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Education, Technology & Green Chemistry

**190th Conference of the 2YC3
November 12-13, 2010
Raleigh, NC**

Thank you for your interest in the conference. This conference has already taken place.

Overview

## Schedule

Friday
8-9 AM Registration and breakfast
9 AM Welcome and Keynote address
5:15 PM Last Presentation ends
7-9 PM Banquet on campus (prior meal reservation required)

Saturday
8-9 AM Registration and breakfast
9 AM Presentations begin
3:30 PM Conference ends

Parking
A campus map and parking permit was sent to all participants via email.  Per the request of our security staff, please PRINT IT and bring it with you to help our security staff easily identify you for reserved parking (Lot E) during peak student hours on Friday morning.  Open parking is available for the Banquet on Friday evening and on Saturday.  That means you should be able to park right outside of the event locations as long as it is not a reserved or handicap spot.

Going Green – How to Modify Your Current Labs (2 hour workshop)
If you have a specific lab that you would like to work on, please forward it to the workshop leader prior to the conference – Deborah Exton, at dexton@uoregon.edu.

Presenters
Please arrive to your presentation room a few minutes early to meet your moderator to discuss minor logistics and to make sure you do not encounter any technical difficulties with your presentation.  Throughout the day there will be a student volunteer taking pictures.  Please do not be alarmed or distracted when they enter the room during your presentation.

Wake Tech Shuttle
If you are interested in a shuttle between the Hotel and campus or campus and lunch offsite, please contact me ASAP with your needs so we can prepare the best shuttle schedule.

Program
In order to conserve paper, you will only be provided with a short version of the program detailing titles of presentations and room numbers.  A full electronic version of the program is available here at our website.  The program contains links to each abstract.

Buildings
1) Registration, continental breakfast, Keynote address, Banquet, reserved lunches and the general meeting will take place in Building A (BA) 124/126 on Friday.
2) Individual presentations will take place in Building B (BB) on the 4th floor.  A map of BB 4th Floor is available, but it should not be necessary for you to print it.

Wireless Access
Instructions and passwords for wireless internet access will be provided upon arrival.

Receipts
If you paid by check, a receipt will be provided in your welcome packet.  See DeeDee Allen for more information

Reserved Meals
If you reserved a meal, a ticket will be provided in your welcome packet.

Local Attractions
This portion of our website has been updated.  Let us know if you have any specific requests.

## Conference Contacts:

Program Chair: DeeDee Allen
daallen@waketech.edu, 919-866-5585

Local Arrangements: Tracy Cheatham
tmcheatham@waketech.edu, 919-866-5311

Exhibits Coordinator: Ajit Dixit
asdixit@waketech.edu, 919-532-5612

# Schedule

## Friday, Nov 12

|  |  |
| --- | --- |
| 8:00 – 9:00 | Registration & Continental Breakfast |
| 10:45 – 5:00 | Exhibits |
| 9:00 – 9:15 | Welcome and Opening Remarks |
| 9:15 – 10:45 | **Keynote Address**[Debunking the Kermit myth: It IS easy being green](#kermit)Deborah Exton, University of Oregon, Eugene, OR |
| 10:45 – 11:15 | Refreshment Break and Exhibits |
| 11:15 – 12:30 | **Presentation Session 1**A. [Addressing the Challenges of an Online Lab Course](#online)Riham Mahfouz, Thomas Nelson Community College, Hampton, VAB. [Resistance (to Active Student Learning) Is Futile](#resistance)Margaret (Peggy) Geiger, Gaston College, Dallas, NCC. [The Green Chemistry Blues Support Group](#blues)Nancy Thorpe, Hagerstown Community College, Hagerstown, MD |
| 12:30 – 1:30 | Lunch Break and Exhibits |
| 1:30 – 2:00 | 2YC3 General Membership Meeting |
| 2:00 – 3:00 | **Presentation Session 2**A. [Development of a Chemical Inventory Database Using Microsoft Office Access 2007](#inventory)Sybil K. Burgess, Brunswick Community College, Supply, NCB. [Forensic Chemistry at WCC – Reflections on My First Year](#forensic)Ashton T. Griffin, Wayne Community College, Goldsboro, NCC. [Facile Microwave-Assisted Green Syntheses of Au and Ag Nanoparticles](#facile)Marc N. Muniz and Dr. Maria T. Oliver-Hoyo, North Carolina State University, Raleigh, NCD. [Making the Most of Your Opportunities – Leveraging Key Resources and Connections](#leveraging) (2 Hour Workshop)Tom Higgins, Candice McCloskey, and Dolores Aquino |
| 3:00 – 3:15 | Refreshment Break and Exhibits |

