

2008

**16th Annual
WCCTA Conference
October, 16 -18**

**Sleeping Lady
Leavenworth, WA**

Hosting Institution

Shoreline Community College – Shoreline, WA

Karen Kreutzer, Linda Kuehnert, David Phippen, Amar Yahiaoui

Special thanks to Carole Berg for all her help with the conference.

2008 WCCTA Fall Conference

Conference Program

Thursday, October 16th

3:00 – 10:00 pm	Check-In Sleeping Lady Main Office	Conference Registration Woodpecker
4:30 – 6:00 pm	Informal Gathering Grotto Bar	
6:00 – 7:00 pm	Dinner Kingfisher Dining Lodge	
7:00 – 10:00 pm	Evening Social, No-Host Bar Grotto Bar	

Friday Morning, October 17th

7:30 – 8:30 am	Breakfast Kingfisher Dining Lodge		
8:45 – 9:00 am	Welcome Opening Session: Karen Kreutzer, Shoreline Community College Chapel Theatre		
9:00 – 10:00 am	Keynote Address – Chapel Theatre Dr. Cathy Middlecamp, University of Wisconsin-Madison “We Are Teaching As If ...?”		
10:00 – 10:45 am	Vendor Break Salmon Gallery - Chapel Theatre		
	Flicker	Woodpecker	Chapel Theatre
11:00 – 11:25 am	Stacey Fiddler & Jennie Mayer, Portland CC & Bellevue CC “More Effective Group Work: Use of Guided-Inquiry to Increase Student Interaction”	Dharshi Bopegedera, The Evergreen State College “Making Interdisciplinary Connections: Where Chemistry Makes a Difference”	Kathy Carrigan, Portland CC “Follow up on the distance learning GOB at PCC”
11:30 – 11:55 am		Renee Most, PASCO Scientific “Cultivate Comprehension in College Chemistry with PASCO”	
12:00 – 1:00 pm	Lunch Kingfisher Dining Lodge		

Lab Tour:
USDA-ARS Tree Fruit Research Lab, Wenatchee
Jim Mattheis (15-20 people by carpools)

Friday Afternoon, October 17th

1:00 – 1:45 pm	Vendor Break Salmon Gallery - Chapel Theatre		
	Flicker	Woodpecker	Chapel Theatre
2:00 – 2:25 pm	Dave Reichgott, Cascadia CC “Outcome-Oriented Learning of Redox Equations”	George Kriz & Natalia DeKalb, Western Wash. “Enhancing Students’ Understanding of NMR Analysis using the Integrated Laboratory Network”	Andrei Straumanis, UW “POGIL Mini-Workshop” Lab Tour: USDA-ARS Tree Fruit Research Lab, Wenatchee Jim Mattheis (15-20 people by carpools)
2:30 – 2:55 pm	John Thompson, Lane CC “Revising General Chemistry Labs for a Green Curriculum”	Paul Frazey, Whatcom CC “Remote Instrumentation: Providing New Opportunities for Students and Faculty at the Community College”	
3:00 – 3:25 pm	Deanna Dahlke Ojennus, Whitworth University “Examination of Protein Diseases in a Health-Science Chemistry Course”		
3:30 – 4:25 pm		Dr. Cathy Middlecamp, University of Wisconsin-Madison “Teaching/Learning about Air Quality”	
4:30 – 6:30 pm	Break: Free Time!		
6:30 – 7:30 pm	Dinner Kingfisher Dining Lodge		
8:00 – 9:00 pm	After-Dinner Talk: Andy McShea, Theo Chocolate <i>“A Light-Hearted Look at the Chemistry of Chocolate”</i> Woodpecker		
9:00 pm – 11:00 pm.	Evening Social, No-Host Bar Woodpecker		

Saturday, October 18th

8:00 – 9:00 am	Breakfast Kingfisher Dining Lodge	
	Flicker	Woodpecker
9:10 – 9:35 am	Vicky Minderhout, Seattle University “Open-Ended Problem Solving, the Learning Cycle and POGIL”	Karen Stevens, Whitworth University “Use of a Placement Test to Determine Enrollment in First Year Chemistry Courses”
9:40 – 10:30 am	Roundtable: General Chemistry Discussion	Roundtable: GOB and Organic Chemistry Discussion
10:30 – 11:00 am	Break Check-Out by 11am	
11:00 – 11:45 am	Business Meeting Woodpecker	
12:00 – 1:00 pm	Lunch Kingfisher Dining Lodge	
1:00 pm	Have a safe drive home!	

Keynote Address

Dr. Cathy Middlecamp, University of Wisconsin-Madison.

We Are Teaching As If ...?

