

Chesapeake Chemist

*Maryland Section
American Chemical
Society*



Dr. Andrew Coop

Thursday, November 18, 2004

University of Maryland Baltimore School of Pharmacy

Chemistry in the Library – 2005 Schedule

Chemistry in the Library is a hands-on science outreach program sponsored and staffed by volunteer scientists from the Maryland Section of the American Chemical Society (ACS), Kids & Chemistry Program, and the U.S. Army Research Laboratory (ARL) at Aberdeen Proving Ground. This program was launched in November 2000 when volunteer scientists began visiting schools and libraries in Harford County during National Chemistry Week. Chemistry in the Library activities for 2005 are scheduled at the following locations:

Hamilton Branch Public Library
Enoch Pratt Library - Baltimore City
5910 Harford Road, Baltimore, MD 21214
410-396-6088
<http://www.pratt.lib.md.us/branches/hml/>

Elkridge Branch Library
Howard County Library
6540 Washington Blvd., Elkridge, MD 21075
410-313-5077
http://www.hclibrary.org/library/locations_elk.html

Experiment: You are Contagious! - Chemistry of Germs/Bacteria

Saturday, 3PM, January 15, 2005, Hamilton

Saturday, 2PM, January 22, 2005, Elkridge

Experiment: Totally 'Gross' Chemistry (of Your Body)

Celebrate: Earth Day! – April 22, 2005 - experiment and handout

Saturday, 3PM, April 9, 2005, Hamilton; Saturday, 2PM, April 16, 2005, Elkridge

Experiment: Acid-Base Chemistry

Saturday, 3PM, May 7, 2005, Hamilton; Saturday, 2PM, May 21, 2005, Elkridge

Summer Session: Fun with Electronics

Friday, 1PM, June 17, 2005, Hamilton

Summer Session: What you see isn't what you get – the Science of Optics

Friday, 1PM, July 15, 2005, Hamilton

Summer Session: Magnetism: Chemistry of Attraction

Friday, 1PM, August 12, 2005, Hamilton

Experiment: KaPow! - Chemistry is Reactive -

Take Home Experiment: America Recycles Day – November 15, 2005

Saturday, 3PM, September 10, 2005, Hamilton

Saturday, 2PM, September 24, 2005, Elkridge

Chemistry-in-the-Library Celebrates National Chemistry Week - The Joy of Toys!

Saturday, 3PM, October 15, 2005, Hamilton

Saturday, 3PM, October 22, 2005, Elkridge

Mark your calendars: Maryland Chemist Award dinner

The section's annual Maryland Chemist Award dinner will be held on December 8, 2004, at the Berkshire Hotel, Towson, Maryland. This year's awardee is Dr Michael F. Summers of the Department of Chemistry and Biochemistry, University of Maryland at Baltimore County. The title of Dr. Summers's talk is "NMR studies of retroviruses: The molecular basis of dimeric genome packaging."

Chesapeake Chemist

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Maryland Section on the web: <http://mdchem.org>

The Chesapeake Chemist is published monthly September through May by the Maryland Section of the American Chemical Society. Send submissions to the editor in electronic format. The Maryland Section is not responsible for opinions expressed herein. Editorials express the opinions only of the authors. The editor is responsible for all unsigned material.

November Dinner Meeting

Thursday, November 18th, University of Maryland Baltimore School of Pharmacy

6:00 - 7:00PM	Registration and Social
7:00 - 8:00PM	Dinner/Posters
8:00 - 9:00 PM	Dr Andrew Coop, Associate Professor University of Maryland School of Pharmacy

Cost for the dinner is \$20.00 for members; \$15.00 for spouses, retired chemists and guests \$15.00, and \$10.00 for students. For reservations, contact Paul Smith at 410-455-2519 or via e-mail at pjsmith@umbc.edu.

Directions to the School of Pharmacy's new building. From the south, take I-95 north to exit 53 (I-395). Follow the signs to Martin Luther King Blvd (MLK). At the second light, take a right onto Pratt Street. Take a left at the first light onto Penn Street; the entrance to Penn Street garage is almost immediately on your left. After parking, walk to HSFII (20 Penn Street), which is approximately 50 yards further up Penn Street, across Lombard Street. From the north, take 83 south until it turns into S. President Street. Turn right onto Lombard Street and follow Lombard through the city to Penn Street. Take a left on Penn; the Garage is almost immediately on your right. Walking directions to HSFII as above.