|  |  |
| --- | --- |
| 3:15 – 4:15 | **Presentation Session 3**A. [Teaching General Chemistry (CHM 110) to a Diverse Student Body – What are the Challenges and Realistic Expectations for Success](#chm110)Stuart C. Cohen, Horry-Georgetown Technical College, Myrtle Beach, SCB. [ACS Lab Exams – Test Your Students’ Lab Skills Online](#acslabexams)Jimmy Reeves, UNC-Wilmington, Wilmington, NC & Deborah Exton, U. of Oregon, Eugene, ORC. [A Green Synthesis of Silver Nanoparticles and its Use as Chemical Sensors – An Undergraduate Chemistry Lab Experiment](#nanoparticles)Kazi M Rahman, Mont Olive College, Mount Olive, NC and Maria T. Oliver-Hoyo, North Carolina State University, Raleigh, NC |
| 4:15 – 5:15 | **Presentation Session 4**A. [Meeting the Needs of Health Professions Students by Integrating Chemical Topics and Guided Inquiry](#healthprofessions)Laura Frost, Georgia Southern University, Statesboro, GAB. [MasteringChemistry by Pearson-Prentice Hall – The Next Generation of Online Assessment](#mastering" \t "_blank)Jordan Enzor, Pearson EducationC. [Modernizing the Chemistry Lab Experience using Hi-Tech Instrumentation](#modernlab)Bettie Obi Johnson and Fernanda Burke, University of South Carolina Lancaster, Lancaster, SC |
| 7:00 – 9:00 | Dinner Banquet and Address:Should We Treat Chemophobia With Medication?[Professor Siddhartha Mitra,](#_Keynote_Speaker_1) East Carolina University, Greenville, NC |

## Saturday, November 13

|  |  |
| --- | --- |
| 8:00 – 1:00 | Exhibits |
| 8:00 – 9:00 | Registration and Refreshments |
| 9:00 – 10:00 | **Presentation Session 5**A. [DIM DIM and SoftChalk – A Demonstration](#dimdim)DeeDee Allen and Tracy Cheatham, Wake Technical CC, Raleigh, NCB. [WebAssign-Online Homework and Assessment Your Way](#webassign" \t "_blank)Cynthia Nelson and Katelyn Fishetti, WebAssign, Raleigh, NCC. [Going Green – How to Modify Your Current Labs](#goinggreen) (2 hour workshop)Deborah Exton, University of Oregon, Eugene, OR |
| 10:00 – 10:15 | Refreshment Break and Exhibits |
| 10:15 – 11:15 | **Presentation Session 6**A. [Constructing A Math Skills Questionnaire](#mathquest)Angela Allen, Lenoir Community College, Kinston, NCB. [Fostering Higher-order Thinking Using Excelets](#excelets)Scott Sinex, Prince George’s Community College and Melinda Box, Duke UniversityC. [Developing a Hybrid Chemistry Course Using Panopto CourseCast](#panopto)Kenneth Capps, College of Central Florida, Ocala, FL |
| 11:15 – 12:15 | **Presentation Session 7**A. [Biodiesel and POGIL for non-STEM majors – Making Science Real for Students](#biodiesel)John Muench, Heartland Community College, Normal, ILB. [Citizen Science](#stem)Lawrence Williams, Ajit Dixit, William Kappler and Stephen Scheidig, Wake Technical Community College, Raleigh, NCC. [Improving Retention and Increasing the Number of Minority STEM Scholars Transferring to Four Year Institutions](#stem)Abe A. Ojo and Bryan Mitchell, Atlanta Metropolitan College, Atlanta, GA |
| 12:15 – 1:00 | Lunch Break and Exhibits |
| 1:00 – 2:00 | **Panel Discussion I and Workshop**A. [Lab Solutions for Online Classes](#labsolutions)Led by Mark Matthews, Durham Technical Community College, Durham, NCB. [Open Your Bag of Tricks and Share Your Best Lecture Activity](#bagoftricks)Led by Tracy Cheatham, Wake Technical Community College, Raleigh, NCC. [Explore the ChemEd Digital Library](#chemed) (2 hour workshop)Linda Fanis, ChemEd Digital Library, Madison, WI |
| 2:00 – 3:00 | **Panel Discussion II**A. [Technology Swap – Share What You Use and How You Use It](#techswap)Led by DeeDee Allen, Wake Technical Community College, Raleigh, NCB. [Lab Safety and Inventory Challenges](#labsafety)Sybil K. Burgess, Brunswick Community College, Supply, NC |
| 3:00 – 3:30 | Closing Session |

# Keynote Speaker

Deborah Exton is a Tenured Senior Instructor at the University of Oregon, where she has been since 1993. Her primary teaching responsibilities are in the General Chemistry program and she is also the General Chemistry Coordinator for the department. She received her B.S. from Metropolitan State College of Denver (1987) and her Ph.D. in physical chemistry from the University of Denver (1992). A primary focus of her work over the last 15 years has been to develop a green general chemistry laboratory curriculum and she is currently in the process of authoring a general chemistry laboratory manual that will focus on green chemistry and sustainability issues. She is also involved in curriculum and student assessment and has served on several ACS Examinations Institute committees. She currently co-chairs the Institute’s laboratory assessment exam committee along with Jimmy Reeves from the University of North Carolina Wilmington. This exam is significant because it will be the first ACS exam to focus on the general chemistry laboratory and the first exam explicitly designed to be delivered on-line.

