



Room	8:30am-9:15am	9:30am-10:15am	10:30am-11:15am
B1 266	Lab Safety Institute (LSI) (Ends at 12pm) Seminar James A. Kaufman, LSI President/CEO		
DC 1302	Student Centered Approaches to Teaching Chemistry Symposium Organized by Laura Trout Laura Trout, Lancaster Country Day School, PA Deborah Herrington, Grand Valley State University, MI Mare Sullivan, Bellevue Christian HS, WA Jim Ross, Ross Lattner Educational Consultants, ON		
ESC 146 (LAB)	Simple visible spectroscopy for introductory chemistry Sally Mitchell, East Syracuse Minoa Central High School, NY, with Gordon Bain Maximum participants: 24		
ESC 149 (LAB)	Teaching combustion in the high school chemistry classroom (Paid Workshop) Brian Rohrig, Jonathan Alder High School, OH		
C2 168 (LAB)		A microscale chemistry workshop Bob Worley, CLEAPSS, UK	
ESC 319 (LAB)		New investigations from the 6th edition of <i>Chemistry in the Community</i> Michael Mury, American Chemical Society, DC, with Pam Diaz, Cece Schwennsen, and Steve Long Maximum participants: 24	
DC 1304	Super chemistry connections (Paid Workshop) Al Hazari, University of Tennessee, TN		
C2 273 (LAB)	AP Chemistry activities with Ward's Science (Exhibitor Workshop) Paul Schneeberger, Ward's Science, NY		
QNC 1507	Hands-on stoichiometry Alice Dutton, McKinney High School, TX	Constructing stoichiometric understanding through LEGO Kenneth Hoffman, OISE/UT, ON, with Shirley Ng	
QNC 1502	Orbitals and chemistry Robert O'Connell, Toronto District School Board, ON	Beyond the Bohr model Dave Fish, Perimeter Institute for Theoretical Physics, ON	
QNC 1506	Using stories to teach science Patrice Pages, American Chemical Society, DC, with Marta Gmurczyk	Putting history back into chemistry Greg Patenaude, University of Lethbridge, AB	A matter of laws & theory Deborah Maloney, Hollis Brookline High School, NH
QNC 2501	Hands-on instead of worksheets Jamie Flint, Spring Woods High School, TX	Putting a bang into your teaching (Paid Workshop) Harvey Gendreau, Lab Safety Institute, MA, with Bette Bridges	
QNC 2502			AP Chemistry resources from the <i>Journal of Chemical Education</i> Deanna Cullen, JCE and Whitehall High School, MI, with Greg Rushton



