193rd $2YC_3$ Conference Final Program
Brevard Community College
3865 North Wickham Road
Melbourne, FL 32935

*For **registration**, **lodging information**, **travel directions**, and the **latest information on the conference program**, visit the conference website:* http://www.brevardcc.edu/2yc3/ *(A link will also be provided on the $2YC_3$ website: www.**2YC3.org**).*

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Friday, September 16, 2011

8:00 – 5:00 **Exhibits** (Building 7)

8:00 – 8:30 **Registration** (Building 7 Lobby), **Continental Breakfast** (7-110C)**, and Exhibits** (Building 7 Lobby)

8:30 – 8:45 **Welcome and Opening Remarks** (4-100)

8:45 – 9:45 **Keynote Address** (4-100)
Dr. Andre Gesguiere, University of Central Florida

"Thoughts on Teaching Topics in General, Organic, and Biochemistry"

A research university professor reflects on the state of research and teaching/learning in the four-year university system as well as on ways to coordinate resources and best promote student learning at both two-year and four-year institutions.

9:45 – 10:00 **Refreshment Break** (7-110C) **and Exhibits** (Building 7 Lobby)

10:00 – 10:30 **$2YC_3$ General Membership Meeting** (4-100)

10:30 – 11:45 **Presentation Session 1** (4-100)

"Components of a GOB Textbook: An Overview"

Karen Timberlake, Los Angeles Valley College

Presenter will illustrate the evolution of content in the GOB textbook over 30 years with respect to content, applications to real life, and the addition of pedagogical aids for students learning & success. There will be a comparison between earlier editions of the GOB textbook to today's

current textbook package. Discussion will further opportunities for change and integration of chemistry topics in GOB textbooks today and in the future.

11:45 – 12:45 **Lunch Break** (Building 10 Lobby)**, Exhibits** (Building 7 Lobby)**, and Student Poster Session** (Building 7 Lobby)

12:45 – 2:00 **Presentation Session 2** (4-100)

"Meeting the Needs of Health Professions Students by Integrating Chemical Topics and Guided Inquiry"

Laura Frost, Georgia Southern University

This presentation will focus on strategies to integrate the topics of General, Organic, and Biochemistry to facilitate coverage of topics relevant to allied health students. This presentation will also introduce guided inquiry group activities that have a positive effect on student learning.

2:00-2:15 **Refreshment Break** (7-110C)**, Exhibits** (Building 7 Lobby) **and Student Poster Session** (Building 7 Lobby)

2:15-3:00 **Presentation Session 3A** (4-100)

"*How to Teach Polyatomic Ions in Chemistry*"

John Taylor, Florida State College at Jacksonville

Presenter has developed two mnemonics that allow students to look at a periodic chart and write the formula and charge of polyatomic ions without memorization. A website has been developed for a student to attempt a self-discovery of the mnemonics, but has been under revision since last summer. The website is: http://fccj.us/Polyatomiclons/polyionformula.html.

2:15-3:00 **Presentation Session 3B** (7-114)

"Chemistry in a Biology Classroom: Promoting Chemistry Across the Disciplines and K-12 Outreach"

Kim Bolton, Abigail Mabe, Kristin Rich, Walters State Community College

What happens when a biology professor gets to the chemistry chapter in General Biology or Anatomy and Physiology class? This presentation will provide insight as to how the faculty in the Natural Science Division at Walters State Community College (WSCC) collaborate across the different disciplines. New technologies such as iPads, apps, smart pens, IPEVO© cameras, Skype, etc. have greatly facilitated in this practice and WSCC's utilization of them will be discussed. Also, one approach centered around these technologies which our division has adopted to reach local K-12 students, will be discussed.

3:00 – 3:15 **Refreshment Break** (7-110C)**, Exhibits** (Building 7 Lobby) **and Student Poster Session** (Building 7 Lobby)

3:15 – 4:00 **Presentation Session 4** (7-308)

"Teaching Chemistry with Molecular-Level Visualization and Simulation Tools"

Sean Ohlinger, Wavefunction

Workshop will show how to build, visualize, and analyze a variety of molecular samples. The ability of the simulation approach to address student misconceptions and the motivational value of dynamic simulations will be discussed. Hands-on, computer lab-based workshop. Attendees can also bring their own laptops (Windows or Mac OS X) to run software.

4:00 – 4:15 **Refreshment Break** (7-110C)**, Exhibits** (Building 7 Lobby)**, and Student Poster Session** (Building 7 Lobby)

4:15 – 5:00 **Presentation Session 5A** (7-308)

"Connecting the Macroscopic with the Molecular: Updating the Chemistry Lab with Computer Experiments"

Sean Ohlinger, Wavefunction

Workshop will introduce a selection of molecular modeling experiments that address topics from standard introductory curriculum and that serve to familiarize students with the scientific process of the laboratory. In an extension, it will be shown how to adapt the experiments to lecture demonstrations. Hands-on, computer lab-based workshop. Attendees can also bring their own laptops (Windows or MAC OS X) to run software.

