Chesapeake Chemist
Maryland Section
American Chemical Society

International Year of CHEMISTRY 2011

ACS Maryland Local Section

September Meeting

"Globalization and Evolution in Drug Discovery"

~ Michael J. Kates, Ph.D. ~

Director of Discovery Services, DavosPharma

Wednesday, September 14th, 6:30-8:30pm

Goucher College, Buchner Hall
1021 Dulaney Valley Road, Towson, MD 21204

Chesapeake Chemist
Maryland Section
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Maryland Section on the Web:
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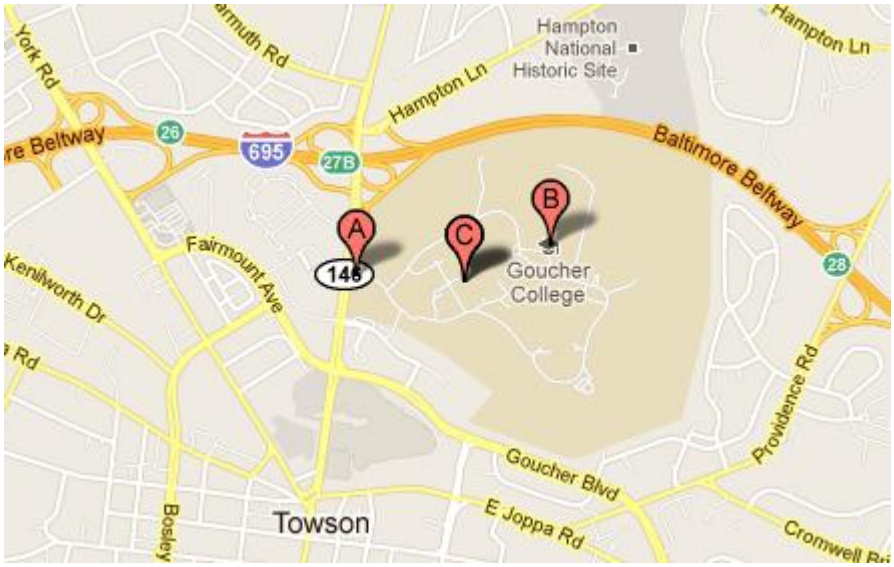
6:30 – 7:00 pm	Registration / Networking / Light Refreshments
7:00 – 7:45 pm	Dinner
7:45 – 8:30 pm	Lecture: Dr. Michael Kates (Director of Discovery Services, DavosPharma)
Price	$20 for members/nonmembers, $10 for students
RSVP (by September 9th)	contact-us@mdchem.org

Directions to the Goucher College (1021 Dulaney Valley Road, Towson, MD 21204)

From the Baltimore beltway (I-695), take exit **27A** for **Towson/Dulaney Valley Road South**
The college entrance is on the **left**, one half-block from exit 27A.

For more information, visit http://www.goucher.edu/x4643.xml.



Globalization and Evolution in Drug Discovery

Over the last 15 years, the pharmaceutical industry has undergone tremendous change, triggered by a lack of novel drugs introduced to the market coupled with the recent patent expirations of some of the industry's blockbuster drugs. The rising cost of drug discovery and development has put considerable pressure on the industry, which has responded by outsourcing certain functions as a means to reduce cost. The emergence of quality chemical capabilities, mostly located in India and China, has allowed drug discovery programs to advance their research at greatly reduced labor costs and overhead. These movements have led to dramatic divesting of large pharmaceutical and biotechnology companies in the US and an unprecedented paradigm shift toward drug discovery occurring in small- to medium-sized biotechnology companies, independent institutes and universities. The effects of the combination of these factors on both drug discovery and careers therein, including my own, will be discussed.

Speaker Biography

MICHAEL J. KATES, Ph.D.
Director of Discovery Services, DavosPharma
E-mail: mkates@davos.com