Room	2:30pm-3:15pm	3:30pm-4:15pm	4:30pm-5:15 pm
B1 266	Lab Safety Institute (LSI) (Ends at 6pm) Seminar (continued) James A. Kaufman, LSI President/CEO		
QNC 1502	Flipping with chemistry apps Doug Ragan, Hudsonville High School, MI	Flipping the chemistry classroom Nicholas Key, John F. Ross CVI, ON, with David Greisman	You CAN teach an old dog new tricks Kathy Kitzmann, Mercy High School, MI
ESC 146 (LAB)	Visible spectroscopy for advanced placement or second course chemistry lab Sally Mitchell, East Syracuse Minoa Central High School, NY, with Gordon Bain Maximum participants: 24		
ESC 149 (LAB)	Mix it up! (Paid Workshop) Brian Rohrig, Jonathan Alder High School, OH		
C2 168 (LAB)	AP Chemistry: Guided inquiry labs using probeware (Exhibitor Workshop) Thomas Loschiavo, PASCO scientific, CA Maximum participants: 30	Lab activities for high school chemistry using the Vernier SpectroVis Plus spectrophotometer Aisling O'Connor, Fitchburg State University, MA, with Nicholas Ludden	
ESC 319 (LAB)	Inquiry problem based laboratory experiments Jesse Bernstein, Miami Country Day School, FL with Jeffery Bracken and Paul Price Maximum participants: 32		
DC 1304	Nitinol: The brainy wire (Paid Workshop) Al Hazari, University of Tennessee, TN		
DC 1302	Some old, some new favorites Patricia Vance, Science Education consultant, MI	Generations Symposium - Mentoring and learning together Organized by Andy Cherkas Presenters: Andy Cherkas, Cathy Cherkas, Ken Lyle, Natalie Miller, Sue Bober, Jill Stirling, Doug De La Matter, Faye Twiddy, Kathleen Holley, John Eix, Glen Vance, Meg Young, Shelley Abernathy, Shannon McGee, and Melissa Jones	
MC 1056	Technology makes STEM instruction a snap Greg Dodd, George Washington High School, WV Maximum participants: 30	Student presentations - How to debrief students after experiments Kevin Kopack, Lane Tech CPHS, IL	
QNC 1506	Concept mapping for chemistry Susan Klemmer, Camden Hills Regional High School, ME	Student-centered activities to reach children in high school chemistry Jasodhara Bhattacharya, Science Education Consultant, ON, with Omar Solomah Maximum participants: 30	
QNC 2502		Virtual Researcher On Call (VROC) experts on demand – real-time connections with experts (Exhibitor Workshop) Zoe Letwin, VROC Outreach Coordinator, ON	In situ environmental analysis: See portable gas chromatography-mass spectrometry (GC-MS) at work Jonathan Grandy, University of Waterloo, ON, with Angel Rodriguez-Lafuente Maximum participants: 30
ESC 342 (LAB)	Mini-labware earrings (PW) Melissa Jones, retired, TX, with Meg Young and Shelley Abernathy	“Nanodization” of titanium jewelry Ricky Tjandra, Engineering Science Quest, University of Waterloo, ON	Prince Rupert’s Drops: Glass stronger than steel! Steve Long, Rogers High School, AR Maximum participants: 30
C2 160 (COM. LAB)	The 21st century learner in the chemistry classroom Mahfuza Rahman West Humber C.I., ON		The first e-textbook software approved by the College Board for A.P. Chem Ketan Trivedi, Trivedi Chemistry, VA



AP Chemistry activities with Ward's Science

Paul Schneeberger,
noel.vache@vwr.com
Ward's Science, NY

Concerned about the new standards requirements coming to your AP Chemistry course? Ward's Science is here to help you make a seamless transition. Join us in this hands-on workshop to discover 16 all-new Ward's AP Chemistry Investigations that are aligned with new College Board requirements for AP Chemistry released in February 2013, and ready to use right out of the box. Not an AP Chemistry teacher? Stop by to see how these kits can also help you save time in your general chemistry class. Ward's chemistry experts will guide you step-by-step and answer your toughest questions.

Exhibitor Workshop, double block - C2 273

Triple block sessions - 165 min

Simple visible spectroscopy for introductory chemistry

Sally Mitchell,
sbmitchell2@gmail.com
East Syracuse Minoa Central High School, NY,
with Gordon Bain

Get hands on experience with two simple lab experiments designed to help your students learn using a low cost scanning spectrophotometer.

1. Qualitative analysis – examine pure dyes as standards and then identify those same dyes in foodstuffs.
2. Quantitative analysis – use standard solutions to make a Beer's Law plot and determine the concentration of dye in a sports drink.

All teacher and student materials are supplied for you to take away and copy for your use.

Workshop, triple block - ESC 146

Teaching combustion in the high school classroom

Brian Rohrig,
brohrig@columbus.rr.com
Jonathan Alder High School, OH

Discover how to develop a combustion unit for the high school classroom and safely perform a variety of dramatic combustion reactions. Each participant receives a bound manual and supplies.

Paid Workshop, triple block - ESC 149

9:30 AM

Single block sessions - 45 min

Putting history back into chemistry

Greg Patenaude,
greg.patenaude@uleth.ca
University of Lethbridge, AB

History of chemistry courses are uncommon if not rare in Canada. This talk will focus on the design, delivery, and details of this course along with a brief summary on the successes and failures encountered thus far.