Abstract

Even with the incredible advances in the biomedical sciences there will always be the need for agents to treat chronic pain. The current drug of choice, morphine, treats pain effectively, but is severely limited due to undesired effects. Many of the undesired effects can be minimized in a clinical setting, but extreme constipation remains a major problem. Our approach to improved analgesics involves the design of morphine-like agents that do not give rise to tolerance and therefore do not require the ever increasing doses that lead to constipation. The seminar will detail an interdisciplinary project involving synthetic chemistry, computer-aided drug design, and pharmacology with the ultimate goal of solving the sometimes fatal clinical problem of opioid-induced constipation.

About the speaker. Andrew Coop, Ph.D., received his B.A. and M.A. degrees in chemistry from the University of Oxford, UK, and his Ph.D. on the topic of the chemistry of buprenorphine at the University of Bristol, UK, with Dr. J. W. Lewis. Dr. Coop was subsequently awarded a Fogarty Fellowship at the National Institutes of Health with Dr. K. C. Rice in 1995. He was appointed as an assistant professor at the University of Maryland School of Pharmacy in 1999, and was promoted to the rank of associate professor with tenure in 2003. Dr. Coop has received funding from the National Institute on Drug Abuse in the three areas of opioids, cocaine, and also gamma-hydroxybutyrate, all interdisciplinary projects concerned with the design and development of novel tools to allow pharmacological study of the biological systems involved in the abuse of these drugs.

Dr. Coop has published over 60 manuscripts and reviews concerned with drugs of abuse, and received a patent in 2002 for his discovery of a method allowing the direct conversion of thebaine to the minor opium alkaloid oripavine. In 2003, Dr. Coop was awarded the Joseph Cochin Young Investigator Award from the College, and has been active in the College as the Biological Coordinator of the Drug Evaluation Committee (DEC) and a member of the Electronic Communications Committee. Dr. Coop has attended all but one meeting since 1994, and in 2004 organized a workshop aimed at fostering interactions between chemists and pharmacologists.

New program aims to help mature chemists

ACS industrial members age 45 and over who have lost their jobs, or have been given notice that they will become unemployed by December 31, are eligible for a pilot program that aims to assist them to return to work.

Five mid- and late-career members will receive financial subsidies to receive professional career coaching and to participate in the Chemjobs Career Center at the Spring 2005 National Meeting in San Diego. The new program, "Member Career Outreach," was launched this fall by the ACS Department of Career Services with the support of Corporation Associates.

Data show that mature chemists (age 45+) face very different challenges in securing employment than younger chemists. Not only are older workers more likely to be unemployed and to experience lengthy periods of unemployment, but they also may lack recent experience in looking for a job, face greater family and financial responsibilities than younger candidates, have outdated skills, bring unrealistic expectations to the job search, and suffer age discrimination.

According to data from the 2004 ACS Comprehensive Salary and Employment Status Survey, the unemployment rate is positively correlated with age. Not only is the unemployment rate higher for older chemists, but chemists over the age of 45 are likely to experience a lengthier period of unemployment than younger chemists. According to the latest survey, as of March 1, 2004, 38.5 percent of the unemployed age 45+ had been unemployed for a year or more, while only 17 percent of those under age 45 were unemployed for a long period.

The "Member Career Outreach" program will help grantees in four essential ways:

- * It will provide financial support to receive professional career coaching, purchased online and delivered via telephone and e-mail. This personal, one-on-one assistance can help members refine their job-search strategy.

- * It covers travel expenses to attend the Spring 2005 National Meeting in San Diego. This will enable grantees to participate in Chemjobs Career Center, including taking interviews with prospective employers and attending workshops and technical sessions.

- * A reception for mid- and late-career job seekers and selected employers will be held at the San Diego National Meeting. This will afford grantees an opportunity to interact informally with other chemists, including prospective employers. Networking is known to be one of the main mechanisms by which job seekers learn of job opportunities and eventually secure positions.

- * Each participant will receive a career transition workbook developed by the Department of Career Services. The workbook will guide ACS members through the stages of the career transition process as well as provide a record-keeping system for tracking the progress of their job search.

After advertising "Member Career Outreach" in Chemical & Engineering News, DCS will select awardees by a combination of lottery and evaluation of their application materials with the assistance of the Subcommittee on Professional Services of the Committee on Economic and Professional Affairs (CEPA). (CEPA reviews ACS career programs and services.) Those selected for the program will be notified in early January.

To apply for the program or for further information, contact Elaine Diggs at ediggs@acs.org.

November Historical Events in Chemistry

by Leopold May, The Catholic University of America, Washington, D.C.