# Banquet Speaker

Dr. Siddhartha (“Sid”) Mitra

Personal:Born in Calcutta, India.  Emigrated to US at the age of 6 and did most of his schooling here in the states. Married with three children, all boys, promoting the onset of early hair loss.

## Educational experience:

* BS in Mechanical Engineering – Lehigh University (1988).
* MS in Chemistry and Environmental Science – New Jersey Institute of Technology (1990).
* PhD in Marine Science – Virginia Institute of Marine Science at the College of William and Mary (1997).

## Job experience:

* Environmental Contaminants Specialist – US Fish and Wildlife Service (1988-1991)
* Post doc – Ecology and Environmental Biology – Tulane University (1997 – 2001)
* Mendenhall Postdoctoral Fellow – USGS (2001-2003)
* Assistant Professor – Binghamton University – *Department of Geological Science and Environmental Studies* (2003 – 2007)
* Assistant Professor – East Carolina University, *Department of Geological Sciences*(2007 – present)

Job Description:Organic geochemist.
Organic geochemistry involves the study of organic molecules in the environment, both past and present. Some of those organic molecules are made naturally and some result from anthropogenic pollution. These organic molecules are used to understand environmental processes such as environmental contamination and paleoclimatology.

# Session Descriptions

Debunking the Kermit myth: It IS easy being green
Deborah Exton, University of Oregon, Eugene, OR

President Obama has made a commitment to create a sustainable America and has asked all Americans to participate in this effort. Achieving this goal will require rethinking subject areas from physics to economics to architecture, presenting significant challenges and opportunities for science, technology, engineering and mathematics (STEM) educators. Moreover, issues related to sustainable energy and the environment cut across the STEM disciplines and can serve as a focal point to excite and encourage a greater interest in these fields.

Green chemistry directly addresses the issues of sustainability by encouraging the design of products and processes that increase energy efficiency, reduce or eliminate the use and generation of hazardous substances, and utilize renewable feedstocks. In other words, this is chemistry that is “benign by design.” This talk will address the challenges and provide suggestions for raising awareness and teaching green chemistry concepts in the undergraduate classrooms and laboratories with a particular emphasis on general chemistry.

Addressing the Challenges of an Online Lab Course
Riham Mahfouz, Thomas Nelson Community College, Hampton, VA

In a recent Sloan Consortium report, it was reported that more than 1 in 4 higher education students in the US, or 4.6 million students, took at least one online course in 2008. The number of students taking at least one online class is growing quickly, with a growth rate of 17% in 2008. Online classes have obvious advantages in terms of cost, convenience, and accessibility. However courses involving a laboratory component remain a challenge to offer fully online. This challenge is even more pronounced in online Chemistry courses. This is due to many reasons including, the need for expensive equipment, problems in setting up the experiments, difficulty in submitting non-numerical experimental results such as the successful preparation of a certain compound, and safety concerns. These challenges have been addressed in an online chemistry class offered at Thomas Nelson Community College that uses a combination of virtual online experiments, and a do-it-yourself at home Chemistry kit. Students submit pictures of their main experimental steps to show qualitative work, and they submit the numerical results of physical measurements to demonstrate their understanding of the quantitative aspects of the experiments. This presentation discusses the lessons learned from this novel method of teaching chemistry fully online and gives insight about how this approach can be adopted and improved upon.

The Green Chemistry Blues Support Group
Nancy Thorpe, Hagerstown Community College, Hagerstown, MD

Do you feel alone, wondering how to find good, reliable information and laboratories regarding Green Chemistry? Or, do you feel overwhelmed at the amount of information out there and not know how to make sense of it all? While attending a recent workshop on Green Chemistry at the University of Oregon, I was introduced to several very valuable online databases for Green Chemistry. During this session I will introduce you to these databases so you can explore the information available to use, as well as become a member of a rapidly growing network of Green Chemistry educators. These databases will help you find information to use in your classrooms and laboratories, learn about successes and ways to overcome problems, learn how to share your own materials, and connect with new colleagues. You never need to feel alone again! Go from being blue to green!

Resistance (to Active Student Learning) Is Futile
Margaret (Peggy) Geiger, Gaston College, Dallas, NC

This presentation examines the benefits and drawbacks of POGIL(Process Oriented Guided Inquiry Learning) implementation in allied health (General, Organic, & Biochemistry or GOB) courses at Gaston College. Students resisted active student centered learning due to a lack of readiness for a more challenging learning environment. Models predict that students must have sufficient cognitive, affective and team skills to succeed in team based learning at a higher cognitive level. A majority of introductory chemistry students function at Piaget’s concrete operational stage, as measured by the Group Assessment of Logical Thinking (GALT) survey and have difficulty thinking abstractly, a key skill for chemistry. Approaches to reducing student resistance to active student learning include establishing rapport, improved planning, ongoing frequent assessment, and promoting student reflection on learning.