4:15-5:00 **Presentation Session 5B** (4-100)

"Implementation of Reflective Learning Summaries into the General and Organic Chemistry POGIL Classroom Experience"

Mary Roslonowski, Brevard Community College

A discussion on one instructor's experience in POGIL implementation in general and organic chemistry classroom settings and how the addition of a reflective learning system into the POGIL curriculum has changed the dynamics of the classroom experience.

6:00 – 8:30 **Dinner Banquet and Address**

The Palm Café at the Kiwi Tennis Club
30 Tradewinds Drive

Indian Harbour Beach, FL 32935

Nanotechnology in Drug Discovery for the Betterment of the Human Experience

Joshua Ojwang, Brevard Community College

The American Cancer Society projects 1.6 million cases of cancer with an expectation of over 500,000 deaths in 2011. These projections include an estimated 240,000 cases of breast cancer and 40,000 deaths. It is estimated that **one in eight women** will be diagnosed with breast cancer in their lifetimes and a large percentage undergoes systemic chemotherapy with dropout rate estimated to be as high as 20% due to a range of side effects. A clear need exists for advanced treatment modalities that allow the full potential of cytotoxic drugs, with minimal harmful side effects. We are developing a localized tumor-targeting nanotechnology-based platform for cytotoxic drugs that merges magnetic vectoring technology for the concentration/accumulation/extravasation of superparamagnetic nanoparticles (SPION) at a tumor site, with prodrug technology in which the chemotherapeutic is activated/released within the tumor microenvironment. We have shown that the SPION- **paclitaxel** (TXL) prodrug shrank breast cancer tumors in mouse model with no observed toxicity; therefore, demonstrating the feasibility of localized tumor-specific delivery and anti-tumor efficacy of modified SPION-Paclitaxel prodrug constructs.

Saturday, September 17, 2011

8:00 – 5:00 **Exhibits** (Building 7 Lobby)

8:00 – 8:45 **Registration** (Building 7 Lobby) **and Continental Breakfast** (7-110C)

8:30-4:30 **– Process Oriented Guided Inquiry Learning Workshop** (7-326A/7-326B)
**Additional Fee

Laura Frost, Georgia Southern College, Facilitator
Elliott Douglas, University of Florida, Facilitator

Visit the POGIL Website for more information: http://www.pogil.org/events/1-day-workshop-2yc3-conference-brevard-community-college

9:00 – 9:45 **Presentation Session 6A** (4-100)

"The Development of SPLENDA as a Sweetener: A Chemistry Graduate's Career in R&D"

Kathleen S. Laurenzo, Florida State College at Jacksonville

Discussion will focus on the synthetic challenges of sucralose production, but will also touch on the business challenges of its introduction to the market, the historical development of high-intensity sweeteners and the market for them, their taste and safety profiles, and the development of sweetener blends, which provide synergism in both sweetening power and flavor profile. The talk will also serve to illustrate the kinds of applied research that chemistry graduates may engage in after attaining their degrees.

9:00-9:45 **Presentation Session 6B** (Building 7-114)

"Using Computers to Cut Costs and to Buy Time for Inquiry – In the Lab"

John Amend, Montana State University (Emeritus), Bozeman, MT

Computers can do a lot more for your lab students than just quickly collect data using small, inexpensive, and safe samples. Both POGIL and the Science Writing Heuristic advocate an inquiry process that starts with a question about a real chemical system. Students and their instructor turn these questions into an experiment, conduct the experiment, and use their observations to develop a model of the system – a model that explains the behavior they observed. With additional runs through this plan -> work -> evaluate cycle, they improve their model and understanding of the chemical concept.
Computer-based lab systems can help students structure and formalize their experiment design. Students can quickly collect, analyze, and graph high quality data. These graphs, generated immediately and large enough for students and instructor to see, focus in-lab discussion and evaluation of the experiment. Students can clearly see cause-and-effect relationships. They understand the experiment and the concept when they leave the lab. We will demonstrate this process with several live experiments involving from General Chemistry.

9:45-10:00 **Refreshment Break** (7-110C) **and Exhibits** (Building 7 Lobby)

10:00-10:45 **Presentation Session 7A** (4-100)

"Interactive Electron Configuration Tool for Chemistry"

John Taylor, Florida State College at Jacksonville

Presenter has created a HTML/JavaScript interactive website for students to place electrons into atomic orbitals to write the complete electron configuration of an atom. The website is found at: http://fscj.me/e_config/e-1insturct.html. A second website has been developed which allows the student to click on an element on the periodic chart and the complete electron configuration is shown including the spectroscopic notation. This website is found at: http://fscj.me/e-1Spectroscopic/pc.html.

10:00-10:45 **Presentation Session 7B** (7-114)

"It's Not Your Mother's Chemistry Book Anymore"

Mark Bishop, Monterey Peninsula College

Presentation will focus on the various forms of the textbook "An Introduction to Chemistry", as a traditional printed textbook, in PDF format (http://preparatorychemistry.com), as part of an electronic text/tools/homework package created with WebAssign (http://webassign.net/bishop), and in EPUB format (utilized by iPads & other tablet devices). There will also be a description of the tools necessary to create a text in any of these forms.

