian interjection
54. Coder
55. Water-insoluble bear?
58. Corn core
60. Gave lip
64. A desire
65. Chemical formula of Millerite
67. Addictive Asian nut
69. Corp. head honcho
70. Traffic regulator
72. Fossil fuels
73. Obsession
76. Indy entrant
77. ____ gratia artis
78. Designers of 1-down
80. Problem with the Lewis dot structure for hydroxide?
84. Oedipus or T.
85. Dies ____
86. Acrobatic avians
87. Founded, abbrev.
88. Fox sitcom 2013-2014
89. Pig pen
90. Decay

DOWN

1. Promotions
2. An amino acid, abbrev.
3. Knesset member, e.g.
4. Length of appointment
5. Entourage character Gold
6. Baby, ____ (Bacharach/Shirelles tune)
7. Top monk
8. Old west fixture
9. Just like
10. Price break for noctural chemists?
11. Brain region
12. Not repeated
13. ____ 'R' Us
15. Finger of land
16. Water-proofed
21. Early ISP
24. Fearful of utility bills?
26. "It ____ the best of times..."
27. Boffo
28. Platform detail
29. O.T. book between Ezra and Esther
31. Federal agent
33. Dissembler
34. 27 are needed to win in baseball
35. NMR std.
37. Dental bling
39. 2003 Will Ferrell movie
41. Onion cousins
43. Saccharin-containing cola
45. Canis familiaris
47. Stay sad
48. Tesla's Mr. Musk
49. It's big at Micky D's
50. Take-two button
51. Repast
52. Kind of spa
56. HCOOH?
57. 2016 Olympics city
59. Sires
61. A soccer kick
62. Moray, e.g.
63. Early Microsoft product
66. Peanut butter, e.g.
68. Projects
70. It may be venial or mortal
71. Produces a coherent beam
72. A thesis defense
73. She-horse
74. A long time
75. ____ of kin
77. With competence
79. Gerswhin brother
81. Morsel for 73-down
82. ____ Jima
83. Chicago hour

Homecoming Reception 2013

Some attendees including Stephen Nichols ‘79, Scott Forrest ‘90, Christopher Jones ‘03 and Mohammed Shomrat ‘13 managed to stay out of the camera’s view.


Barney Bishop ‘91 with family and Chris Abelt


Bob Pike and Chris Dyer ‘96


Tom Ball ‘83 and spouse


Katherine Kingan-Watkins ‘73 and spouse


Matt Blum ‘13 and undergrad students


John Marsh ‘55, Randy Coleman and Carol Marsh


Michael Laccheo ‘01 and son

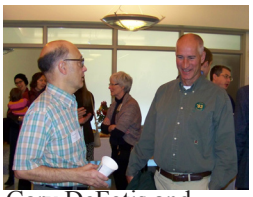
Lars Dunaway ‘12 and Art DiNapoli ‘73


Gary DeFotis and John Quagliano ‘85


Isabelle Thibau ‘11 and Carey Bagdassarian


Julia Naz Bagdassarian


Randy Coleman and Judy Auping ‘73


Gary DeFotis and Brian Failon ‘83


Janine Ladislaw ‘03, Melody and Stephen Nichols ‘79


J.C., Emily and Jennifer Poutsma


Christine Heath Bond ‘93/’97 and family


Geoff David ‘02 and Rob Hinkle


Sarah Taylor ‘93 and daughter


Edith Bowers ‘03 and spouse and Carey Bagdassarian


Gordon Brown ‘93 and family and Sarat Chandarlapaty ‘93


Matt Gemmell ‘93


David Mullins‘78 and Mary Mullins


Will Rhymes, Anna (Pawlow) Rhymes ‘06, Lara (Pawlow) Quinlan‘03 and Ron Quinlan ‘03 and Rob Hinkle


Jenine Cole Maeyer ‘02, Jonathan Maeyer ‘99 and family


Eugene Aquino ‘88, Dick Kiefer and Eileen Aquino


Doug Young and Lisa Landino


Peter Coyne ‘98 and family


Eugene Aquino ‘88 and Rodney Alejandro ‘88


Tabor (Skreslet) Flickinger ‘03 and family

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 18, starting at 10:00 am in the second floor lobby (above the Barksdale Field entrance). We look forward to seeing you there. If you can join us, please try to let us know by October 10. You can email us at chemistry@wm.edu, call Claudia in the Chemistry Office at 757-221-2540 or send us a note to the address below.

Even if you're unable to come, please let us know what you're doing.
We'd love to hear from you!

The College Of
WILLIAM & MARY
Department of Chemistry
P.O. Box 8795
Williamsburg, VA 23187-8795

Return Service Requested