Development of a Chemical Inventory Database Using Microsoft Office Access 2007
Dr. Sybil K. Burgess, Brunswick Community College, Supply, NC

As with many of the tasks in the community college science environment, chemical safety and inventory management are often the responsibility of one science faculty member. This faculty member often has a range of additional duties. However, it is still crucial for community college science departments to have their chemical inventories arranged in a safe manner which is consistent with OSHA guidelines. In addition community college science faculty members need to have chemicals readily available to them for their classroom laboratory experiments. Commercial chemical inventory software packages as well as on-line chemical inventory management systems are available. Unfortunately many of these software packages and on-line systems are expensive and have limited functionality and flexibility. Because of this we, at Brunswick Community College, have designed our own chemical inventory database using Microsoft Office Access 2007, the database component of the commonly used office management system, Microsoft Office. Characteristics and functionalities of our chemical inventory database will be described in this presentation. Some of these functionalities include the ability to (1) place MSDS sheets directly into the on-line chemical inventory, (2) group chemicals by hazard ratings and (3) indicate when chemical reorders are required.

Forensic Chemistry at WCC – Reflections on My First Year
Ashton T. Griffin, Wayne Community College, Goldsboro, NC

In February of 2009, I was informed that I would be teaching Forensic Chemistry at Wayne Community College in the fall semester. I am a trained analytical chemist, but I had no job experience in forensic chemistry or the world of CSI. Amazingly, I did teach a course in Forensic Chemistry - despite some unexpected physical challenges, my own personal misconceptions about my students’ abilities in chemistry, as well as the quandary of developing laboratory experiments that teach desired chemical concepts with a forensic twist. Come discover the teaching choices that I made and utilize my first year experiences in teaching forensic chemistry to make your own forensic chemistry course even better.

Facile Microwave-Assisted Green Syntheses of Au and Ag Nanoparticles
Marc N. Muniz and Dr. Maria T. Oliver-Hoyo, North Carolina State University, Raleigh, NC

Here we report two simple, green synthetic routes to obtain Au and Ag nanoparticles using only household microwave irradiation as a source of heat. In the case of Ag, β-D-Glucose is the reducing agent and potato starch is employed as the capping and stabilizing specie; with Au, β-D-Glucose acts as both a reducer and stabilizer. The use of these environmentally benign reagents coupled with the simplicity of the syntheses makes this an ideal experiment or demonstration for undergraduate chemistry courses.

Making the Most of Your Opportunities: Leveraging Key Resources and Connections
Tom Higgins, Candice McCloskey, and Dolores Aquino

The landscape at two-year colleges continues to change in response to economic, educational, and political factors. Along with the challenges these changes bring, come opportunities. Workshop participants will consider their goals, share resources and connections, and develop strategies for engaging colleagues and garnering support for professional and program development.

Teaching General Chemistry (CHM 110) to a Diverse Student Body – What are the Challenges and Realistic Expectations for Success?
Dr. Stuart C. Cohen, Horry-Georgetown Technical College, Myrtle Beach, SC

The students who take CHM 110 at HGTC come from very diverse social, economic and academic backgrounds and are taking CHM 110 for a variety of different reasons. For some, this will be their first and only chemistry course. For others, it is a prerequisite to a graduate degree in a field that differs from their previously earned undergraduate degree. This paper will describe some of the challenges that I have encountered during the past 5 years that I have taught this course and how I have attempted to meet the expectations of these students. It will include statistical data and examples of the type of test questions that I have used in order to challenge the students to achieve their maximum potential.

ACS Lab Exams – Test Your Students’ Lab Skills Online
Jimmy Reeves, U. of North Carolina-Wilmington & Deborah Exton, U. of Oregon

For many decades the Examinations Institute of the American Chemical Society has developed standardized exams for all areas of chemistry lecture, and these have had a profound influence on the topics covered in these course and the depth of coverage they provided. Although the Institute has received multiple requests for an exam that assesses laboratory skills, only recently have the tools and resources been available to create an online exam that incorporates media and multiple question formats. This presentation will discuss the process of creating this exam, some examples of question types, and a discussion of the expected timeline for implementation.

A Green Synthesis of Silver Nanoparticles and its Use as Chemical Sensors - An Undergraduate Chemistry Lab Experiment
Kazi M Rahman, Mount Olive College, Mount Olive, NC and Maria T. Oliver-Hoyo, North Carolina State University, Raleigh, NC

Silver nanoparticles synthesized by environmentally benign method can be used as chemical sensors to detect Pb+2 and NH3 in aqueous solution at µmolar (ppm) level. The use of gold nanoparticles synthesized by traditional method was compared with these detections. The significance of these findings will be discussed. Also these experiments have the potential to be incorporated in the undergraduate chemistry laboratory experiments.

