

November 2012
Monthly Update for the Green Chemistry in Education Network
Julie Haack, University of Oregon
jhaack@uoregon.edu

You can invite others to join this list by forwarding this email with the following instructions: To subscribe, please send an email request to jhaack@uoregon.edu with the subject heading "subscribe green chemistry." As always, please let me know if you would like to be removed from the list.

Quick Summary

TIME SENSITIVE

- 2013 Green Chemistry Science Communication Fellows Program - Deadline Extended Nov. 30, 2012
- 10th Annual P3 Awards: A National Student Design Competition for Sustainability Focusing on People, Prosperity and the Planet - Deadline Dec. 11, 2012
- 2013 ACS GCI Pharmaceutical Roundtable Research Grant for Greener Solvent Research - Proposals due Jan. 15, 2013

NEWS

- Spotlight on Education - Dr. Jane E. Wissinger, Associate Professor, Department of Chemistry, University of Minnesota
- New Green Chemistry and Engineering reference book, *Green Techniques for Organic Synthesis and Medicinal Chemistry*
- Green Chemistry Tools to Reduce Toxics in the Great Lakes Region
- ACS GCI Student Welcome Back Packet
- WEBCAST - Minnesota Green Chemistry Forum - Green Chemistry Curriculum workshop
- Free ACS Webinar: Rational Design of Safer Chemicals, December 6, 2013, with Dr. Julie Zimmerman and Dr. Joseph Fortunak
- Mapping Green Chemists - More is Better

CHECK IT OUT!

- Great Lakes Green Chemistry Student Network - <http://migreenchemistry.org/education/glgc-student/>
- New Journal- *ACS Sustainable Chemistry & Engineering* offers the first papers freely on its website - <http://pubs.acs.org/acssce>
- GreenChemBlog - <http://greenchemblog.wordpress.com/>
GreenChemBlog is operated by a group of current and former UC Berkeley chemistry graduate students. They aim to provide a critical review of the latest Green Chemistry literature, while providing a forum where the community can discuss current issues including materials, toxicology and synthesis of new materials. Questions, suggestions or requests to participate can be sent to greenchemblog (at) gmail (dot) com.
- The 12 Principles of Green Chemistry Pocket Guide - http://portal.acs.org/portal/acs/corg/content?_nfpb=true&_pageLabel=PP_ARTICLEMAIN&node_id=1444&content_id=CNBP_030425&use_sec=true&sec_url_var=region1&_uid=460aef41-3084-4a62-979d-53a764b2a954

OPEN POSITIONS

- Director, ACS Green Chemistry Institute (Washington, D.C.)
- Program Manager ACS Green Chemistry Institute (Washington, D.C.)
- Summer Session Instructors (University of Oregon, Eugene, OR)

CONFERENCES - See full listing below

ADDITIONAL GREEN CHEMISTRY NEWS and INFORMATION

- The Green Chemistry & Commerce Council Newsletters
- News from ACS GCI: Nexus Newsletter
- Advancing Green Chemistry
- Berkeley Center for Green Chemistry Newsletter
- Green Centre Canada

TIME SENSITIVE

2013 Green Chemistry Science Communication Fellows Program - Deadline Extended Nov. 30, 2012

Advancing Green Chemistry is now accepting nominations for the 2013 Green Chemistry Science Communication Fellows Program. We are looking for post-doctoral researchers or junior faculty with active research programs in Green Chemistry who want to learn more about communicating their work and Green Chemistry to a broader public through the news media. Nominations are due by Nov. 30, 2012 (extended deadline). More details can be found at http://advancinggreenchemistry.org/?page_id=895. Questions can be directed to jjones@advancinggreenchemistry.org.

10th Annual P3 Awards: A National Student Design Competition for Sustainability Focusing on People, Prosperity and the Planet

The U.S. Environmental Protection Agency (EPA), as part of the P3-People, Prosperity and the Planet Award Program, is seeking applications proposing to research, develop, and design solutions to real world challenges involving the overall sustainability of human society. The P3 competition highlights the use of scientific principles in creating innovative projects focused on sustainability. The P3 Award program was developed to foster progress toward sustainability by achieving the mutual goals of economic prosperity, protection of the planet, and improved quality of life for its people-- people, prosperity, and the planet – the three pillars of sustainability. The EPA offers the P3 competition in order to respond to the technical needs of the world while moving towards the goal of sustainability. Please see the P3 website (<http://www.epa.gov/P3>) for more details about this program. Applications are due by December 11, 2012.