Dr. Kates obtained a B.S. in Chemistry with a minor in mathematics from DeSales University, 1987. Dr, Kates received the American Institute of Chemists Award for Academic Excellence in Chemistry in1987. He was awarded internships at Wyeth-Ayerst in 1986, 1987 and 1988. He studied Medicinal Chemistry at Temple University School of Medicine (1989) and went on to work at DuPont Merck/E.I. DuPont 1989 to 1991. During this time, Dr. Kates earned the E.I. DuPont Accomplishment Award, in part due to his development of a lead compound designed as a delta opioid selective enkephalin beta-turn mimetic. Dr. Kates obtained his Ph. D. in Chemistry from Villanova University in 1996 and went on to work as a Post Doctoral Research Associate at Brown University. In 1997, Dr. Kates started work at CB Research & Development (New Castle, DE). He was instrumental in the growth and transformation of this company into a contract research organization (CRO) whose main focus was to support the outsourcing of pharmaceutical discovery and development. In 1999, Dr. Kates was promoted to Executive Vice President and Co-founded Beard Research, Inc., a company which was funded by contracts from pharmaceutical companies via FTE's (Full-Time Equivalents). Dr. Kates was the co-founder of Advanced Synthesis Group, Inc. (ASG) in 2004. ASG was sold to the parent company, ASDI in 2006 as part of a strategic plan to develop an integrated drug discovery service model. In 2009, Dr. Kates accepted a position at Sai Advantium Pharma, a CRO based in India as Director of Business Development, that provides integrated chemistry and DMPK services. DavosPharma, a longtime client of Sai Advantium, hired Dr. Kates in January 2011 to develop a never before attempted, Fully Integrated Global Drug Discovery Service Platform. In addition, Dr Kates joined the faculty at the University of New England's School of Pharmacy (February, 2010) as an Adjunct Associate Professor, Medicinal Chemistry.

Upcoming Events

Join the ACS Maryland Section at the Komen Race for the Cure Run/Walk

When: Sunday, October 23rd, 2011

Where: Hunt Valley, Maryland

What: Choose between the 5K run, 5K walk or 1 mile Family Fun Walk

Additional Information: http://maryland.sites.acs.org/komenraceforthecure.htm

The ACS Maryland Section is forming a team to participate in the Komen Race for the Cure Run/Walk in support of the International Year of Chemistry 2011. IYC 2011 is a year-long celebration of the contributions of chemistry to the well-being of mankind. The fourth quarter of IYC 2011 focuses on the Chemistry of Health (Water, Alternative Energy and Materials being the other three).

Every year, hundreds of thousands of women are diagnosed with breast cancer in the United States. Advancements in diagnosis and treatment therapies have dramatically reduced the number of women who succumb to the disease. Imaging agents, hormonal therapies and chemotherapy drugs are just a few examples of the ways chemistry has contributed to the prevention and cure of breast cancer. ***Help us tell the world that chemistry plays a key role in the fight against breast cancer!***

The Komen Maryland Foundation is dedicated to improving access to health care and providing resources for scientific advancements in the fight against breast cancer. **Did you know that 75% of the funds raised by this organization stay in Maryland to support local programs?** The remaining funds support national research to find a cure.

Top three reasons to join us on October 23rd:

- Support the Komen Maryland Foundation.
- Meet the Maryland Section leadership and candidates for next year's officers.
- Network with other professionals.

If you've never participated in a ACS Maryland Section event, here is your chance! Go to http://maryland.sites.acs.org/komenraceforthecure.htm for more information about **TEAM ACS MARYLAND SECTION**.

If you have any questions, please contact holly.cymet@gmail.com.

Help us support IYC 2011 and the Komen Maryland Foundation by joining TEAM ACS MARYLAND SECTION and walking or running in the Komen Maryland Race for the Cure Run/Walk. We'll see you there!

Recent Activities

Science Café Picnic at Boordy Vineyards

On Thursday, June 23, 2011, the Maryland Section visited Boordy Vineyards to learn about the chemistry of winemaking and enjoy Boordy's weekly event, "Good Life Thursdays," where Boordy hosts a farmer's market and live music. Lisa Baker, a recent graduate of Stevenson University, presented a poster on chemical techniques of winemaking titled "What is the Best Way to Ferment Grapes to Produce Quality Red and White Wine?" and discussed chemistry's role in the wine production process. Approximately thirty members were in attendance at the event, which offered a casual, social atmosphere and fostered networking. Among them are Lisa's brother and parents who are establishing a new family-based winery in Maryland, Old Westminster Winery (www.oldwestminster.com). Chemistry Faculty members from Stevenson University, Drs. Dawn Ward, Diane Payne and Ellen Roskes, also attended the event to show their support to the former Stevenson student. The poster talk was supplemented with fruit, bread and crackers, and a wide array of gourmet cheeses. Maryland wine was plentiful as Boordy offered a variety of their vintages for tasting. Food was funded by the American Chemical Society's Science Café Picnic grant.