Meeting the Needs of Health Professions Students by Integrating Chemical Topics and Guided Inquiry
Laura Frost, Georgia Southern University, Statesboro, GA

Chemistry courses for health professions are often billed as introductions to General, Organic, and Biological chemistry (GOB). Many of these courses spend the majority of the instructional time focused on the concepts of general chemistry with as much organic chemistry jammed in as possible. Biochemistry, the topics of which are most relevant to allied health students, is often covered minimally. We will discuss strategies for integrating the topics of General, Organic, and Biochemistry throughout the course to facilitate coverage of topics relevant to allied health students. Quite often this course is populated heavily by female students who learn well through collaboration. This presentation will also introduce you to some guided inquiry group activities that have a positive effect on student learning in this course.

MasteringChemistry by Pearson-Prentice Hall: The Next Generation of Online Assessment
Jordan Enzor, Pearson Education

For years, online homework systems have done an adequate job of testing students, but they have never done a good job of tutoring students. MasteringChemistry is the first adaptive-learning online tutorial and assessment system for general chemistry. Based on extensive research of the precise concepts with which students struggle, the system is able to coach students with feedback specific to their needs, and with simpler sub-problems and hints when students get stuck. The result is targeted tutorial help that optimizes student study time, and maximizes student learning. This session will discuss online assessment, demonstrate the MasteringChemistry program and show how instructors can use the program to save time and identify student problems.

Modernizing the Chemistry Lab Experience using Hi-Tech Instrumentation
Bettie Obi Johnson and Fernanda Burke, University of South Carolina Lancaster, Lancaster, SC

Most of the laboratory experiments in general chemistry, organic chemistry, and introductory forensic science use standard laboratory glassware and basic equipment to make measurements. Consequently, science majors outside of chemistry are not typically exposed to the instrumentation that is so routinely used in industry and in research. To provide exposure to these techniques and to modernize the laboratory experience for these students, we have developed some novel experiments utilizing GC-MS and other instrumental techniques. One such experiment involves the use of SPME-GC-MS (Solid Phase Micro-Extraction Gas Chromatography Mass Spectrometry) to measure the amount of Bisphenol-A released from plastic and resin-lined consumer packaging. Another experiment employs refractive index measurements to determine ethylene glycol concentration in engine coolant samples. A forensic science mystery experiment was developed using GC-MS to identify whether or not pseudoephedrine was present in a series of residues obtained from “suspects” accused of stealing the material to illegally manufacture methamphetamine. With each experiment, the students are given an overview of the instrumentation and they are trained on its operation so that they can run their own samples and process their own data. Student feedback has been positive, indicating that the experience was both interesting and beneficial to the students in these courses.

DIM DIM and SoftChalk – A Demonstration
Tracy Cheatham and DeeDee Allen, Wake Technical Community College, Raleigh, NC

DIM DIM is a virtual meeting software available online. Low use accounts are free. Presenters will give a live demonstration and discuss how it has been used successfully for online office hours. Student feedback will also be presented. SoftChalk is a program that allows instructors to create interactive web-like lessons without knowledge of html or flash. It works like a word processing program and creates lessons that can be packaged and uploaded to a course management system like Blackboard or Moodle. The software, as well as lessons created using the software, will be presented.

WebAssign: Online Homework and Assessment Your Way
Cynthia Nelson and Katelyn Fishetti, WebAssign, Raleigh, NC

Short abstract describing the presentation: This session will include an overview of WebAssign, the independent online homework and assessment system developed at NC State and available since 1997. With WebAssign, you can manage classes of any size, using our time-tested functionality to securely and reliably manage your homework, assessment and communication needs.

Going Green: How to Modify Your Current Labs
Deborah Exton, University of Oregon, Eugene, OR

This workshop will focus on strategies for revising the chemistry laboratory curriculum in a manner that maintains the pedagogical goals while introducing green chemistry principles and minimizing the waste generated. These revisions range from minor modifications of traditional experiments to development of new, greener labs. While revision of an entire curriculum can seem like a daunting undertaking, when approached one experiment at a time, the task becomes manageable. Participants should bring copies of existing experiments and lab manuals for assessment and revision. While the techniques apply across the chemistry curriculum, the focus of this workshop will be on introductory and general chemistry labs.

Constructing a Math Skills Questionnaire
Dr. Angela Allen, Lenoir Community College, Kinston, NC

Basic mathematical skills are commonly used in science, more than ever in chemistry. It is important for students to have some basic mathematical skills, such as rearranging equations and deciphering word problems. Without these proficiencies, chemistry will seem extremely difficult. Constructing a math skill questionnaire allows an instructor to assess the skills of the students and determine the best way to approach those students with weak skills.