**2013 ACS GCI Pharmaceutical Roundtable Research Grant for Greener Solvent Research
- Proposals due Jan. 15, 2013**

The ACS GCI Pharmaceutical Roundtable is seeking a 1-year R&D commitment to assist the Roundtable's greener solvents initiative. The R&D will be focused toward developing greener solvent(s) as potential replacements for polar aprotic solvents such as DMF, NMP and DMAc. Proposals are invited from public and private institutions of higher education worldwide. One grant is planned to be awarded to a research group and the total award is limited to \$100,000 for a grant period of 12 months. Deadline for receipt of proposals is January 15, 2013 at 5 pm EDT. The RFP can be found at <http://www.acs.org/gcipharmarroundtable> . Email gcipr@acs.org with any questions.

NEWS

Spotlight on Education - Dr. Jane E. Wissinger, Associate Professor, Department of Chemistry, University of Minnesota

Associate Professor Jane Wissinger began the process of "greening" the University of Minnesota's organic laboratory course over 10 years ago. This two-semester-in-one course meets for a total of nine hours per week; therefore the 1000 students enrolled each year have ample time to explore a wide range of topics, techniques, reactions, and syntheses. As the organic laboratory director, Professor Wissinger felt it was imperative that modern green chemistry principles and strategies be incorporated into the curriculum for the 20% chemistry/chemical engineering majors and 80% other majors, alike.

From the introduction of one "sample" green chemistry experiment (the traditional bleach oxidation) in 2002, to the current immersion of the green principles found in Wissinger's in-house manual, the benefits of teaching green chemistry have been four-fold. The first, being the most obvious, was the significant reduction of hazardous waste without conversion to total microscale equipment.

Two; as is common with large university teaching labs, graduate teaching assistants (TAs) supervise the students in the laboratory. Therefore, these TAs (many coming from undergraduate institutions that did not incorporate green chemistry) were trained and engaged in learning and teaching green chemistry for the course. Many have carried over their enthusiasm for applying green methods in their research and several are now professors at other institutions teaching green chemistry themselves.

Through surveys and unsolicited feedback from the undergraduate students in the course, Wissinger has found overwhelming appreciation and eagerness from students of all different majors to learn more about sustainable chemistry (advanced students can now take a green chemistry lecture course at Minnesota) and seek research opportunities within the department. For Wissinger, that has provided the fourth benefit of having graduate students and undergraduates, passionate about green chemistry, volunteering to work in her laboratories to design new green experiments for the organic chemistry teaching laboratories. Examples of new green experiments developed and successfully incorporated into the course include the Oxidation of Borneol to Camphor using Oxone (J. Chem. Educ., 2011, 88 (5), pp 652-656), a Comparison of Steam Distillation and Liquid CO₂ Extraction of Clove Oil, and a new tandem Aldol/Diels-Alder reaction.

Wissinger has recently received two Minnesota Pollution Control Agency grants to develop experiments exemplifying the synthesis of polymers made from renewable resources that have biodegradable properties. This collaboration with the Center for Sustainable Polymers at the University of Minnesota is affording the students in Wissinger's organic chemistry laboratory course the opportunity to learn and participate in state-of-the-art, emerging technologies that are essential for the green and sustainable future of chemistry.

For more information, feel free to contact Jane at email: jwiss@umn.edu
Phone: 612-625-9586

New Green Chemistry and Engineering reference book, "Green Techniques for Organic Synthesis and Medicinal Chemistry"*

Since the birth of green chemistry in the 1990's, there has been an ever-increasing amount of research done to understand how to synthesize and design molecules in a framework that takes into account toxicity, process efficiency, and environmental impact. The environmental and economic benefits of green chemistry have been recognized by many, and especially by those involved in pharmaceutical R&D. However, until today, there has not been a comprehensive textbook dedicated to approaching medicinal chemistry from the lens of green chemistry.

Green Techniques for Organic Synthesis and Medicinal Chemistry fills that gap. Published by Wiley & Sons, Ltd. the book is authored and edited by Wei Zhang, Center for Green Chemistry at the University of Massachusetts in Boston, and Berkeley "Buzz" Cue, currently at BWC Pharma Consulting, LLC. and member of the ACS GCI Governing Board, with the input of 65 contributing authors. Through 27 chapters, this book covers topics such as toxicity, green catalysis, green synthetic techniques, and green techniques specific to the pharmaceutical industry such as formulation and drug delivery.