10:45-11:00 **Refreshment Break** (7-110C) **and Exhibits** (Building 7 Lobby)

11:00-11:45 **Presentation Session 8A** (4-100)

"Inquiry Driven Laboratory on Zaitsev and Hofmann E1 and E2 reactions"

Bruce Bondurant, Hillsborough Community College at Dale Mabry Campus

Presenter will discuss an inquiry driven experiment that was developed for first semester Organic Chemistry students to discover the principles and regiochemistry of the alkene forming reactions, dehydration, and dehydrohalogenation.

11:00-11:45 **Presentation Session 8B** (7-114)

"A New Motivation in the Chemistry Classroom: Unique Methods to Supplement and Enhance Student Engagement."

Matthew Smith and Jeff Horner, Walters State Community College

Members of the Walters State Community College (WSCC) Natural Science Mobilization Team constantly seek new, innovative methods to encourage student engagement inside and outside of the classroom. One approach is to create a mobile classroom. This presentation will discuss unique, yet simple, strategies used at Walters State for developing a learning environment that makes study tools emphasizing the concepts and material pertinent to success in the General Chemistry sequence available to students through mobile devices, and how technology such as apps for smart phones and tablets, smart pens, and Camtasia have aided in this process.

11:45 – 12:30 **Lunch Break** (Building 10 Lobby)**, Exhibits** (Building 7 Lobby**) Eastern Regional Advisory Board Meeting** (7-114)

12:30-1:15 **Presentation Session 9A** (4-100)

Best Practices in Teaching Chemistry: REDOX Challenge Contest

Joseph Langat, Kathleen Laurenzo, and John Taylor, Florida State College, North Florida Campus

The presenters will give an overview of the REDOX Challenge that is conducted each term at North Florida Campus of Florida State College at Jacksonville in all of the chemistry courses offered including CHM 1025C (Introductory), CHM 2045C (Gen Chem I), and CHM 2046C (Gen Chem II). This is a collaborative paper and pencil laboratory exercise, which in three hours transforms a novice into an advance student at balancing REDOX equations. The students work in teams of two with an option to have an outside expert to join their team and participate to challenge Professor Taylor at REDOX balancing. Session participants will be given a CD with all files used in the contest.

12:30-1:15 **Presentation Session 9B (7-114)**

PASCO Scientific Workshop Proposal for 2YC3: Solid State Spectroscopy at Community College Pricing

Tom Loschiavo, PASCO Scientific

Ocean Optics, the leader in solid state spectrometry has teamed exclusively with PASCO Scientific to offer a spectrophotometer covering 350-850 nm in a package of unequaled value. There will be a demonstration to learn how the Amadeus will meet needs with less size and more durability than current spectrophotometers.

1:15 – 1:30 **Refreshment Break** (7-110C) **and Exhibits** (Building 7 Lobby)

1:30 – 3:30 **Presentation Session 10: Chemistry REDOX Challenge Contest** (7-114)
Teams or Individuals may sign up at Registration Desk to compete.

Kathleen Laurenzo (Roving Expert), Joseph Langat (Roving Expert), and John Taylor (Challenger), Florida State College at Jacksonville, North Campus

Prizes Sponsored by Orlando Section of the American Chemical Society and $2YC_3$

Teams of three (two students and one expert) or individuals are needed to enter the REDOX reaction challenge contest. Each odd round, a team at random will select a REDOX equation for all others to attempt. The submitting team must have the correct answer with work shown (no computers or equation balancing programs may be used). Work must be done by all including the challenger during each round starting from scratch. On even numbered rounds, the challenger will select the equation. If a team or player makes a mistake, they are eliminated from the competition (but may continue playing.) If the challenger makes a mistake whose answer doesn't agree with the submitting team, then the submitting team and all others who solved the same equation on that round are declared the winners.

After 20 rounds or 2 hours, the contest ends. If no one team emerges as the champion, all eligible players at the end will be declared multiple draw winners.

3:30 – 3:45 **Refreshment Break** (7-110C) **and Exhibits** (Building 7 Lobby)

3:45 – 5:45 **Presentation Session 11** (4-100)

"Applying ACS Resources to Improve Effectiveness at Your Institution: A Collaborative Project of $2YC_3$ and the ACS"

Thomas Jose, Blinn College at Bryan Campus; Mary Roslonowski, Brevard Community College

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.

3:45-5:45 **COCTYC Executive Council Meeting** (7-114)

5:45-6:45 **Dinner on Own**

7:00-9:00 **"MANYA - The Living History of Marie Curie" Presentation** (4-100) **-** A Two-Hour Presentation on the Life of Madame Curie.

Susan Marie Frontczak, Speaker/Writer/Actor/Storyteller, www.storysmith.org

Sponsored by Brevard Community College – Melbourne Campus Student Government, ACS, and $2YC_3$.