

Next Steps in Green Chemistry Research

Preliminary Workshop Schedule



The Next Steps in Green Chemistry Research workshop is designed to provide students and post-docs with the next level of information required to move from a general understanding of green chemistry to the actual application of it in their own research and in their future careers. Speakers from both academia and industry will discuss a wide variety of topics, from mechanistic toxicology to green process chemistry at an industrial scale. A crash course will also be offered for those looking to brush up on or learn the basics of green chemistry before diving into the 2 day workshop.

All workshop events will take place on or near the University of Toronto St. George Campus in Toronto, Ontario, Canada. A limited number of travel scholarships will be available for participants coming from outside of Toronto. Please visit <http://www.chem.utoronto.ca/green/workshop.htm> for details about applying for a travel scholarship.

Important Registration Dates:

March 14th, 2014 (Deadline Extended) – Travel scholarship applications due

March 28th, 2014 – Advanced registration closes (\$60 CAD registration fee)

April 30th, 2014 – Regular registration closes (\$100 CAD registration fee)

Workshop registration can be completed online at the following link:

www.eventbrite.ca/e/next-steps-in-green-chemistry-research-workshop-tickets-10154896569

The registration fee includes lunch, coffee and snacks that will be provided as part of the workshop program on May 22nd and 23rd, 2014.

Below you will find the tentative schedule of events for the 2 day workshop, plus the optional crash course in green chemistry that will take place the evening before. A final schedule including specific times and locations will be sent out to registered participants prior to the event. Please note that the program may be subject to change.

Wednesday May 21, 2014: Crash Course in Green Chemistry (Optional), 6 – 8pm

This session is intended as a way for people who don't feel as familiar with green chemistry to catch up to the rest of the participants before the workshop starts. The basic principles of green chemistry and standard green metrics will be discussed.

Presented by:
Dr. Andrew Dicks
University of Toronto

Thursday May 22, 2014: Mechanistic Toxicology and Environmental Fate, 10am – 9:30pm

This portion of the workshop is intended to provide participants with a general idea of what makes certain molecules toxic and why. The idea is to create a framework on which to build research projects and make decisions in the lab about which chemicals to use.

Introduction/Overview Green Chemistry in Action

What is green chemistry? Why does it matter?

Presented by:
Dr. Rui Resendes
GreenCentre Canada

Molecular Structures and Toxicology

What common molecular structures or functional groups can cause harmful effects? What impacts does this have on making a process greener? How can it help guide chemical research?

Presented by:
Prof. Keith Solomon
University of Guelph

Environmental Fate of Common Chemicals

What types of compounds are very persistent in the environment? Why are they a problem? What common laboratory chemicals should we be aware of?

Presented by:
Prof. Scott Mabury
University of Toronto

Toxicology's Emerging Role in Sustainable Chemistry/Product Development: A Chemical Company's Perspective and Case Studies

An overview of Dow's strategy for early engagement of toxicology to advance the development of more sustainable products. Specific tools and case studies will be presented.

Presented by:
Dr. Pamela Spencer
The Dow Chemical
Company

Green Process Chemistry: Industry Example

A detailed example of a successful implementation of green chemistry on a large scale, with particular emphasis on the impact of green chemistry on the overall safety of the process and the company's bottom line.

Presented by:
Dr. Cameron Cowden
Merck & Co., Inc.

How to Start a Green Chemistry Group (GCI Case Study)

A formal explanation of how the GCI got started and what opportunities it has brought to our group members as well as a discussion of what tools are available for students starting new green chemistry groups.

Presented by:
Lyndsey Darling
GreenCentre Canada

Poster Session and Networking Event

This session is intended to give participants an opportunity to share their research and get feedback from peers and invited expert speakers on how they could improve from a green chemistry perspective.

Once you have registered for the workshop, we will contact you with information about how to sign up to present a poster and submit an abstract.

Friday May 23, 2014: Next Steps in Green Chemistry Research, 10am – 6pm

Experts in each field will present practical strategies to incorporate green chemistry into chemical research. Particular emphasis will be on actual results from the expert's own research and the thought process that lead them to make improvements and discoveries. Note: Sessions 1A & 1B, and 2A & 2B will run concurrently.

Session 1A: Materials/Nanochemistry

Prof. James Hutchison, University of Oregon

Since the field of materials and nanochemistry is largely application-driven, this session will focus on examples of how to make the device fabrication process and synthetic methods greener.

Session 1B: Organic Synthesis and Process Chemistry

Prof. Wei Zhang, University of Massachusetts, Boston

A discussion of the advantages of fluorinated organocatalysts compared to traditional transition metal and enzyme-based catalysts for asymmetric Diels-Alder, Michael additions, and one-pot syntheses.

Session 2A: Inorganic Catalysis

Prof. Robert Morris, University of Toronto

A discussion of an efficient base metal (Fe, Ni, Co) catalyst that can be used in a variety of organic transformations, in particular the strategies for incorporating green chemistry into ligand choices and design.

Session 2B: Applied Environmental/Analytical Chemistry

Dr. Tom Harner, Environment Canada

A discussion of passive air sampling techniques and how these are being used to support national and international chemical risk assessments. Case studies include mapping emissions from the waste sector, a global surveillance network measuring persistent organic pollutants, and ecosystem effects monitoring in the Alberta oil sands region.

Simple Techniques to Make Everyday Lab Work Greener

A "top 10 list" of simple changes in the lab that can have a real impact on the greenness of a reaction/process

Presented by:
U of T GCI Team

Solvent and Reagent Selection Guides Developed by GlaxoSmithKline

A discussion about the in-house development of solvent and reagent selection guides, giving a detailed explanation of how they can be used. Why the company felt it was important to develop such guides and how they are used by GSK research chemists will also be discussed.

Presented by:
Dr. Leanna Shuster
GlaxoSmithKline

Panel Discussion: Future of Green Chemistry in Academia and Industry

Experts from today's sessions will come together to discuss the best ways to solve the various problems and challenges facing green chemistry today.

Moderator:
Dr. Rui Resendes
GreenCentre Canada

Social: How to Start a Green Chemistry Group at Your Own University

This session is intended to cap off the 2 day workshop and provide an informal setting for participants to meet the members of the Green Chemistry Initiative (GCI). We will have a group discussion focused on our experience starting the GCI, how we did it and the challenges we have faced. Following that, members of the GCI will be available to answer any questions participants may have one-on-one.