UNIVERSITY OF ARKANSAS
J. WILLIAM FULBRIGHT COLLEGE OF ARTS & SCIENCES

The Mole Street Journal

Department of Chemistry and Biochemistry

Volume 11, Issue 12 December 2012

Special points of interest:

- Imhoff Award goes to Lorraine Brewer
- Faculty Travel and Publications
- New iPhone App produced by faculty member
- Six students complete cume exams
- Charity Violin Benefit

Inside this issue:

Brewer Receives High Honor

Lorraine Brewer is the 2012 recipient of the Dr. John and Mrs. Lois Imhoff Award for Outstanding Teaching and Student Mentorship. This award is a campus-wide recognition, and recognizes her outstanding impact as a teacher and mentor of our undergraduates.

The criteria for the award state that the recipient must be nominated by peers, including the endorsement of a member of the Teaching Academy, and reviewed by an award committee of the Academy. The nominee (1) must instruct an introductory or entry-level course that introduces students to their discipline or acquaints students with a discipline, (2) must demonstrate excellence in classroom teaching, and (3) must demonstrate excellence in student advising and mentoring, including formal academic advising, informal advising, student group or club advising, special project or research instruction and advising, and professional mentorship.

Jeannie Whayne, president of the UofA Teaching Academy, presents Lorraine Brewer with flowers at the announcement of her award by Academy members and faculty in front of her class. (Photo by Denise Greathouse).

A native of northern Illinois, Brewer received her B.A. degree in chemistry and mathematics from Sterling College in 1971. She completed her M.S. degree in Biochemistry at the University of Wisconsin, Madison in 1974 and an additional 32 graduate hours beyond the M.S. requirements. She joined the Chemistry and Biochemistry department at the University of Arkansas in 1975 as a research associate, becoming a Lecturer in 1976 and an Instructor in1977. In addition to her heavy teaching load, she is also an advisor for the department and has been the academic advisor for the Pre-pharmacy program since 1997. She has also served as the faculty advisor for several RSOs and serves on several committees and on the All-University Academic Integrity Board. She has collaborated with the Enhanced Learning Center to provide small supplemental instruction sessions for the chemistry students in her courses to assist them in developing the study skills and problem-solving expertise needed for success.

Brewer was inducted into the University of Arkansas Teaching Academy in 2006 and has been nominated numerous times for the Outstanding Service Award given by the Student Alumni Board and the Arkansas Student Government.

Brewer cites teaching large sections of university chemistry in Barnhill Arena and teaching on crutches in the old Science and Engineering Auditorium as some of her unique teaching challenges. She credits her ability to teach and mentor effectively to some exceptional professors and advisors, including our own Dr. Wally Cordes. From him she gleaned five principles:

* Always begin by drawing your students into the topic by answering the question, "Why should I care about this topic?"
* Pay attention to your students' attention spans.
* Instead of asking if there are any questions, ask your students, "What questions do you have?"
* Challenge students, but make very clear the expectations and how their learning will be assessed.
* Show your students that they matter to you, that you are interested in them as individuals.

She says that meeting students where they are in their backgrounds, maturity, comfort level with challenging material and situations, and adaptability to university life is crucial in both her teaching and mentoring. Equally significant are patiently listening and gently, but firmly, encouraging growth and increasing personal responsibility on the student's part, while modeling integrity and respect. Says Brewer, "There is great satisfaction in being a part of each student's life at such a crucial time of transition and maturation. Creating an environment where students can rediscover their innate curiosity and joy in learning is greatly rewarding."

Brewer has also been recognized for her contributions for service in the community. She has been recognized—three times—as an outstanding volunteer for her contributions to the Fayetteville Public Schools and has served on several governing boards and foundation boards, most recently serving as president of the Fayetteville Public Library Board of Trustees.

Brewer wishes to express her appreciation to her teachers, advisors, mentors, and colleagues whose wisdom continues to inspire her. It is her hope that she will continue to grow in her ability to serve her students and mentees with increasing wisdom and effectiveness.

She and the other two finalists will be recognized at the University of Arkansas Teaching Academy banquet on December 3, 2012. For the award, she will receive a mantle clock and an honorarium.

Faculty News

On the Go

Feng Wang gave two invited talks in November. "Predicting properties of water with only electronic structure information," Department of Chemistry, National Taiwan Normal University, Taipei, Nov. 26, 2012. "Converging free energies at coupled cluster quality through adaptive force matching," International Workshop on Structure and Dynamics of Water in Gas, Liquid and Solid Phases, Institute of Atomic and Molecular Sciences, Academia Sinica, Taiwan, Nov. 28-30, 2012.