Fostering Higher-order Thinking Using Excelets
Scott Sinex, Prince George’s Community College and Melinda Box, Duke University

Encouraging higher-order thinking, such as trend generalization and result categorization, is a shared goal of science and math courses. Excelets, interactive Excel spreadsheets, facilitate numerical experimentation without the usual restrictions of lab experimentation. Guided by “what if” questions, students can modify parameters and repeat experiments many times, observing output graphically, numerically, and/or symbolically. In many cases, a more multivariable approach can be developed. Most significantly, Excelets are easy to create with off-the-shelf software, and thus also easy for students to access and use. Come learn about the amazing power of Excelets, how to create (all done computationally with no programming), use, and share them. Bring your computer and make one in the seminar. For over 150 pre-built examples in general chemistry and materials science and the resources to develop these interactive spreadsheets see: <http://academic.pgcc.edu/~ssinex/excelets>.

Developing a Hybrid Chemistry Course Using Panopto CourseCast
Kenneth Capps, College of Central Florida, Ocala, FL

This presentation will focus on how the College of Central Florida utilized Panopto CourseCast to develop a section of Introductory Chemistry into a hybrid course. A hybrid course is defined as one in which more than 25 percent of the course is conducted on campus and the remainder conducted at a distance. All lectures were recorded using Panopto, a flexible and easy-to-use presentation capture platform that lets users capture, edit, stream, archive and share recordings of PowerPoint, whiteboard and/or desktop. Panopto was used in conjunction with a Wacom Bamboo tablet with SmoothDraw software. Students came to campus once a week for an hour long problem-solving/review session, followed by a three hour laboratory experiment. All other components of the course were completed online. The challenges, results and student feedback will be discussed during this presentation.

Biodiesel and POGIL for non-STEM majors: Making Science Real for Students
John Muench, Heartland Community College, Normal, IL

Utilizing the conversion of waste fryer oil into Biodiesel as a tool to create interest in science, this collaborative NSF sponsored CCLI initiative seeks to improve student understanding of the process of science. The Biodiesel activity has been adapted by three different institutions (large public, small private and two-year college) to be used in both a lecture and laboratory experience. The study includes the use of POGIL questions during the activity and pre- and postsurveys to examine both knowledge and inquiry gains for these students.

Citizen Science
Larry Williams, Ajit Dixit, William Kappler and Stephen Scheidig, Wake Technical Community College, Raleigh, NC

Citizen Science, also called Group Science, is a concept where scientists, software developers, educators and volunteers from the general public cooperate to develop, gather and analyze data to further science and the public understanding of science and the scientific process. One such project is “World Water Monitoring Day (WWMD)”, a project that uses citizens to conduct basic analyses of local water bodies to heighten the awareness of the need to protect water resources around the world.

As part of an Honors Program assignment, Mr. Kappler was assigned to research, identify and select a test method and develop a laboratory scheme for water analysis to be performed in conjunction with WWMD as part of the Honors program at Wake Tech Community College. The project could be expanded with future analyses of air/water/soil samples to build and maintain a database. The exercise exposes the student to research, data analysis and communication of results and has the added benefit of being a relevant and timely “real-world” practical problem.

A brief outline of the honors program, the resources used and the results obtained will be presented. Possible extensions of the project will be suggested.

Improving Retention and Increasing the Number of Minority STEM Scholars Transferring to Four-year Institutions
Abe A. Ojo and Bryan Mitchell, Atlanta Metropolitan College, Atlanta, GA

At Atlanta Metropolitan College (AMC) we have established the Mathematics, Engineering, Science Achievement Consortium California - MESA model to retain STEM majors and to assist in increasing the number of under-represented minorities majoring in STEM areas that are transferring to four year institutions in Georgia and across the United States. One major cornerstone of the MESA model is the Academic Excellence Workshop. At AMC MESA, we select students from STEM through applications submitted by educationally and financially disadvantaged minorities who otherwise have low eligibility rates of going to four year universities. These students are then registered in a leadership and research course, Topics in Science (CHEM/BIOL/PHYS 2246) and are made to sign an undertaking contract to attend the AEW. The AEW utilize peer facilitators or upper division/graduate students to lead workshops on identified STEM courses which are considered difficult for students. We have obtained results documenting our successes and challenges. Recommendations are made concerning the MESA model based on our data acquired between 2007 and 2009.

Lab Solutions for Online Classes
Led by Mark Matthews, Durham Technical Community College, Durham, NC

What is available in the area of online labs? Come and hear what others are doing and share what you are doing to provide a meaningful lab experience for your online students. Share your best practices, resources, and other ideas for virtual, wet, kit, or kitchen chemistry labs. A list of resources and ideas will be collected for distribution after the conference.

Open Your Bag of Tricks and Share Your Best Lecture Activity
Led by (TBA)

We all have our favorite real world applications, paper activities, chemical demonstrations, and you tube videos that we like to use to introduce or teach a specific topic. Come and share and glean from others. All tips and tricks will be collected for distribution after the conference.