Presentation, single block - QNC 1506

Double block sessions - 105 min

A microscale chemistry workshop

Bob Worley, bobworley4@gmail.com
CLEAPSS, Hanwell, UK

Prepare to be amazed by Bob from the UK with practical chemistry and some demonstrations illustrating basic chemical reactions, electrolysis, electrode potentials, titrations and mole calculations.

Workshop, double block - C2 168

New investigations from the 6th edition of *Chemistry in the Community*

Michael Mury, m_mury@acs.org
American Chemical Society, DC,
with Pam Diaz, Cece Schwennsen, and Steve Long

The newest edition of *Chemistry in the Community* includes many changes including reorganization of the lab investigations. Here, you will complete several of the new lab investigations.

Workshop, double block - ESC 319

Constructing stoichiometric understanding through LEGO

Kenneth Hoffman,
ken.hoffman@mail.utoronto.ca
OISE/UT, ON,
with Shirley Ng

This workshop will present five hands-on activities leveraging student fluency with LEGO® bricks to improve student learning of stoichiometry. The rationale for using LEGO® bricks will also be addressed.

Workshop, double block - QNC 1507

Beyond the Bohr model

Dave Fish, dfish@pitp.ca
Perimeter Institute for Theoretical Physics, ON

The Bohr-Rutherford model of the atom is useful but wrong. Let your students develop a quantum model of the atom through a series of simple demonstrations exploring different models of the atom.

Workshop, double block - QNC 1502



Putting a bang into your teaching

Harvey Gendreau,
hgendreau@rcn.com
Lab Safety Institute, MA,
with Bette Bridges

This is a hands-on make-and-take workshop where the participants will create: 1) a piezo sparker for remote ignition, 2) a potato gun for illustrating Boyle's Law, 3) a small sock cannon to demonstrate combustion reactions and other topics. With safety as a prime consideration, this will put excitement in your demos!

Paid Workshop, double block - QNC 2501

10:30 AM

Single block sessions - 45 min

A matter of laws and theory

Deborah Maloney,
deborah.maloney@sau41.org
Hollis Brookline High School, NH

Explore the laws supporting atomic theory. Using only mass relationships, without knowledge of formulas, follow the steps of early scientists in answering the question: how do we know atoms exist?

Presentation, single block - QNC 1506

AP Chemistry resources from the *Journal of Chemical Education*

Deanna Cullen, dcullen@jce.acs.org
Journal of Chemical Education and Whitehall High School, MI,
with Greg Rushton

The *Journal of Chemical Education* provides a wealth of resources for AP Chemistry teachers. We will share some of those resources, aligned to the new Framework, including materials from JCE's recent thematic issue: Editor-Selected Articles for the High School AP Chemistry Classroom.

Presentation, single block - QNC 2502

2:30 PM

Single block sessions - 45 min

Flipping with chemistry apps

Doug Ragan, dragan@hpseagles.net
Hudsonville High School, MI

Allow me to demonstrate the capabilities of some Chemistry iPad apps and their use in my flipped classroom.

Presentation, single block - QNC 1502

Some old, some new favorites

Patricia Vance, pat@vance.com
Sci Ed consultant, MI

A look back at a retired chemistry teacher's favorite activities and labs, along with some new "tricks" she has learned while training and observing teachers.

Presentation, single block - DC 1302

Mini-labware earrings

Melissa Jones,
mdjchem@yahoo.com (retired), TX,
with Meg Young and Shelley Abernathy

Participants will be given the opportunity to make earrings from mini-gas collecting bottles, Erlenmeyer flask, or flat bottomed-test tubes. Opportunities to also make shrink-a-ding earrings will be available.

Paid Workshop, single block - ESC 342

The 21st century learner in the chemistry classroom

Mahfuza Rahman,
mahfuza.rahman@gmail.com
West Humber Collegiate Institute, ON

Colleagues will gain an understanding of digital natives and digital immigrants and how to incorporate this understanding into the chemistry classroom. Ideas for incorporating technology into the chemistry classroom will be shared (i.e., Gizmos, Chem Collective, TedEd, Comic Strip, etc.) along with sample student-made films and resources that can be used in their own classrooms.