Publications

Nisha Nanaware-Kharade, Guillermo A. gonzalez III, **Jackson O. Lay Jr.,** Howard P. Hendrickson and Eric C. Peterson, "Therapeutic anti-methamphetamine antibody-nanoparticle conjugates: synthesis and in vitro characterization." *Bioconjugate Chemistry* in press.

Rohana Liyanage, Nagarjuna Devarapalli, Derek B. Pyland, Latisha M. Puckett, N.H. Phan, Joel A. Starch, Mark R. Okimoto, Jennifer Gidden, Wesley E. Stites, Jackson O. Lay, Jr. "Theory of protein equilibrium population snapshot by H/D exchange electrospray ionization mass spectrometry (PEPS-HDX-ESI-MS)." *I. J. Mass Spectrom.* Accepted.

Ryan Bauer, JJ Wilson, **ST Philominathan, D. Davis,** O. Matsushita, **Joshua Sakon**. "Structural comparison of ColH and ColG collagen-binding domains from Clostridium histolyticum." *J. Bacteriol.* 2012 Nov. 9 [Epub ahead of print].

Melissa C. Weston, Christena K. Nash, Jerry J. Homesley, Ingrid Fritsch, "Maximizing flow velocities in redox-magnetohydrodynamic microfluidics using the transient faradaic current," *Analytical Chemistry* 2012, 84, 9402-9409.

Sefat Alwarsh, Kola Ayinuola, Silvana Dormi, Matt McIntosh, "Intercepting the Breslow Intermediate via Claisen Rearrangement: Synthesis of Complex 3° Alcohols without Organometallic Reagents." *Organic Letters,* accepted.

Awards

Paul D. Adams received the 2012 Rising Star Award from the African American Alumni Association of Case Western Reserve University. This award is given biennially to recognize alumni who have graduated with the last 15 years and who demonstrate potential long-term leadership and distinction.

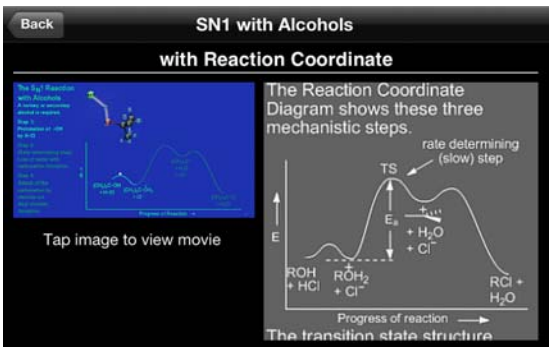
Introducing Tap OChem

A new iPhone app for chemistry students, Tap OChem, focuses on the animation of organic chemistry concepts and reactions. It was developed with the hope that it will enhance students' organic chemistry learning experiences. This app was designed and written by Neil Allison (Department of Chemistry & Biochemistry, UofA) and Joseph Allison (2007 UofA Biophysical Chemistry graduate) who formed a company, Tap OChem, LLC, to facilitate with the development. These two chemists have a combined experience of over 40 years teaching chemistry.

The following summary of animations are currently included: Substitution reactions (10 animations), Elimination reactions (7 animations), Alkene reactions (7 animations), Epoxide chemistry (4 animations), Benzene reactions (6 animations), Key concepts (10 animations), and Molecules in motion (16 animations). The Concepts section includes hybridization theory and conformational analysis of alkanes and cyclohexane. A complete listing of the animations is on the website http://www.tapochem.com. More animations will be included in future free updates.

Each animation also has an accompanying short text description that drills down to the main facts of each reaction or concept. In the case of reaction animations, the concise scrollable text descriptions include electron pushing.

Although numerous animations are included in the introductory offering, more animations are planned and will be included in updates.



Student News

Six students passed their seventh and final cume November 9, 2012. The candidacy examination in chemistry is made up of a series of cumulative examinations. A prospective Ph.D. candidate must pass seven of these cumulative examinations within a specified time to satisfy the requirement. The examinations are designed to test the student's advanced knowledge, ability to correlate the subject matter of formal courses, and ability to apply this knowledge to the critical evaluation of current research and the solution or discussion of significant problems in the student's major area. Congratulations go to all six students.

Pooja Bajwa received her Bachelor's degree from Jammu University, India and her Master's degree from Guru Nanak Dev University, India. She entered the Ph.D. program in the fall of 2010 and her advisor is Dr. Robert Gawley.

Rory Henderson received his B.S. in chemistry from the University of Arkansas. He entered the Ph.D. program in the fall of 2011 and holds the Doctoral Academy Fellowship. His advisor is Dr. T.K.S. Kumar.

Cameron Crane, from Hiwasse, AR, received his B.S. in chemistry from Hendrix College in 2011. He entered the Ph.D. program in the fall of 2011 and his advisor is Dr. Jingyi Chen.