Lisa Baker discussing the chemistry of wine with faculty members from Stevenson University.

Drs. Dawn Ward, Diane Payne and Ellen Roskes (left to right), faculty members from Stevenson University.

STEM Teaching Academy at Harford Community College

Two ACS Maryland Local Section members, Drs. Sandra Young (US ARL) and Takashi Tsukamoto (Johns Hopkins University), participated in the STEM (Science, Technology, Engineering, and Mathematics) Teaching Academy as lecturers at Harford Community College. This week-long workshop (August 1-5, 2011) was specially designed to provide K-12 educators with an opportunity to engage in hands-on professional development in one of three STEM tracks: Engineering, Biology/Chemistry, or Earth/Environmental Science.

Dr. Young gave two lectures, "Energy Session" for the Earth/Environmental Science Track and "Polymer and Composites" for the Biology/Chemistry Track. Dr. Tsukamoto participated in the Biology/Chemistry Track with a lecture titled "Drug Discovery Research at the Intersection of Chemistry and Biology". Nearly sixty K-12 teachers (twenty teachers for each track) attended the workshop with much enthusiasm and interest to explore innovative approaches to STEM education.

High school teachers participating in a hands-on laboratory activity.

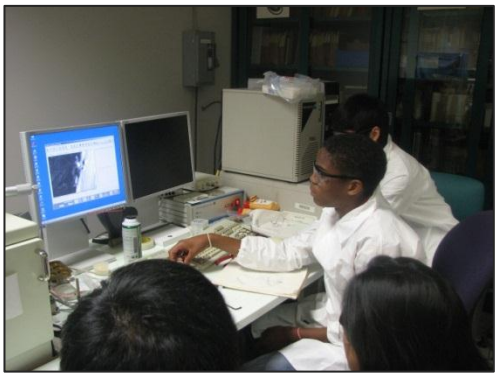
The STEM Teaching Academy is a collaboration between Harford Community College, APG science/engineering labs, and the Senior Science Society. For more information about this event, please contact Dean Deborah Wrobel (STEM Division, Harford Community College) at stem@harford.edu.

This event is a prequel to a series of Chemistry Workshops that the MD ACS is organizing in conjunction with MARM 2012 at UMBC (May 31-June 2). If you are interested in being involved in this effort, please contact Sandra Young (sandra.k.young26.civ@mail.mil).

Maryland Section of the American Chemical Society Supports Science Summer Program for Young Students

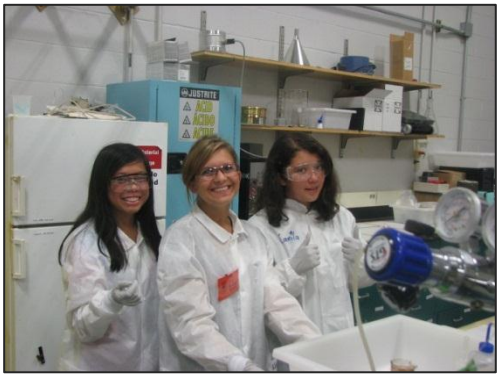
For 6 years, the Maryland Section of the American Chemical Society (MD ACS) has provided support to the Gains in the Education of Math & Science (GEMS) program at the US Army Research Laboratory at Aberdeen Proving Ground, MD.

Cuts to the public education system have resulted in fewer teachers in the system, fewer supplies in the classroom, less administrative help in school offices, and larger class sizes. While this increased stress on the education system has recently been in the news, the influence on Science, Technology, Engineering, and Mathematics (STEM) education has been in the background for a long time and gone largely unnoticed outside the direct community. As No Child Left Behind and the emphasis on testing in reading and math took over in the classrooms, many subjects including science have seen either decreasing time allowances or complete cuts from the curriculum. Such policies may have improved students' test-taking skills, but have also left them with very little awareness of the practical applications of math and how math plays a critical role in most STEM careers.



Students working on the Scanning Electron Microscope in the Sample Evaluation Experiment

While students have an abundance of sports/leisure and arts related choices over the summer, there are few STEM opportunities that are reasonably priced, local, or that cover a diverse range of science topics. GEMS is a program sponsored by the US Army (http://www.usaeop.com) and often takes place in Army laboratories around the country, but sometimes also on university campuses near Army laboratories. GEMS is a program designed to address the lack of students going into STEM fields by engaging students and teachers in STEM in real-world applied environments. When middle/high school students and teachers are together in a working laboratory, not only can they do hands-on STEM experiments that often can't be done in their schools, but they can also learn about a wide-range of different STEM subjects (outside of their usual academic curriculum) while interacting with professional scientists and engineers.