Explore the ChemEd Digital Library
Linda Fanis, ChemEd Digital Library, Madison, WI

Interested in using digital resources in your classroom or online course? Explore the multitude of resources found at the Chemical Education Digital Library (ChemEd DL), a Pathway project of the National Science Digital Library (NSDL). This hands-on guided-inquiry workshop will give you the opportunity to explore ChemEd DL's innovative collection of educational resources including Molecules 360, Chemistry Comes Alive! video, Moodle courses, the Periodic Table Live! and so much more. In one session you will find new resources and learn how to integrate it into your classroom curriculum. Ultimately, the ChemEd DL will be the place on the Web to find or share digital content for chemical sciences education. Learn about how you can use, contribute, share, and organize chemistry education materials through ChemEd DL.

Technology Swap – Share What You Use and How You Use It
Led by DeeDee Allen, Wake Technical Community College, Raleigh, NC

There are lots of resources available. However, no one knows them all and some keep changing. Come and share your favorite technology resources and briefly describe how you use it. A list of all resources will be collected for distribution after the conference.

Lab Safety and Inventory Challenges
Sybil K. Burgess, Brunswick Community College, Supply, NC

Lab safety and inventory are a constant challenge for many small colleges, especially those that may not have resources for lab technicians. How do you organize your stockroom, track your inventory and dispose of waste? Do you need a better system? Let’s share and learn from each other. Methods and ideas will be collected for distribution after the conference.

# Registration

Registration is no longer available for this conference.

2YC3 is providing online registration for your convenience.  You have the option of paying via **paypal** or printing your form and mailing it in with a **check**.  The link below will direct you to the 2YC3 site.

**Registration (due by October 29, 2010)**

## Overview

Registration Fee

* Current Members @ $25
* Non-current members @$50 (includes membership)
* Students and high school teachers @ no cost

**MEAL PURCHASING OPTIONS CLOSED ON OCTOBER 27TH.  A FREE SHUTTLE TO NEARBY FOOD COURTS WILL ALSO BE PROVIDED!**

Meal options (Continental breakfast and refreshments provided at no charge. Vegetarian options will be available for meals.)

* Friday lunch (hot buffet) @$15
* Friday night banquet @25
* Saturday lunch (sandwich and salad buffet) @15

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# Accommodations

**Hampton Inn Raleigh-Capital Blvd. North**
3621 Spring Forest Road, Raleigh, North Carolina, USA 27616
Tel: 1-919-872-7111  Fax: 1-919-872-0950
(50 rooms are reserved at the rate of $89/night.  Tax is 13.5%)
[www.hampton-inn.com/hi/raleigh-capital](http://www.hampton-inn.com/hi/raleigh-capital)
Group Code is 2YC.

**Hilton Garden Inn Raleigh Triangle Town Center**
6412 Capital Blvd, Raleigh, North Carolina, USA 27616
Tel: 1-919-876-5650  Fax: 1-919-876-5605

**Hilton North Raleigh/Midtown**
3415 Wake Forest Road, Raleigh, North Carolina, United States 27609-7330
Tel: 1-919-872-2323   Fax: 1-919-876-0890

# Exhibitors

The following companies and organizations will be represented at the conference. We would like to thank all exhibitors for their support of 2YC3, especially those that have contributed specifically to the conference here in Raleigh.

**Forms**
[Exhibit Request](http://www2.waketech.edu/blogs/2yc3/files/2010/07/2YC3-EXHIBIT-REQUEST.docx)
[Industrial Sponsorship Application](http://www2.waketech.edu/blogs/2yc3/files/2010/07/2YC3-Industrial-Sponsorship-Application.docx)

**Shipping Address**
Exhibitors, if you need to ship materials to the conference location, please use the address below.  You should also send an email to Dr. Dixitto make sure he is anticipating the shipment’s arrival.

Dr. Ajit Dixit
Wake Technical Community College
6600 Louisburg Road
Raleigh, NC 27616

**Raleigh Exhibitors**

[Agilent Technologies](http://www.agilent.com/) (A special thanks for $500 in conference support.)

[McGraw-Hill Higher Education](http://www.mhhe.com/) (A special thanks for LED flashlight contribution for welcome bags.)

[WebAssign](http://www.webassign.net/) (A special thanks for sponsoring lunch for our student volunteers at $180.)

[Shimadzu Scientific](http://www.ssi.shimadzu.com/) (A special thanks for $100 in conference support.)

[Cengage Learning](http://www.cengage.com/search/market.do?N=16) (A special thanks for Krispy Kreme for Saturday.)

[Microlab Inc.](http://www.microlabinfo.com/) (A special thanks for $100 in conference support.)