Benjamin Jones received his B.S. in chemistry from the University of Arkansas in 200y. He entered the Ph.D. program in the fall of 2011 and his advisor is Dr. Ingrid Fritsch.

Ashley Henderson received her B.S. in chemistry from the University of Arkansas. She entered the Ph.D. program in the fall of 2011 and her advisor is Dr. Roger Koeppe.

Jacqueline Greer, from Nevada, TX, received her B.S. in chemistry from Stephen F. Austin State University. She entered the Ph.D. program in the fall of 2010. Her advisor is Dr. T.K.S. Kumar.

Professor Colin Heyes and Julie McQuade announce their upcoming nuptials. The wedding will take place December 29, 2012. Julie is from Fort Smith, Arkansas.

Defense Announcement

Roland Njabon will defend his dissertation "An Investigation of the Electronic Coupling in Some Dimeric Ruthenium(II) Polypyridine Complexes" December 4, 2012 at 11:00 a.m. in CHEM 133. He entered the program in the spring of 2006. Roland received his B.S. in 2005 from the University of Buea, Cameroon, and his M.S. in 2006 from the University of Siegen, Germany. His advisor is Dr. Bill Durham.

THE MOLE STREET JOURNAL IS AN INTERNAL PUBLICATION OF THE CHAIR, BOB GAWLEY.
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Department of Chemistry and Biochemistry *University of Arkansas

Safety Tip:
by Bill Durham

Large glass bottles, especially those containing concentrated acids or bases, should be carried in secondary containers, such as a rubber bucket, when in the hallways or stairwells.

Department of Chemistry and Biochemistry

Excellence in the Central Science

Miho Oda Sakon Performs

Violinist, Miho Oda Sakon, wife of Dr. **Joshua Sakon**, performed a charity benefit at St. Paul's Episcopal Church November 18th, 2012 for the children of the earthquake and tsunami in Japan. Titled "Miho Oda Sakon's Music Restaurant," she played the appetizer by Kreisler, the entrée by Franck (accompanied by pianist Tomoko Kashiwagi) and the desserts were by many artists, ranging from Bach and Beethoven, to Miyagi and Wieniawski. The dessert wine was Rachmaninoff, accompanied by pianist Olga Greenhut. Donations were given to *Save the Children, Tokyo Children's Library "The Departure from 3.11" Project,* and *the Victims of Super Storm Sandy.*

Ms. Sakon is Principal Second Violin with the Symphony of North Arkansas and an Artist in Residence at the Suzuki Music School of Arkansas. She grew up in Japan and moved to the United States in the summer of 2008. She holds the Bachelor and Master of Arts degrees in Violin Performance from the Tokyo College of Music. She has won numerous awards for performance and has extensive performing and recording experience as a soloist, chamber musician, and orchestral player.

2012-2013 CUME Schedule

September 14	January 25
September 28	February 15
October 19	March 8
November 9	March 29
November 30	April 19

The department of chemistry and biochemistry at the University of Arkansas strives for excellence in research, teaching and service in chemistry - the central science. We aspire to positions of leadership regarding the discovery of new scientific knowledge, the training of students, and the economic development of the State of Arkansas. We seek to recruit and retain a diverse group of the best faculty, students and staff to

Calendar of Events

December

1 Deadline for new grad students to choose their major professors. Committees must be formed immediately afterwards. Turn in forms to Leslie.
7 Dead Day
7 Departmental Pot Luck Luncheon
10-14 Final Exams
15 Commencement
17-Jan 11 Winter Break (Classes begin Jan 14)

January

9-18 Open Registration & Drop/Add for new students
14 Classes resume, 7:30 a.m.
21 Labs Begin
25 CUME
28 Seminar: Dr. Jennifer Kohler, Univ. Texas Southwestern Medical Center

Library Hours

CHBC Library (CHEM 225)
http://libinfo.uark.edu/chemistry
575-2557

Interim and Winter Break, Dec. 17, 2012—Jan. 13, 2013

Monday – Friday, Dec. 17-21	8 a.m.-5 p.m.
Monday-Tuesday, Dec. 24-Jan 1	CLOSED
Wednesday-Friday, Jan 2-4	8 a.m.-5 p.m.
Monday-Friday, Jan 7-11	8 a.m.-5 p.m.

Closed Saturdays and Sundays

The chemistry and biochemistry library resources can be accessed in the following LibGuides: http://uark.libguides.com/content.php?pid=110953. Please bookmark for future use.
Theses and dissertation resources can be found on the following LibGuide: http://uark.libguides.com/content.php?pid=123035 &sid=1057466.