



Room	8:30am-9:15am	9:30am-10:15am	
QNC 1501	Spiraling in first-year chemistry Jill Barker, Millbrook High School, VA	Are your students ready for first-year chemistry? Sue Stathopoulos and Rick Marta, University of Waterloo, ON	<h2 style="text-align: center;">Closing Ceremonies</h2> <p style="text-align: center;">HAGEY HALL</p> <p style="text-align: center;">“Serendipitous Chemistry”</p> <p style="text-align: center;">— Joe Schwarcz (10:30am - 12:00pm)</p>
ESC 342 (LAB)	Become a pharmaceutical chemist! Laura Ingram, University of Waterloo, ON		
B1 271	The farewell demonstrations Andy Cherkas, Stouffville DSS, ON		
MC 1056	Mini Sessions (no break, 8:30 to 10:15)		
	1. Moises Camacho 2. Moises Camacho 3. Oliver Grundmann 4. Christine Hermann	5. Nancy McKenzie 6. Rajeev Dabke 7. Karen Kaleuati with Marta Gmurczyk	
QNC 1506	Laboratory reports - Applied and university Robert O’Connell, Toronto District School Board, ON, with Brian Roche	At the edge of the curriculum; at the center of science Robert O’Connell, Toronto District School Board, ON, with Peter Bloch	
QNC 1507	Establish a biodiesel manufacturing club at your school! Allan Fluharty, Prosser Career Academy High School/Chicago Public Schools, IL	Science Olympiad 101 Jean Weaver, The Prairie School, WI	
QNC 2501	Motivate your students’ molecules! Al Hazari, University of Tennessee, TN	Survival skills for 1st-5th year HS chemistry teachers Doug Ragan, Hudsonville Public Schools, MI	
MC 2034	VSEPR, stoich and thermo: No fire without math Elizabeth Velikonja, Saint Ann’s School, NY, with Deborah Brock	Drawing Lewis dot structures - A student centered approach Kristen Hillert, Education Service Center, Region 13, TX Maximum participants: 30	
QNC 2502	Nanoscience & nanotechnology: Small materials with huge applications Jay Leitch, University of Guelph, ON	Nanotechnology engineering at the University of Waterloo Jenn Coggan, University of Waterloo, ON, with Howard Siu and Chris Backhouse	



8:30 AM

Single block sessions - 45 min

Spiraling in first-year chemistry

Jill Barker, barkerj@frederick.k12.va.us
Millbrook High School, VA

This session will explore the process, challenges, and outcomes of changing from a thematic-centered to a spiral-centered approach to teaching chemistry.

Presentation, single block - QNC 1501

Laboratory reports - Applied and university

Robert O'Connell,
robert.oconnell@utoronto.ca
Toronto District School Board, ON,
with Brian Roche

This presentation will demonstrate how the expectations of the curriculum and labs in many universities are met by using a modified lab format and reporting process. This model, originally developed six years ago with Barb Nixon, has since been implemented in grade 9 -10 science labs (applied and academic streams) and with senior chemistry labs.

Presentation, single block - QNC 1506

Establish a biodiesel manufacturing club at your school!

Allan Fluharty, afluharty@cps.edu
Prosser Career Academy High School/
Chicago Public Schools, IL

Explore how easy it is to create at your school a biodiesel manufacturing facility that helps students learn about chemistry, engineering, and an environmentally friendly alternative to fossil fuel.

Presentation, single block - QNC 1507

Motivate your students' molecules!

Al Hazari, ahazari@utk.edu
University of Tennessee, TN

As educators, it is our task to do our best to provide many opportunities that motivate and encourage student curiosity and enjoyment of the science of chemistry. Excellent everyday teaching, enthusiasm about the subject, and interest in students are but a few characteristics that are desirable and that are sure to enhance students' motivation. The presentation will include several ideas and strategies as well as a few simple hands-on activities.

Presentation, single block - QNC 2501

VSEPR, stoichiometry and thermo: No fire without math

Elizabeth Velikonja,
evelikonja@saintannsny.org
Saint Ann's School, NY,
with Deborah Brock

We'll present ideas for making VSEPR shapes come alive as well as chemical demonstrations that dramatically illustrate stoichiometry and thermodynamics.

Presentation, single block - MC 2034

Nanoscience and nanotechnology: small materials with huge applications

Jay Leitch, leitchj@uoguelph.ca
University of Guelph, ON

Nanotechnology is one of the fastest growing technological fields and is beginning to have an impact on numerous industries. Nanoscience is a multidisciplinary field that focuses on the unique physical/chemical properties of nanomaterials. So how can we teach this discipline to senior high school science students when these materials are too small to see by eye? This session will provide an overview of typical nanomaterials and their properties along with demonstrations and that would be appropriate for a senior biology, chemistry, or physics classroom in order to explain nanoscience.