Workshop, single block - C2 160

Double block sessions - 105 min

AP Chemistry: Guided inquiry labs using probeware

Thomas Loschiavo,
loschiavo@pasco.com
PASCO scientific, CA

Explore a guided-inquiry lab for AP Chemistry based on the POGIL approach. Discover how your students can meet AP requirements while gaining a deeper understanding of the chemistry content.

Exhibitor Workshop, double block - C2 168

Nitinol: The brainy wire

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

Come and learn about Nitinol, an interesting nickel-titanium alloy wire that's got memory, and its several everyday life applications.

Paid Workshop, double block - DC 1304

Technology makes STEM instruction a snap

Greg Dodd, gbdodd@gmail.com
George Washington High School, WV

The Next Generation Science Standards emphasize the need for the integration of STEM instruction in the science classroom. The goal of this hands-on workshop is to make STEM Instruction cross-curricular through the use of technology.

Workshop, double block - MC 1056

Concept mapping for chemistry

Susan Klemmer,
sue_klemmer@fivetowns.net
Camden Hills Regional High School, ME

This presentation offers a "how to" on teaching students to make and edit concept maps, ways to use maps for formative assessment and improved reading comprehension, and map technology. See student maps and make your own!

Workshop, double block - QNC 1506



Triple block sessions - 165 min

Visible spectroscopy for advanced placement or second course chemistry lab

Sally Mitchell, sbmitchell2@gmail.com
East Syracuse Minoa Central High School, NY,
with Gordon Bain

Use your spectrophotometer to monitor concentrations over time to study kinetics, and equilibrium as a function of temperature. The experiments will be described for both modern array-detector instruments and older SPEC 20 style units. All teacher and student materials are supplied for you to take away and copy for your use.

Workshop, triple block - ESC 146

Mix it up!

Brian Rohrig, blrohrig@columbus.rr.com
Jonathan Alder High School, OH

Discover new and innovative ways to teach about solutions, suspensions, colloids, polarity, detergents and acids/bases. The use of polymers to teach mixtures will also be included. Participants will receive a manual and supplies.

Paid Workshop, triple block - ESC 149

Inquiry problem based laboratory experiments

Jesse Bernstein, bernsteinj@miamicountryday.org
Miami Country Day School, FL,
with Jeffrey Bracken and Paul Price

Here's a lab manual that expects students to think before they experiment! No more "what is the right answer" questions. Our lab manual is NOT a cookbook. This workshop allows you to experience a number of labs. In addition, the manual (available for purchase) contains detailed teacher notes, setup pictures, and a fully editable manual on CD.

Workshop, triple block - ESC 319

3:30 PM - 5:15 PM

Symposium - Generations

Is the beaker full?

Andy Cherkas, cherkas@sympatico.ca
Stouffville District Secondary School, ON, with Cathy Cherkas

Demonstrations to help show that there are spaces between particles as proposed by the particle [entity] theory of matter.

Mini presentation - DC 1302

Redox reactions

John Eix, jeix@sympatico.ca
Upper Canada College (retired), ON, with Glen Vance

Electrolysis of copper(II) chloride and LED Christmas lights.

Mini presentation - DC 1302

Star Wars

Ken Lyle, kenneth.lyle@duke.edu
Duke University, NC,
with Sue Bober, Jill Stirling,
and Natalie Miller

We will do a series of demonstrations to the music from one of the Star Wars movies.

Mini presentation - DC 1302

A Mentos-free fountain

Doug De La Matter, doug@dougdelamatter.com
(retired), ON

A fountain demo (no toxic ingredients) done with or without UV light shining on the presenter.

Mini presentation - DC 1302

Mentoring the next generation of pyros

Kathleen Holley, kkholley@yahoo.com
M. B. Lamar High School, TX,
with Shannon McGee

Meet a member of the next generation of pyrotechnics-loving (and VERY safety-conscious) outstanding chemistry demonstrators!