Students investigating the magnetic properties of nanofluids in the Nanotechnology Laboratory

The ARL-APG GEMS program this summer hosted 127 MS/HS students and 23 teachers from a wide range of schools in Baltimore City, Baltimore, Cecil, Harford, Howard and Montgomery Counties, and also from other states including: DE, FL, MO, PA, TX, VA.

Students working on unknown sample identification in the Emergency Spill Sampling Experiment

Because of MD ACS sponsorship, students are given information about the section and have unique opportunities to network, a key component of any professional organization. Older students are mentored on job skills and resume writing.

Members of the MD ACS are involved in a whole host of activities working on STEM issues with regard to the Education system.

Chemistry Olympiad Experience of Joe Wan

As we mentioned in the last issue of Chesapeake Chemist, Mr Joe Wan of Wilde Lake HS was one of twenty high school students who were selected, among nearly 1000 participants of the National Exam for the 43rd International Chemistry, to attend the US Training camp in early June for two weeks at the USAF Academy in Colorado. Here is a report from Mr. Wan describing his exciting Chemistry Olympiad experience.

I began studying for the USNCO National Exam around December of last school year. Using the released previous exams to get a feel for the content of the exams, I supplemented the course material we had already covered in Chemistry AP with online resources such as MIT OpenCourseWare. We hadn't covered organic chemistry or electrochemistry yet in class, and I felt that I needed to review thermochemistry, so these were the subjects I spent time independently studying. In April, I took the National Exam, which was probably the longest and most intense exam I had taken; its three sections spanned about 4 and a half hours--almost an hour longer than the SAT and with only two breaks. The most important issue for me on the three sections of the test was time--it was difficult to conduct experiments in the allotted time in the lab practical, or to finish all the calculations on time during the multiple choice section. I left the test with mixed feelings--while I was satisfied with my performance on the free response section, I was less confident about the multiple choice and lab practical portions. It came as a complete surprise to me when my chemistry teacher, Ms. Gail Schulman, asked me if I had heard the news--I had qualified for the national study camp! Soon after, the American Chemical Society sent me an organic chemistry textbook and a list of chapters to study; for a few weeks I worked intensively through the textbook.

Then, it was time to travel to Colorado Springs for the training camp at the US Air Force Academy. There, along with 19 other students from across the country, I spent entire days on chemistry: typically, we'd spend the morning in lectures (covering physical chemistry, organic chemistry, biochemistry, and inorganic chemistry), eat lunch, then do laboratory work in afternoon. The labs were very exciting: we did everything from organic synthesis to iodometric titration; even though we were given four hours for one or two labs, everybody was rushing to complete the labs on time--once again, the major issue was time management. Interspersed within the two weeks were several 2-hour "quizzes" and a 4-hour final exam. This experience was challenging, but also very rewarding. It was amazing to be surrounded by students who shared my interest in chemistry, and we really became close to each other. When not studying, we'd watch movies, joke around, or play games like Mafia and Contact together. In addition, the camp professors and mentors worked extremely hard to make the camp successful. The professors were always approachable and helpful, and the mentors were incredibly friendly and supportive, often staying up all night grading papers and ceaselessly working to keep the camp organized.

Joe Wan in the lab at the USNCO Study Camp at the Air Force Academy.

All in all, the US National Chemistry Olympiad was a great experience which allowed me to follow my passion for chemistry and meet great friends. I definitely plan to participate in the USNCO again, and perhaps try to qualify for the international travel team. And last but not least, I very much appreciate the support from the ACS Maryland Local Section, particularly Mr. Mike Zapf, Ms. Beatrice Salazar, Dr. Shirish Shah, and Mr. Pat Bell who coordinated the National Exam at the Notre Dame College in Maryland. I look forward to seeing them again next year.