Presentation, single block - QNC 2502

Double block sessions - 105 min

Become a pharmaceutical chemist!

Laura Ingram,
laura.ingram@uwaterloo.ca
University of Waterloo, ON

Tylenol is a widely used over-the-counter medicine because it is a powerful analgesic (relieves pain) and antipyretic (reduces fever). You will learn about the chemistry behind different over-the-counter medications, and will get a chance to synthesize and purify the chemical compound acetaminophen, the active pharmaceutical ingredient in Tylenol.

Workshop, double block - ESC 342

The farewell demonstrations

Andy Cherkas, cherkas@sympatico.ca
Stouffville DSS, ON

I will be retiring this year, so I will demonstrate 20 of my favourite demos and labs picked up from ChemEd and STAO conferences as well as those that I designed myself. All chemistry strands will be covered.

Presentation, double block - B1 271

*Mini sessions - 15 min
(8:30am-10:15am)*

Performance of college science majors on a categorizing grid of general chemistry compounds

Moises Camacho,
m_camacho_2001@yahoo.com
University of Puerto Rico, Puerto Rico

The categorizing grid is a classification technique in which concepts given randomly are categorized. The sample consisted of 100 students who had finished 8-24 credit hours of chemistry. It was expected that the group with 24 credit hours of chemistry would perform better than the group with 12 credit hours. There was no significant difference between the mean scores. Science education should promote genuine understanding beyond rote memorization.

Mini presentation - MC 1056



Performance of college science majors on the construction of conceptual map of matter

Moises Camacho,
m_camacho_2001@yahoo.com
University of Puerto Rico - Mayaguez Campus, Puerto Rico

The conceptual map is an assessment technique which consists of drawing the classes in which a macro concept given can be divided into its constituent subclasses until reaching the smallest indivisible subunits. This framework was given to a sample of about 60 subjects. The results were analyzed for two groups: those that had completed 16 hours of college chemistry and those which had completed 32 hours or more of college chemistry. There was no significant statistical difference between the mean scores of the two groups. About 90% of the students did not understand the nature of compounds and subclasses. Science should promote general understanding rather than memorization.

Mini presentation - MC 1056

Distance learning in graduate courses – Applications and tools in pharmaceutical chemistry

Oliver Grundmann, grundman@ufl.edu
University of Florida, FL

Several graduate programs have ventured into the realm of distance education with advancements in technology and content delivery. This presentation introduces the integration of virtual tools in this setting.

Mini presentation - MC 1056

Algorithmic questions for organic chemistry online assignments

Christine Hermann,
chermann@radford.edu
Radford University, VA

The writing of fill-in-the blank reactions, naming structures, and short answer questions as algorithmic Questions in WebAssign will be described.

Mini presentation - MC 1056

An integrated natural product extraction lab that promotes engagement and gives students ownership of their project

Nancy McKenzie,
nmckenzie@mcmaster.ca
McMaster University, ON

Students choose a natural product source (e.g., black pepper, daffodil bulbs) to extract. Their goal is to isolate a compound that may inhibit acetylcholinesterase, an enzyme involved in Alzheimer's disease.

Mini presentation - MC 1056

Combining chemistry with art: Employing acid-base indicators to illustrate the electrolysis of water

Rajeev Dabke,
dabke_rajeev@columbusstate.edu
Columbus State University, GA

An undergraduate classroom activity for illustrating electrolysis of water will be presented. The activity involves acid-base indicators and an electrolysis cell patterned on a vegetable-cutting board.

Mini presentation - MC 1056

Engaging students in chemistry outside the classroom: A look at the ChemClub

Karen Kaleuati, k_kaleuati@acs.org
American Chemical Society, DC,
with Marta Gmurczyk

The American Chemical Society (ACS) ChemClub is a high school chemistry club that provides students with a unique opportunity to experience chemistry beyond the classroom. Students from over 500 clubs learn every-day chemistry through hands-on activities, get involved in community projects, learn about chemistry careers, and enjoy social events, all while having fun. Join us to learn about this free and fast-growing program, and how you can easily start your own chemistry club with support and free resources from ACS.

Mini presentation - MC 1056

9:30 AM

Single block sessions - 45 min

Are your students ready for first-year chemistry?

Sue Stathopoulos and Rick Marta,
sckramer@uwaterloo.ca;
ramarta@uwaterloo.ca
University of Waterloo, ON

The transition from high school to university can be challenging for many students. As first year chemistry instructors we want to make this transition easier by providing our future students with knowledge and skills that will increase the possibility for success in university chemistry courses. In this interactive presentation we will highlight several important issues that we believe senior high school students should be made aware of before taking their first university chemistry course and lab.