Past ACS GCI Director, Bob Peoples, writes in the forward, "Few texts offer the unique integration of such a broad spectrum of disciplines and techniques in the context of an integrated analysis. The incorporation of green chemistry into the core curriculum is essential for the future practitioners of our science and this work by Zhang and Cue is an important step in that direction." Indeed, when young chemists learn how to do their work with such a considered approach, the result is bound to change the way chemistry is done and have a positive impact on us all. *Originally published by ACS Green Chemistry Institute <http://www.acs.org/gci> ®'s The Nexus, Sept/Oct Issue.

Green Techniques in Organic Synthesis and Medicinal Chemistry, Wei Zhang and Berkeley W. Cue, Jr., Editors, John Wiley & Sons, 2012.

URL: <http://www.wiley-vch.de/publish/en/books/ISBN978-0-470-71151-4>

Green Chemistry Tools to Reduce Toxics in the Great Lakes Region

The Great Lakes Green Chemistry Network received funding to collaborate with Institute for Agriculture and Trade Policy in Minneapolis, MN on setting up workshops to help interested businesses adopt green chemistry as part of their pollution prevention program. The workshops will introduce a variety of tools now available, such as iSustain, PHAROS, and others that identify chemicals of concern and potential alternatives. The intent of this project is to help

companies decide where to focus their efforts to reduce and eliminate toxic chemicals. In addition, these training sessions will be used to encourage businesses to participate in the Safer Chemicals Challenge Project sponsored by the National Pollution Prevention Roundtable.

Workshops will begin early in 2013 and all information will be available on the website of the Great Lakes Green Network. For more information, please contact Kathleen Schuler at Kschuler@iatp.org or Lin Kaatz Chary at glgreenchemistry@gmail.org.

ACS GCI Student Welcome Back Packet

The ACS Green Chemistry Institute has put together a resource packet that summarizes programs and activities of interest to students. The packet includes information about ACS Summer School on Green Chemistry and Sustainable Energy, How to start a green chemistry student chapter, award opportunities and a list of green chemistry and sustainability resources. Packets were sent to ACS Student Faculty Advisors this fall. Please contact Christiana Briddell, Communications Associate, ACS Green Chemistry Institute <C_Briddell@acs.org> to request a packet.

WEBCAST - Minnesota Green Chemistry Forum - Green Chemistry Curriculum Workshop

This webcast highlights curriculum development activities presented during the Minnesota Green Chemistry Forum on September 21, 2012 by educators at the University of Minnesota-Duluth, the University of Minnesota-Twin Cities, St. Catherine University and Winona State University. Presentations and discussions touch on successes, challenges, and plans for integrating curricula into course work.

URL: <http://www.pca.state.mn.us/index.php/topics/preventing-waste-and-pollution/p2-pollution-prevention/reducing-toxicity/green-chemistry-and-design/green-chemistry-and-design-college-curriculum-grant-projects.html>

For more information please contact Phyllis Strong, Pollution Prevention Coordinator, Minnesota Pollution Control Agency, phone: 651/757-2763, Email: phyllis.strong@state.mn.us

Free ACS Webinar: Rational Design of Safer Chemicals, December 6, 2013, with Dr. Julie Zimmerman and Dr. Joseph Fortunak

Green Chemistry involves more than reduce, reuse & recycle, it can mean using better-designed products that are less toxic and more sustainable. Join Dr. Julie Zimmerman as she explains how rational design can create the next generation of molecules. You will learn about the role of Green Chemistry in innovation; molecular design guidelines for reduced acute and chronic toxicity; correlation of physiochemical properties to toxicity endpoints; use of mechanistic toxicology to advance the design of safer chemicals and much more.

Webinar Details- You must pre-register

URL: <http://acswebinars.org/rational-design>

Date: Thursday, December 6, 2012

Time: 2:00-3:00 pm ET

Mapping Green Chemists - More is Better

It's time to update and expand the Map of the Green Chemistry Community. The world wide map of green chemists includes color-coded entries and an interactive sort function. My goal is to double the number of individuals (currently 600) on the map by January 2013. If you want to add your information to the map or update your existing information, please reply to this email or use the *Instructions* link located in the upper right hand corner of the map page. The map project was initiated at the University of Oregon and its growth and success is the result of an amazing partnership with the green chemistry community. We invite you to add yourself to the map. As always, please let me know if you have any problems accessing the map or the data entry page.