Joe Wan

Announcements

2011 Braude Award Recipient Selected

The Braude Award honors people who have had significant impacts on teaching and who are collaborating in their research with students and post-doctoral fellows. The award was endowed by and named for George L. Braude, a chemist with W. R. Grace and the Food and Drug Administration. This year the award goes to Dr. Ryan Casey, Towson University. Dr. Casey has developed a highly productive research program in the field of environmental toxicology, conducting studies of metal transport in waters and organisms in the watersheds of Baltimore County and nearby areas. A large part of Dr. Casey's scholarship activities have involved mentoring of research students, approximately 16 undergraduates and 7 Masters students. He will receive the Braude Award at the dinner meeting Weds. Nov. 2 at the Burkshire Marriott in Towson.

2011 Maryland Chemist Award Recipient Selected

The Maryland Chemist Award was established in 1962 to recognize and to honor, each year, a member of the Maryland Section for outstanding achievement in the fields of chemistry. The achievement, as originally stated, may be in pure or applied chemistry, chemical engineering, or chemical education. This year, the award goes to Dr. Kenneth Karlin, Johns Hopkins University, for his wide-ranging contributions to inorganic chemistry, particularly for his research focusing on coordination chemistry relevant to biological and environmental processes, involving copper or heme (porphyrin-iron) complexes. Dr. Karlin will receive the award early next year.

Science Night Activities Needs YOUR Help!

Over the last two years, we have started helping run Science Night events at some Elementary Schools (ES). These are typically 2-5th graders. It's a great opportunity to interact with students who generally do not have a lot of hands-on science AND their parents. We have 2 planned for this Fall and would like to request MD ACS member help if possible:

- Halsted Academy & Pleasant Plains ES (Baltimore County) - Tuesday, October 18th - during National Chemistry Week
- Roland Park ES (Baltimore City) – Thursday, December 8th

No prior experience necessary - just plan to bring your enthusiasm for Science! You would receive all the information ahead of time for the 8 experiments and would only help run 1-table with a single experiment at the event with a teacher from the school. We are working with a professor who studies the effectiveness of STEM education on extension activities for the students. If you are interested, please contact MD ACS member Sandra Young via email: (Sandra.k.young26.civ@mail.mil or skyschlee@yahoo.com).

Call for Volunteers – K-12 Educational Outreach

We know that people have limited time. But taking the time to mentor others, as all of us were once mentored by someone, is a truly fulfilling experience. If you have any questions or are thinking about helping out with a future event, please feel free to contact us at (contact-us@mdchem.org).

Plants & People Sundays at the Rawlings Conservatory

The Howard Peters Rawlings Conservatory & Botanic Gardens in Druid Hill Park runs various programs on Sundays. The 2nd (Exploration Station), 3rd (Story Hour), and 4th (Ask a Scientist) Sundays are programs directed towards K-12 students and often include hands-on science activities.

Where: Howard Peters Rawlings Conservatory & Botanic Gardens, 3100 Swan Drive, Baltimore, MD 21217 (by the zoo)

When: Almost every Sunday

For more information, visit their website or call (410) 396-0008 for details on the upcoming Sunday program!! (http://www.baltimorecity.gov/government/recnparks/special_facilities.php#Howard)

Other Educational Outreach Programs

With recognition of the decreasing numbers of trained STEM professionals that are US citizens, the general decline of hands-on activities in Science, Technology, Engineering, and watering-down of Mathematics in many K-12 programs, and many people's general lack of understanding of STEM topics in society, the Department of Defense has coordinated many of their programs into single websites that contain a wide-range of educational outreach programs, internships, and scholarship opportunities available for K-12, undergraduate, graduate students and beyond.

Information on the wide-variety of programs through the **US Army Educational Outreach Program (AEOP)** can be found on their website (http://www.usaeop.com).

Information on the wide-variety of programs through the **National Defense Education Program** (NDEP) can be found on their website (http://www.ndep.us).

Many of the programs/opportunities that are listed on these two sites are available to students for participation in Maryland locations.

Call for Volunteers for Committee Positions

Interested in how your dues get used and want to work on interesting member programs/projects? If you want to get involved with the Maryland Section Executive Committee and/or with section activities, we want to hear from YOU! The Maryland ACS Executive Committee meets 4 times-a-year to discuss and plan activities. Please feel free to contact any Section officer via e-mail to get more information on various areas/activities that interested you or that the Section should start or expand in the future. The amount of time to commit is up to you (min. 2 hours per month depending on the activity). We are always looking for individuals with budget/financial, editing, and planning skills. In addition, our Section is needs volunteers for our various committees. We are currently looking to fill positions for:

- Archivist
- Women's Chemist Chair
- Young Chemist Chair

Please contact us at contact-us@mdchem.org

Get Involved, Stay Involved

As you know, the American Chemical Society offers many ways for its members and non-members to get involved at the local, regional and national levels. There are opportunities for everyone, whether you are a student, or just starting your career, or a seasoned professional. Are you interested in getting involved, but don't know where to start? Are you already involved with one or more ACS activities but need help finding resources? Please visit (http://www.acs.org/getinvolved) to find a streamlined list of links of helpful procedures and resources specifically geared towards your area of interest.