In teaching general chemistry, if not in teaching chemistry at every level, it makes good sense to connect: (1) our vision of the teaching/learning process; (2) our students and what they care about; and (3) our planet and the urgent challenges it presents to us. One way to expose the connections (or lack thereof) between these three items is to pose the question "As if...?" We teach our students as if WHAT?

I suggest that we currently teach our students as if the foundation of chemical knowledge needs to be carefully built in our introductory courses, so that later down the road students will get to the larger exciting (and sometimes troubling) issues in our world. However, I believe that "down the road" is too late. Right from the first year, we both need to and can incorporate the concerns of our students and address urgent global challenges we face. Such a vision of teaching closely links the concerns of our students and the planet on which we live. This presentation will incorporate ideas from two national curriculum reform projects (Chemistry in Context and SENCER) in the light of what they can offer to the first year chemistry curriculum for both non-science and science majors.

About the Presenter

Dr. Cathy Middlecamp is in the Department of Chemistry at the University of Wisconsin-Madison. She is a Distinguished Faculty Associate and the Director of the Chemistry Learning Center.

For over a decade, Middlecamp has been a member of the author team of *Chemistry in Context*, a project of the American Chemical Society. In 2007, she was appointed as the Editor-in-Chief for the 7th edition and has served as the lead author on the chapters on air quality, acid rain, polymers, and nuclear chemistry.

Other recent accomplishments of hers include the 2006 National Award of the American Chemical Society for Encouraging Women in Careers in the Chemical Sciences, being elected as a Fellow of the American Association for the Advancement of Science (2003), and a Fellow of the Association for Women in Science (AWIS, 2003) and also the Secretary on the National Executive Board of AWIS. At her own institution, she also has won numerous awards, including one state-wide for excellence in teaching.

Middlecamp did her undergraduate studies at Cornell University, graduating Phi Beta Kappa. She received a Danforth Fellowship for graduate study, earning her doctorate in Chemistry from the University of Wisconsin-Madison in 1976. She also holds a masters degree in Education.

Abstracts

Friday Evening After-Dinner Talk

Andy McShea, Theo Chocolate

“A Light-Hearted Look at the Chemistry of Chocolate”

Part 1: The consumption of high cacao content chocolate has been associated with positive health benefits ascribed to polyphenolic antioxidants. Recent reports have also implied that not all dark chocolate are created equal. We investigate what is really going in to your chocolate bar!

Part 2: Recent advances in analytical techniques have provided insight into the molecular composition of Chocolate. The chemistry of Chocolate changes significantly during the fermentation, roasting, milling, and conching process of Chocolate making. We review the steps of industrial chocolate making in detail and investigate how modern analytical techniques have provided a unique insight into the 400 or so molecules that make up the complex flavors in chocolate.

Stacey Fiddler and Jennie Mayer, Portland CC and Bellevue CC

“More Effective Group Work: The Use of Guided-Inquiry to Increase Student Interaction”

Do you have groups that are quiet? Is there little or no interaction within groups? Do you feel overwhelmed when lots of students need help at the same time?

Students learn the most when they teach others. How do we get our students to teach each other? Designing inquiry-based activities can be a good starting point for encouraging discussions in groups. But it must also be accompanied by a structure that allows the silence to be broken. Assigning student roles gives students some responsibilities that prevent independent work. Certain techniques and instructions can be given to keep everyone in the group on the same page. Self-assessments can track improvements in group performance and prompt students to reflect on their own learning..

This session will focus on two main areas of guided inquiry learning. The first is on the materials, published and unpublished. The other focus is on the role of the instructor and what happens during group work to keep students engaged.

The recent formation of a Northwest network of teachers using process oriented guided inquiry may provide some resources for those of you who need activities (and need them now!). The group can also serve as an on-going resource for classroom observations, other workshops, and a national network of peers. In no time, your problem will be to keep the students quiet!

Kathy Carrigan, Portland CC

ELIMINATE REQUIREMENTS OFFICE/TECHNICAL

“Follow up on the distance learning GOB at Portland Community College”

Last year I took a 2 term sabbatical to develop a distance learning GOB course at PCC. This a total DL course including a “Hands on Lab” experience performed at home. I plan to provide an update showing the course and how we a running it. I will bring the lab kit and copies of our lab submissions. I will demonstrate how I am able to run live office hours using my tablet laptop and white board (as a dry erase board) with “elluminate”. I will compare the course I am teaching on campus now, with the same course I am teaching as a DL course now. I hope to address all of the questions and topics you asked at last year’s session when I asked for your ideas.