[Journal of Chemical Education](http://jchemed.chem.wisc.edu/) / [ChemEd Digital Library](http://www.chemeddl.org/%22%20%5Co%20%22ChemEd%20Digital%20Library%22%20%5Ct%20%22_blank)

[John Wiley and Sons Publishing](http://www.wiley.com/WileyCDA/Section/id-350192.html)

[Academx Publishing Services](http://www.academx.com/)

[eScience Labs Inc.](http://www.esciencelabs.com/)

[Vernier Software and Technology](http://www.vernier.com/)

[Pearson Education](http://www.pearsonhighered.com/educator)

[ACS Office of Two-Year Colleges](http://www.acs.org/2YColleges)

# Directions

[Click here for link to College Location and Maps](http://northerncampus.waketech.edu/index.php%22%20%5Ct%20%22_blank%22%20%5Co%20%22http%3A//northerncampus.waketech.edu/index.php)

* Conference events are located in AB and BB (Building B – formerly MSB).
	+ AB 124-126 will be used for the opening session, Friday night banquet, and general meeting.
	+ The presentation sessions and workshops will take place on the 4th floor of BB – our science floor!
* Free parking will be availabe in Parking Lot E.

Overview
The North campus of WTCC is located in northern Raleigh just off the 540 Interstate, approximately 18 miles from Raleigh Durham International Airport.  Options for getting to the North Campus include rental car, taxi, and public transportation.  Please check out the following link for directions and options (by car): [*http://northerncampus.waketech.edu*](http://northerncampus.waketech.edu/).  Click the “directions” next to the address to be taken to a Google Maps page.  If you click on the “Directions” link there and type in “RDU Airport” as your starting point, you will be provided with driving directions.  The RDU website provides additional information on taxi, rental car and public transportation options:[*http://www.rdu.com/groundtrans/groundtrans.htm*](http://www.rdu.com/groundtrans/groundtrans.htm).  There will also be a shuttle available between the hotel and the campus.

Directions from Hampton Inn Raleigh-Capital Blvd. North
Exit the rear of the hotel taking a right on Greens Dairy Road.
Take left on Spring Forest Road.
Take left on Fox Road.
Fox Road will turn/merge to the right.
Stay on Fox Road through several lights and it will take you straight into campus.
Parking lot E will be in the back on your Left.

# Raleigh Attractions

Raleigh is a friendly city located in the heart of North Carolina between the mountains and the beach. It’s an area rich in academic, historical and cultural interests. There is always something for everyone – restaurants, museums, cultural arts and shopping. For more information, go to <http://www.visitraleigh.com/> or see suggestions below.

|  |  |  |
| --- | --- | --- |
| Attraction | Description | Location |
| Krispy Kreme | If you have never had a “Hot Now” you owe it to yourself to try a fresh donut right off the line. | 549 N. Person StRaleigh, NC 27604919-833-3682 |
| Triangle Town Center (mall) | Very large mall and shopping center complex in close proximity to hotel and campus.  Lots of nice restaurants like California Pizza Kitchen, Champps, Chili’s, Macaroni Grill, Ted’s Montana Grill, Twisted Fork, AppleBee’s, and more.[http://www.triangletowncenter.com](http://www.triangletowncenter.com/) |
| Downtown Raleigh | Lots of restaurants and local cultural attractions!<http://www.godowntownraleigh.com/at-ease> | Go south on 401 or Capital Blvd to reach downtown Raleigh |
| North Carolina Museum of Natural Sciences | <http://naturalsciences.org/> | 11 W. Jones StRaleigh, NC 27601919-733-7450tollfree 877-4NATSCI |
| North Carolina Museum of History | <http://www.ncmuseumofhistory.org/> | East Edenton StRaleigh, NC 27601919-807-7900 |
|  North Carolina Museum of Art | <http://www.ncartmuseum.org/> | 2110 Blue Ridge RdRaleigh, NC 27604919-839-6262 |
| Mordecai Historic Park (Mansion & Trolley) | <http://raleighnc.gov/mordecai> | 1 Mimosa StRaleigh, NC 27604919-857-4364 |
| Goodnight’s Comedy Club |  [http://www.goodnightscomedy.com](http://www.goodnightscomedy.com/)/ | 861 W. Morgan StRaleigh, NC 27603919-828-5233 |
| 42 Street Oyster Bar & Seafood Grill |   | 508 W. Jones StRaleigh, NC 27603919-831-2811 |
| Irregardless Cafe | [www.irregardless.com](http://www2.waketech.edu/blogs/2yc3/raleigh-attactions/www.irregardless.com) | 901 W. Morgan StRaleigh, NC 27603919-833-8898  |
| NC State Arboretum | <http://www.ncsu.edu/jcraulstonarboretum/index.php> | 4415 Beryl RdRaleigh, NC919-515-3132 |
| William B Umstead State Park | [http://www.ncparks.gov](http://www.ncparks.gov/) | Raleigh, NC 27617919-571-4170 |
| Triangle Greenways and Walking Trails | <http://www.trianglegreenways.org/> |   |