Alternately, you can contact the Maryland ACS Section directly… Like working with students? Have a talent for encouraging students in science? Have ideas for outreach events? Sign up for our volunteer news. Contact us at contact-us@mdchem.org.

2011 Event Schedule

Event	Date	Time	Location
Fall 2011 ACS National Meeting	8/28 (Sun) – 9/1 (Thu)		Denver
September Meeting (Dr. Michael Kates)	9/14 (Wed)	6:30 pm	Goucher College
Remsen Award Meeting	10/5 (Wed)		Johns Hopkins University
National Chemistry Week	10/16 (Sun) – 22 (Sat)		
Komen Race for the Cure	10/23 (Sun)		Hunt Valley, MD
Braude Award	11/2 (Wed)		Towson University
Maryland Chemist Award	TBD		

If you have any ideas or suggestions about new events please feel free to contact us at contact-us@mdchem.org

Job Hunting Corner

Job Hunting?
We don't always have job posts in the Chesapeake Chemist. But if you have a position available locally, you are welcome to send them to contact-us@mdchem.org for posting in the Chesapeake Chemist. If you are job hunting, remember to put your membership to work by using the ACS job bank: (ACS Careers: www.acs.org/careers).

ACS offers special benefits for unemployed members
During these tough economic times it's more important than ever to belong to the American Chemical Society. Unemployed members can tap into a host of valuable benefits and services that help them get back in the workforce. And, members in good standing may qualify for an unemployed member dues waiver, allowing them to renew their memberships and keep their member benefits at no cost. Contact ACS at service@acs.org, 800-333-9511 or 614-447-3671 for complete details.

Other valuable benefits that help ACS member get back in the workforce include:

- Free registration at ACS National Meetings and registration fees at Regional Meetings of just $25. Meetings offer ACS Career Fairs with on-site interviews.
- Special discounts for ACS/Harvard courses, ACS ProSpectives and Short Courses, and the ACS Leadership Development System.
- Membership in the ACS Network, your online resource to connect and communicate with friends, colleagues, and potential employers
- Free Guidance from ACS Career Consultants – ACS mentors offer resume reviews, job search strategies, and interview tips that make you stand out from the rest.
- Free access to InterviewStream, an online tool that will sharpen your interview skills
- Members-only access to the ACS Salary comparator.
- And more!

Contact ACS customer service today at service@acs.org, 800-333-9511 or 614-447-3671 today and let us know how we can help.

REMINDER: Receiving the Chesapeake Chemist
Hopefully, if you are reading the Chesapeake Chemist this month, you are receiving it via e-mail from us. We went to electronic only mailings to our MD ACS membership in October 2006. Please remember that we are dependant on the National ACS records for your correct, current e-mail.

Changing your e-mail address? Moving out of the MD ACS area? E-mail changes can be updated either by:

- E-mailing us at contact-us@mdchem.org – give us your member #, full name, and e-mail changes and we can ensure that your records are updated with National ACS.
- **Contacting the National ACS membership division: 800-333-9511 (US only)** or service@acs.org

To ensure that you receive the Chesapeake Chemist, please add the MD ACS e-mail (contact-us@mdchem.org) to your accepted e-mail address list IF you have a spam filter.

If you are a member who currently doesn't receive the Maryland ACS Chesapeake Chemist but download it from our website, it is possible that National ACS does not have your e-mail address on file. If you want to receive the Chesapeake Chemist via e-mail, please e-mail us at contact-us@mdchem.org – give us your member #, full name, and e-mail address and we can ensure that your records are updated with National ACS.

The current edition and previous editions of the Chesapeake Chemist can ALWAYS be obtained via our website: http://mdchem.org – please see the Newsletter Archive link on the right-hand side of the website.

The Chesapeake Chemist is e-published monthly September through June 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 not responsible for all unsigned material.