AT Home & SCIENCE

Dharshi Bopegedera, The Evergreen State College

“Making Interdisciplinary Connections – Where Chemistry Makes a Difference”

We all know that chemistry is the central science. We proclaim this everyday as we teach in our classrooms. In today’s world where interdisciplinary teaching is not only popular, but very much a necessity, can the central science help us make connections between disciplines? Having taught for 17 years at a college that prides itself on a curriculum that is primarily interdisciplinary in nature, I would like to share some of my successful “teaching and learning moments” where chemistry made all the difference in making connections between disciplines. These teaching moments include interdisciplinary programs at the introductory (majors and non-majors), intermediate, as well as upper level classes.

Renee Most, PASCO

“Cultivate Comprehension in College Chemistry with PASCO”

What if your students performed traditional chemistry experiments however, they were more engaged and improved their comprehension of challenging chemistry concepts? Learn how digital instrumentation can be used to create a more meaningful chemistry learning environment. Find out how compact, rugged and relatively inexpensive these systems are today.

Dave Reichgott, Cascadia Community College

“Outcome-Oriented Learning of Redox Equations”

Where do most of our students use Redox equations? It varies, but for most they are used in Cellular Biology, Organic and Biochemistry. In these applications, the oxidation number method may be difficult to use or possibly be misleading. So why do we teach the oxidation number method in the balancing of Redox equations? Come learn a time-saving alternative to the oxidation number method that stresses identifying electrons as reactants and products in half reactions and applying critical thinking to the use of tables of half reactions for balancing. A Guided Inquiry worksheet can be taken away as a resource.

John Thompson, Lane Community College

“Revising General Chemistry Labs for a Green Curriculum”

The Lane Community College chemistry faculty are revising our general chemistry laboratory curriculum to make it a green curriculum. In this project we will assess the labs we currently use, revise labs that are already green to clearly communicate the green message, and develop new green labs. We are specifically targeting experiments that will introduce green chemical approaches while simultaneously teaching essential chemical concepts and techniques, thereby addressing head-on the issue of “content overload” in introductory courses. Our goal is to provide content-rich laboratory modules to those wanting to adopt green experiments, in order to facilitate an easier transition to a green curriculum.

Deanna Dahlke Ojennus, Whitworth University

“Examination of Protein Diseases in a Health-Science Chemistry Course”

In an effort to increase classroom engagement in a health-science chemistry course for non-majors, students were asked to examine proteins implicated in several human diseases using molecular visualization software. For example, the progression of Alzheimer's disease is characterized by the formation of amyloid plaques within the tissue of the central nervous system. Although the plaques are composed of a protein fragment believed to be highly alpha-helical in its native form, the amyloid fibers themselves are insoluble beta-sheet structures. A hands-on activity in which students manipulated the structures of these proteins in three-dimensional space provided an engaging introduction to the different levels of protein structure and the intra-molecular interactions that stabilize them.

George S. Kriz and Natalia C. DeKalb, Western Washington University

“Enhancing Students' Understanding of NMR Analysis using the Integrated Laboratory Network”

TUTORIALS ONLINE - DOWNLOAD TO USB AS AT CANADIAN UNIVERSITY

The development of a remote-access system that allows students to obtain real-time nuclear magnetic resonance results from remote locations will be described. Students are able to log onto the Western Washington University NMR instrument, located in the Chemistry Department, using remote connection software. A series of on-screen tutorials have been developed to lead students through each step of setting up and tuning the instrument, obtaining the spectrum, optimize and calibrate their spectra using their own actual sample. An evaluation of the learning benefits that accompany this method will be discussed, as well as long-term goals for this project.

Paul Frazey, Whatcom Community College

“Remote Instrumentation: Providing New Opportunities for Students and Faculty at the Community College”

ILN AT WESTERN

How do we know what we know about molecules? How are complex mixtures analyzed? How are molecular weights measured? How are the structures of molecules determined? Although classical methods of analysis give us some molecular information, advanced scientific instrumentation (chromatographs, mass spectrometers, NMR spectrometers) provides some of the best information that we have about molecules? So, why don't we use this instrumentation to teach students about molecules at the early stages of their education in chemistry? Money and time. The cost of purchasing and maintaining advanced scientific instrumentation is beyond the budgets of most high schools and community colleges. Many universities are able to use research money to purchase advanced instrumentation, and some undergraduates may gain experience with this instrumentation in their upper-level courses. Trying to incorporate instrumentation in a general chemistry course with hundreds of students seems logistically impossible within the confines of a 3-hour lab period. What if students could access the instrumentation on their own time outside of class? Remote instrumentation provides this opportunity. The Integrated Laboratory Network (ILN) is an initiative to provide anytime/anyplace access to advanced scientific instrumentation and supporting instructional resources through web-based technologies. This talk will provide background information on the ILN, demonstrate some of its capabilities, and describe how remote instrumentation was incorporated into the general chemistry curriculum at Whatcom Community College.