Mini presentation - DC 1302

Safety with grease fires

Faye Twiddy, faye.twiddy@yrdsb.edu.on.ca
York Region District School Board, ON, with Andy Cherkas

I will melt candle wax onto a tin can and heat it until the wax has melted. I will then squirt water onto the wax. This shows what happens when water is used to put out a fire made of something that does not mix with water.

Mini presentation - DC 1302

Playing with fire

Glen Vance, gvance@ucc.on.ca
Upper Canada College, ON,
with John Eix

Brought to you by the Energy Liberation Front (ELF): Various mechanisms for the liberation of energy from bondage.

Mini presentation - DC 1302

Fire up for chemistry

Meg Young, megyoung@gmail.com
(retired), TX. with Melissa Jones
and Shelley Abernathy

This is a demonstration using a 50% alcohol/water solution and a cotton handkerchief that is soaked in the solution. Holding the handkerchief with tongs, it will be lit on fire. The handkerchief survives unharmed. Audience performs a cheer with demo.

Mini presentation - DC 1302



3:30 PM

Single block sessions - 45 min

Flipping the chemistry classroom

Nicholas Key,
nicholas.key@ugdsb.on.ca
John F Ross CVI, ON,
with David Greisman

Follow us through our first year of implementing a flipped classroom model of teaching. We will discuss the ups, downs, tech requirements and reflections on teaching with this method.

Presentation, single block - QNC 1502

Virtual Researcher On Call (VROC) experts on demand – real time connections with chemistry experts

Zoe Letwin, sjoyce@pirweb.org
VROC, ON

Looking for an inexpensive (or free!) way to connect your classroom with Chemistry researchers and professionals? With Virtual Researcher On Call (VROC), your students can get their questions answered by these experts in real-time. This session will show you what it's like to connect through online video with VROC's Chemistry experts. Although it's not necessary, you can bring your own tablet/laptop/phone to start exploring VROC's network of experts. Together, we can provide your students with a unique, interactive experience!

Exhibitor Workshop, single block - QNC 2502

“Nanodization” titanium jewelry

Ricky Tjandra, satellite@esqcamp.ca
University of Waterloo, ON

Participants will engage in the process of titanium anodizing to display the various uses of nanotechnology in our everyday lives. Participants will create an object out of titanium and change its colour by anodizing it in a homemade anodizing tank.

Workshop, single block - ESC 342

4:30 PM

Single block sessions - 45 min

You CAN teach an old dog new tricks

Kathy Kitzmann, kathyk@sefmd.org
Mercy High School, MI

The presenter will share a few of her tried and true favorite classroom and lab activities, but will also share some of the new things she has been learning about ... the flipped classroom, iPad use, on-line homework, guided inquiry, and more!

Presentation, single block - QNC 1502

Lab activities for high school chemistry using the Vernier SpectroVis Plus spectrophotometer

Aisling O'Connor,
aoconn13@fitchburgstate.edu
Fitchburg State University, MA,
with Nicholas Ludden

Labs illustrating spectrophotometry and other principles appropriate to grade 9-12 chemistry students will be discussed. These include qualitative and quantitative techniques such as establishing a standard calibration curve to find the concentration of unknowns, comparing absorption/emission spectra and kinetics experiments.

Presentation, single block - C2 168

Student-centred activities to reach more children in high school chemistry

Jasodhara Bhattacharya,
jasodhara.alchemistress@gmail.com
Science Education Consultant, ON,
with Omar Solomah

Representations, concept attainment, concept-maps, problem-solving maps and global issues: experience and take away multiple small-group activities for grade 9 through 12 chemistry classrooms to impact student understanding, participation and achievement.

Workshop, single block - QNC 1506

In situ environmental analysis: See portable gas chromatography-mass spectrometry (GC-MS) at work

Jonathan Grandy,
jgrandy@uwaterloo.ca
University of Waterloo, ON,
with Angel Rodriguez-Lafuente

During this workshop we will be demonstrating the capabilities of portable gas chromatography-mass spectrometry instrumentation. Solid phase microextraction will be used to extract environmental pollutants from a previously contaminated water sample. Participants will be given an opportunity to perform an analysis themselves, after a demonstration has been performed.