Presentation, single block - QNC 1501

At the edge of the curriculum; At the center of science

Robert O'Connell,
robert.oconnell@utoronto.ca
Toronto District School Board, ON,
with Peter Bloch

This presentation covers the top 10 aspects of science research that our science teaching should include.

Presentation, single block - QNC 1506

Science Olympiad 101

Jean Weaver,
jweaver@prairieschool.com
The Prairie School, WI

Science Olympiad is an extracurricular science activity with events geared toward all sorts of students. Learn how contests are run and how even small schools can develop a strong program.

Presentation, single block - QNC 1507



Survival skills for 1st-5th year high school chemistry teachers

Doug Ragan, dragan@hpseagles.net
Hudsonville Public Schools, MI

Materials such as favorite lessons, labs, and other tricks of the trade will be shared with 1-5 yr high school chemistry teachers.

Presentation, single block - QNC 2501

Drawing Lewis dot structures – A student centered approach

Kristen Hillert,
kristen.hillert@esc13.txed.net
Education Service Center, Region 13, TX

Lead students to construct an understanding of Lewis dot structures by providing models and asking scaffolding questions. The student centered approach develops confidence and mastery of this foundational concept!

Workshop, single block - MC 2034

Nanotechnology engineering at the University of Waterloo

Jenn Coggan, jcoggan@uwaterloo.ca
University of Waterloo, ON,
with Howard Siu and Chris Backhouse

Nanotechnology Engineering is a multi-disciplinary engineering field that draws from and benefits areas such as materials science, engineering, chemistry, physics, biology, and medicine. Waterloo's Nanotechnology Engineering degree program is unique, and first-of-its-kind in North America. An introduction to nanotechnology will be presented along with an overview of the program. Emphasis will be placed on descriptions of the labs that are taught to the undergraduate students. To end, a tour of the new Mike and Ophelia Lazaridis Quantum-Nano Centre will be given.

Presentation, single block - QNC 2502

10:30 AM

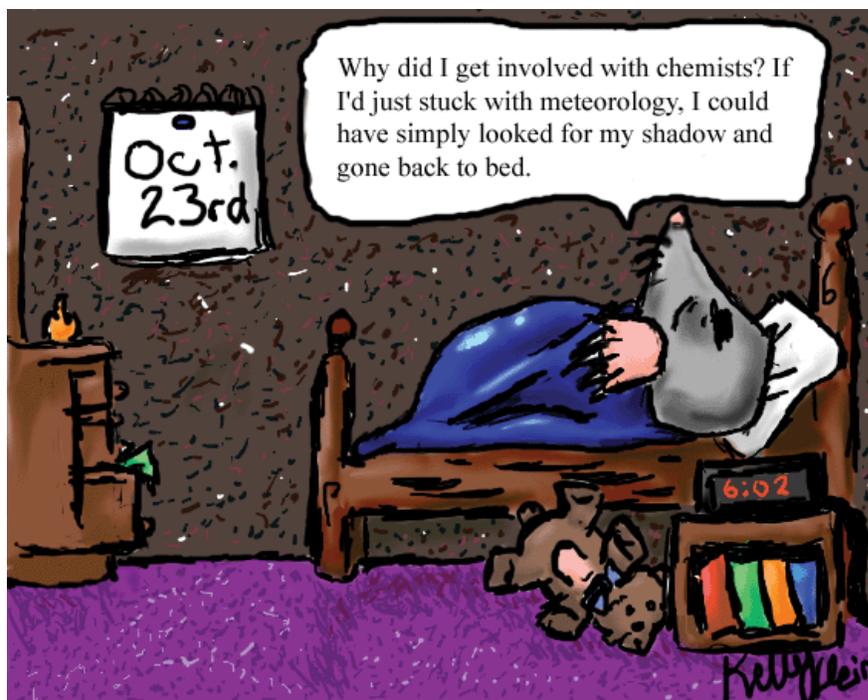
Closing Ceremonies

Serendipitous Chemistry

Joe Schwarcz, joe.schwarcz@mcgill.ca
McGill University, QC

Although many chemical discoveries have been the result of goal oriented research, there are a good number that have come about serendipitously. But as Louis Pasteur stated, "chance favours the prepared mind." William Perkin's chance discovery of synthetic dyes, Fleming's discovery of penicillin, Craven's discovery of aspirin's anti-clotting effect and the discovery of artificial sweeteners are just some of the examples to be explored.

Closing Ceremonies presentation - Hagey Hall



Illustrated by Kelly Hein, a grade 11 student at South Carleton High School in Richmond ON; idea by J.Hein