URL: <http://greenchem.uoregon.edu/Pages/MapDisplay.php>

OPEN POSITIONS

Director, ACS Green Chemistry Institute

Tracking Code: A12-62 L11 79000

The ACS Green Chemistry Institute (ACS GCI) is a unit within Membership and Scientific Advancement (M&SA) of the American Chemical Society (ACS), the world's largest scientific society with 164,000 members worldwide. Its mission is to "catalyze and enable the implementation of green chemistry and engineering throughout the global chemical enterprise". ACS GCI activities strive to discover, develop, and deploy innovative new science and technology alternatives to existing chemical practice and demonstrate measurable improvements to human health, the environment and economic competitiveness. ACS GCI is an integral unit within M&SA whose mission is to advance chemical science and its practitioners worldwide to benefit society. M&SA develops, implements, and supports an integrated suite of programs and services that meet the needs of current and prospective members worldwide.

The Director provides vision and leadership for green chemistry activities at the ACS. The Director will lead an integrated staff team that is responsible for implementing a strategic plan developed in concert with the ACS GCI Governing Board, a volunteer group of green chemistry experts appointed by the ACS Board of Directors. The incumbent is the representative of the ACS GCI in the external community and is responsible for developing meaningful collaborations with academia, industry, and government. The incumbent reports to the Director of Membership and Scientific Advancement (M&SA) and is a member of the M&SA senior leadership team.

For a full description of the position and how to apply: https://acs-hr.silkroad.com/epostings/index.cfm?fuseaction=app.jobinfo&jobid=205561&company_id=16094&version=1&source=ONLINE&jobOwner=992584&aid=1

Program Manager ACS Green Chemistry Institute

Tracking Code A12-72 L8 79000

The mission of the ACS Green Chemistry Institute® is to catalyze and enable the implementation of green chemistry and engineering principles into all aspects off the global

chemical enterprise. The Institute focuses efforts in four key areas: education, advocacy, business/industry and certification. The aim is to become the nexus for the global chemical community.

The Manager of Green Chemistry Programs reports to the Director of the ACS Green Chemistry Institute®. The manager is responsible for the day-to-day operations of the office, including managing 3-4 staff members. The Manager is also responsible for both oversight of and direct participation in green chemistry initiatives in all four areas of the Institute's work (education, business, advocacy and standards) in addition to special projects and support of development and budget activities. This requires a working knowledge and/or direct experience with of green chemistry/sustainability issues.

For a full description of the position and how to apply: https://acs-hr.silkroad.com/e postings/index.cfm?fuseaction=app.jobinfo&jobid=205608&company_id=16094&source=ONLINE&JobOwner=992584&bycountry=0&bystate=0&bylocation=&keywords=&byC at=&tosearch=yes

Summer Teaching Opportunities at University of Oregon

The University of Oregon is currently searching for instructors for summer session 2013 (see specific openings below). The 12-week summer session runs from June 24 to September 13, 2012. Compensation is dependent on previous teaching experience and ranges from \$4000 - \$6500 per course. In addition to the courses listed below, we invite proposals for new/special topics courses.

Introduction to Chemical Principles (CH 111), 4 credits Chemical concepts for students in health care, biological applications, and environmental studies. Topics include atomic structure, solutions, acids, bases, stoichiometry, equilibrium, biomolecules, and organic functional groups.

CH 111 Course Dates: June 24-July 29, 2013

General Chemistry Lecture (CH 221, 222, 223), 4 credits for each course First-year university chemistry: atomic and molecular structure, thermodynamics, equilibrium, physical properties, and the chemical reactions of the elements. This series is equivalent to the full year sequence offered during the academic school year and is appropriate for chemistry and biochemistry majors, premedical, and pre-dental students.

CH 221 Course Dates: June 24-July 29, 2013

CH 222 Course Dates: July 22-August 16, 2013

CH 223 Course Dates: August 19-September 13, 2013

General Chemistry Laboratory (CH 227, 228, 229), 2 credits for each course Teaches laboratory skills through chemical reactions and writing equations, phase diagrams, equilibrium constants, acid-base titrations, volumetric analyses, voltaic cells, exercises in kinetics and inorganic chemistry. This series is equivalent to the full year sequence offered during the academic school year and is appropriate for chemistry and biochemistry majors, premedical and pre-dental students.

CH 227 Course Dates: June 24-July 29, 2013
CH 228 Course Dates: July 22-August 16, 2013
CH 229 Course Dates: August 19-September 13, 2013

Organic Chemistry Lecture (CH 331, 335 336), 4 credits for each course Investigates structure, properties and bonding of organic molecules, reaction and mechanisms of organic chemistry, and organic chemistry of biomolecules with a focus on chemical aspects. This series is equivalent to the full year sequence offered during the academic school year and is appropriate for chemistry and biochemistry majors, premedical and pre-dental students.