- November 2, 1841 Birthdate of C. H. C. Willgerodt, who did research on the conversion of internal ketones to terminal thioamides, which is known as the Willgerodt reaction.
- November 3, 1854 Jokichi Takamine, who isolated the hormone adrenaline from natural sources, was born on this date.
- November 5, 1854 Birthdate of Paul Sabatier, a researcher in catalysis in organic chemistry. In 1912, he received the Nobel Prize for his method of hydrogenating organic compounds in the presence of finely disintegrated metals and shared it with F. Victor Grignard who received it for the discovery of the so-called Grignard reagent.
- November 7, 1929 Birthdate of Eric Kandel, who discovered how the efficiency of synapses can be modified and did research in the molecular mechanism of memory. In 2000, he shared the Nobel Prize in physiology or medicine with Arvid Carlsson and Paul Greengard for their discoveries concerning signal transduction in the nervous system.
- November 8, 1711 Birthdate of Mikhail V. Lomonosov of Russia, who suggested the law of conservation of mass and the theory of heat as a form of motion. He was opposed to phlogistic chemistry and was the first to record the freezing of mercury.
- November 12, 1842 Birthdate of Lord Rayleigh (John W. Strutt), who received the Nobel Prize for his investigations of the densities of the most important gases and for his discovery of argon in connection with these studies.
- November 13, 1893 Edward A. Doisy, who was born on this date, isolated theelin (oestrone). In 1943, he shared the Nobel Prize in Medicine for his discovery of the chemical nature of vitamin K with C. P. H. Dam for his discovery of vitamin K.
- November 18, 1918 Birthdate of Lawrence E. Glendenin, who discovered promethium in 1945, with J. A. Marinsky and C. D. Coryell.
- November 19, 1887 James B. Sumner, who crystallized urease and showed it to be a protein in 1926, was born on this day. He shared the Nobel Prize in 1946, for his discovery that enzymes can be crystallized with John H. Northrop and Wendell M. Stanley for their preparation of enzymes and virus proteins in a pure form.
- November 23, 1837 This is the birthdate of Johannes D. van der Waals, who formulated deviations from the ideal gas law (Van der Waals' Equation). He was a researcher on intermolecular attraction (Van der Waals' Forces), electrolytic dissociation, and capillarity.

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Revision of ACS guidelines for undergraduate chemistry programs

Maintaining high standards of excellence in undergraduate and graduate education is an important part of the mission of the American Chemical Society, and the Committee on Professional Training (CPT) plays a major role in this effort. Most chemists are aware of CPT because it develops and administers the ACS approval program for undergraduate chemistry programs.

The guidelines for ACS approval are regularly reviewed by CPT to ensure that they reflect the current state of chemistry and of education. Chemistry is a rapidly evolving science, particularly in interdisciplinary areas. Major changes have also been taking place in the delivery of undergraduate education, with increasing emphasis on applications, active learning, and group experiences.

Although the most recent edition of the guidelines was released in 2003, CPT is already considering possible major revisions for the next edition. As part of this process, it is essential to obtain broad input from the chemistry community regarding the undergraduate chemistry curriculum.

CPT invites the chemistry community to comment on new directions for the next edition of the guidelines for ACS approval of undergraduate chemistry programs. In particular, CPT seeks responses to the following questions:

- What should an ACS certified chemistry graduate know and be able to do?
- Are there any major impediments for an undergraduate student pursuing an ACS certified chemistry degree?
- How should a chemistry curriculum balance the breadth of required core courses with the flexibility of elective advanced courses?
- What ancillary skills should be required of ACS certified chemistry graduates?
- What should be the relative roles of traditional chemical disciplines (e.g., analytical, inorganic, organic, physical chemistry) and more recently developed interdisciplinary areas (e.g., biochemistry, environmental science, green chemistry, material science) in chemistry education?
- Given increasing public demand for program assessment and improvement, should approved departments be required to regularly assess the effectiveness of their curriculum and use the results to continually improve their program?
- What is the value of ACS approval to your program and of an ACS certified chemistry degree to your graduates?

Please send your views on these issues, or on any other issue relating to the guidelines for ACS approval, to CPT by email at cpt@acs.org with a subject of Guidelines Revision.

Maryland Section website

Bookmark the section's website at www.mdchem.org for all the latest information on the section's activities, planned events, and contact information for officers and committee members. Information is also available at Dr. Shah's webpage: www.towson.edu/~sshah.

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Chemistry history cont'd

- November 25, 1814 Julius R. von Mayer, who discovered the law of conservation of energy, was born on this date.
- November 28, 1962 It was announced on this date that the first pure compound of berkelium (Bk, 97), based on work at University of California, Berkeley, was prepared.
- November 29, 1936 Yuan T. Lee, who used a specially designed mass spectrometer that could separate and identify reaction products, was born on this date. He shared the Nobel Prize in 1986 with Dudley R. Herschbach and John C. Polanyi for their contributions concerning the dynamics of chemical elementary processes.
- November 30, 1915 Henry Taube, who was born on this date, received the Nobel Prize in 1983 for his work on the mechanisms of electron transfer reactions, especially in metal complexes.



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