Workshop, single block - QNC 2502

Student presentations – How to debrief students after experiments to improve content understanding

Kevin Kopack, yogtofu@gmail.com
Lane Tech College Prep High School, IL

This presentation will demonstrate how to implement student presentations in order to assess students' understanding of laboratory assignments. This session will highlight how student-led summaries of laboratory experiences cement understanding and improve public speaking/presentation skills.

Presentation, single block - MC 1056



The first e-textbook software approved by the College Board for AP Chemistry

Ketan Trivedi,
Ketan@TrivediChemistry.com
Trivedi Chemistry, VA

Approved by the College Board as the first Electronic Software text, this multimedia, interactive software teaches college chemistry. It is current to the 2013/14 AP Chemistry curriculum. It is the only software available on a flash drive.

Presentation, single block - C2 160

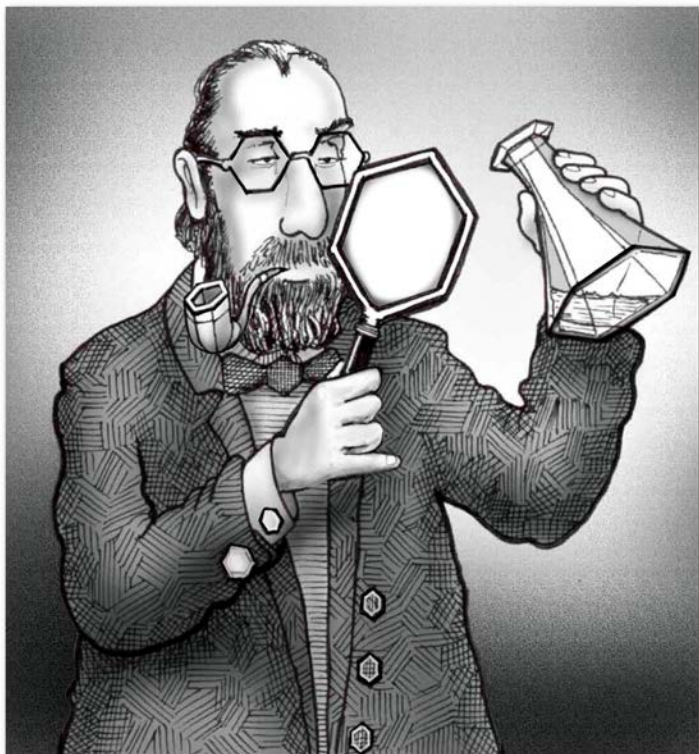
Prince Rupert's Drops: Glass stronger than steel!

Steve Long, stevejlong@gmail.com
Rogers High School, AR

What are Prince Rupert's Drops, and are they really stronger than steel? Find out as we look at a brief history of the drops — how they are made, why they behave as they do (magicians call them Dragon's Tears), and how they fit into your curriculum. The drops will be demonstrated and they are amazing. Some participants will have an opportunity to make and test their own Prince Rupert's Drops.

Presentation/Workshop, single block - ESC 342

GREAT EVENTS IN CHEMISTRY



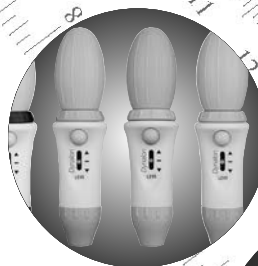
1865: Kekulé, moments before his brilliant insight into the structure of benzene.

Cartoon by: Nick Kim (Nearing Zero)

Measure success with

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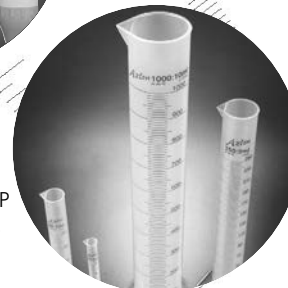
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