CH 331 Course Dates: June 24-July 29, 2013
CH 335 Course Dates: July 22-August 16, 2013
CH 336 Course Dates: August 19-September 13, 2013

How to Apply: All applicants must have completed their Ph.D. in chemistry no later than June 2013, and have a proven ability to teach effectively at the university level. Applicants can apply online at Academic Jobs Online (<https://academicjobsonline.org/ajo/jobs/1409>). Position ID: UO-Chemistry-INSTPOOL [#1409]

Your on-line application must include a cover letter that includes a description of your interests, course preferences, and a summary of how you would incorporate green chemistry into your course(s). Applications received by December 31, 2012 will receive full consideration. Please contact Julie Haack at jhaack@uoregon.edu or by phone (541) 346-4604 if you have additional questions. The University of Oregon is an equal opportunity, affirmative action institution committed to cultural diversity and compliance with the American with Disabilities Act.

CONFERENCES/EVENTS

December 10-12, 2012 (Jaipur, India)

International Workshop on Chemistry for a Sustainable Future
Website: <http://greenchem.du.ac.in/jaipur.html>

January 25, 2013 (Minneapolis, Minnesota, USA)

Minnesota Green Chemistry 2013: Beakers to Business Plans
Website: <http://www.greenchemistrymn.org/events/minnesota-green-chemistry-2013-beakers-business-plans>

March 6-8, 2013 (Portland, Oregon, USA)

Advancing Green and Sustainable Chemistry
Website: <http://www.wplgroup.com/aci/conferences/us-gc1-green-chemistry.asp>

May 8-10, 2013 (New Brunswick, New Jersey, USA)

Green Chemistry and Commerce Council 8th Annual Innovators Roundtable
Website: <http://www.greenchemistryandcommerce.org/events.upcoming.php>

June 6-7, 2013 (Brussels, Belgium)

European Sustainable Chemistry Conference

Website: <http://chemicalwatch.com/10579/european-sustainable-chemistry-conference>

June 18-20, 2013 (Washington, D.C., USA)

17th Annual Green Chemistry and Engineering Conference

Website: <http://gcande.org/>

September 3-5, 2013 (New Forest, UK)

2nd International Conference on Sustainable Chemistry

Website: <http://www.wessex.ac.uk/13-conferences/sustainable-chemistry-2013.html>

GREEN CHEMISTRY NEWS AND INFORMATION

The Green Chemistry & Commerce Council Quarterly e-Newsletter

URL: <http://www.greenchemistryandcommerce.org/newsletters.php>

From their website: "A publication of the Lowell Center for Sustainable Production at the University of Massachusetts Lowell. Each issue of the newsletter provides current information about upcoming and ongoing GC3 activities, and news about green chemistry and design for environment."

News from ACS GCI: Nexus Newsletter September/October 2012 Issue

URL:

https://www.magnetmail.net/actions/email_web_version.cfm?recipient_id=1063602442&message_id=2339116&user_id=ACS1&group_id=915017&jobid=11581885

From their website: "The Nexus Newsletter is a bi-monthly newsletter. Dedicated to our readers, the Nexus newsletter is designed to connect the global green chemistry community, share information and support the ACS Green Chemistry Institute."

Advancing Green Chemistry

URL: <http://advancinggreenchemistry.org/>

From their website: "Our mission is to promote the development and adoption of Green Chemistry. Green Chemistry is the scientific foundation of greener products, a sustainable economy, and healthier people. AGC's role is to strengthen and promote the science and its practitioners, to link to strategic partners, and to highlight emerging opportunities for stakeholders. In short, AGC seeks to tip the balance in favor of broad support for – and wide adoption of – Green Chemistry."

Berkeley Center for Green Chemistry Newsletter

URL: <http://bcgc.berkeley.edu/bcgc-newsletter>

Green Centre Canada

URL: <http://www.greencentrecanada.com/news/>

From their website: "At GreenCentre Canada, we take a "hands on" approach to commercializing emerging Green Chemistry innovations originating from academia and

industry. Our job is to transform these breakthroughs into green products, services, and industries to enhance our quality of life and preserve our environment for existing and future generations.”

--

Julie A. Haack
Coordinator Green Product Design Network
Assistant Department Head and Senior Instructor
Department of Chemistry
1253 University of Oregon
Eugene, Oregon 97403

Email: jhaack@uoregon.edu
Phone: (541) 346-4604