"TEAM VIEWER" "SOVVOO" - ALDIA KRIS
USB - SHARE DESKTOPS
WITHOUT DOWNLOADING SOFTWARE

Andrei Straumanis, University of Washington

“POGIL Mini-Workshop”

As a founder of the POGIL Project, I am a temporary member of the NW Chemistry community due to a 2 year project to adapt POGIL to 400 student sections of organic chemistry at UW. I am discovering some very interesting and perhaps generally applicable things about use of POGIL in any size classroom, and I have received feedback from your community that WCCTA might be a good venue to share some of these ideas.

Please join me for a 90 minute mini-workshop on POGIL. This would be a highly interactive block of time with little (hypocritical) lecturing about a lectureless teaching method.

Vicky Minderhout, Seattle University

“Open-Ended Problem Solving, the Learning Cycle and POGIL”

Problem solving is a skill all chemistry faculty hope to instill in their students. However, how does it mesh with active learning strategies we are using and what is the best way to “teach” problem solving? POGIL and its use of the learning cycle framework are strong at promoting concept development. The learning cycle stages of exploration, concept invention and application provide some opportunities to apply learned concepts in order to build meaning associated with the concept and this builds some problem solving skills. But explicit problem solving is not a normal component of the standard learning cycle activity. Problem solving is a process rather than a concept. Coaching problem solving process requires student to follow a methodology and is especially important for novices who are inexperienced problem solvers. New active learning materials are available for general chemistry and biochemistry that explicitly teach the process of problem solving. The generic approach will be discussed and the materials will be available for review.

Karen Stevens, Whitworth University

“Use of a Placement Test to Determine Enrollment in First Year Chemistry Courses: Analysis of Graduation Patterns and Student Successes”

The results of a placement test for entrance to Introductory Chemistry, General Chemistry or Honors General Chemistry at a small liberal arts college are discussed. Students not passing the placement test were required to take Introductory Chemistry. The Honors General Chemistry section had a focus of Environmental Chemistry and students were placed into that section based on earning high scores on the placement test. Students in each section were tracked to see the result of placement into the Honors/Environment section on subsequent graduation patterns (chemistry graduates vs. non-chemistry graduates).

Dr. Cathy Middlecamp, University of Wisconsin-Madison.

Teaching/Learning about Air Quality

The opening chapter of *Chemistry in Context*, a project of the American Chemical Society, is “The Air We Breathe.” When I became the lead author for this chapter 7 years ago, I had no idea how little I knew about tropospheric ozone (it doesn’t come out of a tailpipe), nitrogen monoxide (it does come out of tailpipe, even though gasoline contains no nitrogen), and particulate matter (it hold all sorts of surprises).

In this presentation, we will take a leisurely romp through air quality. I will make the case that (1) the study of air pollutants involves great chemistry and extremely useful for us all to know, (2) great teaching resources are available that are worth knowing about, (3) all of us can benefit if we stop simplifying our combustion equations and let students in on more of what is really happening when we humans burn things. And speaking of humans, (4) the topic of air quality connects to many bigger ideas in sustainability.

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<http://www.wccta.org/news.php>



WCCTA Web Site The WCCTA (Washington College Chemistry Teachers Association) web site includes a large array of services including forums, a shout box, user registration, articles, FAQs, News, and much more. In you are interested in the WCCTA, register as of user of this web site and contribute to the online WCCTA community!

wccta -- Washington College Chemistry Teachers Association Email List

About wccta

English (USA)

Welcome to the information page for the Washington College Chemistry Teachers Association (WCCTA) Email List. This list is for members and friends of the WCCTA. It is intended for communications relevant to WCCTA business, conferences, and professional discussions about the art of teaching chemistry. It is not for postings of a commercial nature.

Subscriptions to this list will be permitted for individuals who already hold a position in chemistry higher education in Washington (or nearby in bordering states), or who are seeking employment as a Washington college chemistry teacher. Please use an email address with a suffix that indicates your affiliation with an institution of higher education, if you have such an address. Or, please explain your affiliation to higher education through an email to fryhle@chem.plu.edu, the list moderator.

We hope that you find the messages posted to this list stimulating and informative.

Information about UNSUBSCRIBING from this list is given at the bottom of this page.

When you reply to a message from the list it will be automatically addressed only to the author of the original message and not to the list as a whole. If you wish for your reply to be shared with all of the list subscribers then you must include the list's email address in your reply.

Note that attachments are allowed on this list, but that for the sake of security and economy of bandwidth they are limited to 40 Kb. Please be judicious about decisions to send attachments. If you need to send a larger attachment, please contact one of the list administrators (see below).

To see the collection of prior postings to the list, visit the [wccta Archives](#).

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