Vincennes University
Committee on Chemistry in the Two Year College
1002 North First Street
Vincennes, Indiana 47591-5201

Clarita Bhat, CHAIR
Carol Handy, EDITOR
COMMITTEE ON CHEMISTRY
IN THE TWO-YEAR COLLEGE
Division of Chemical Education
American Chemical Society

Chemistry Outlook

An Activity of
The Committee on Chemistry in the Two-Year Colleges
Division of Chemical Education
American Chemical Society

Clarita Bhat, 2002 Chair

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Vol. 2002 - I

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otes From The Chair

Clarita Bhat
Shoreline Community College
Shoreline, WA 98133

Greetings from the Chair!
As I am sitting by my computer on this cozy, rainy December afternoon, I am composing my first message as Chair of this great organization, $2YC_3$. In my mind the thoughts revolve around what a strange year this has been! Because of it, my writing might be a little different than you would expect for this occasion. I still believe it is appropriate, since we are united by our common dedication to teaching, our love of our discipline and above all, by our common humanity! All of us shed tears of sadness at the tragic events of this past year and also harbored hopes for a brighter, better 2002, as we are ever resilient! My thoughts focus on the many good things that have happened, among them, my becoming part of this organization.

When I was first approached and asked to consider running for chair-elect of the $2YC_3$, I agreed and was quite surprised (and honored) that I had been elected. Because my active duties were still in the future, I did not give my self the chance to get nervous about the new task. As the beginning of 2001 approached, and my fist Conference as Chair-elect, I started to think about the very influential past chairs I had met personally: John Clevenger, Ann Cartwright, John Kenkel, Dick Jones, and immediately I was awed and a little intimidated. They certainly were big shoes to fill! I had admired these colleagues for years and followed their many efforts on behalf of this organization. At the San Diego conference this past Spring, I had the opportunity to meet the Committee members, with whom I would be working for the next few years. My very first impression was one of amazement: My colleagues were a truly inspiring group. Throughout the Thursday retreat and the evening meeting, they were tireless in their work, full of new ideas, dedication to teaching, and enthusiasm for the upcoming conferences and special events. The atmosphere was not only cordial, but truly caring and friendly. As we gathered for a very late evening meal, it felt like family! I knew then that I would enjoy being Chair and working with the COCTYC. At the risk of embarrassing them, I felt that I should mention each by name and the reasons for my respect and admiration: Carol White, Past Chair, for the tremendous work she has done and is still doing with $2YC_3$ and DivChemEd—She is a true

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Conference Calendar

2002-2003 Academic Year

158th Conference (Southern)
http://web.fccj.org/~ethall/2yc3/website.htm
April 5-6, 2002 National ACS meeting, Orlando, FL. $2YC_3$ meeting site is Florida Community College at Jacksonville - South Campus
11901 Beach Blvd
Jacksonville, FL 32246
Conference Theme: Web Enhanced Learning
Program Chair: Edwin Thall
904-646-2082
Email: ethall@fccj.org

159th Conference (Western)
http://atom.chem.wwu.edu/acs/bcce2002.html
July 30-August 3, 2002 17th Biennial Conference
Western Washington University
Bellingham, WA
Program Chair: Clarita Bhat
Email: ccbhat@aol.com

160th Conference (Eastern)
Early Fall, 2002 Tunxis Community Technical College
271 Scott Swamp Road
Farmington, CT 06032
Contact : Karen Wosczyna-Birch
Email: kwbirch@commnet.edu

161st Conference (Midwestern)
Nov. 8-9, 2002 Kansas Community College
7250 State Avenue
Kansas City, KS 66112
Contact:: Ed Kremer
Email: ekremer@toto.net

162nd Conference (Southern)
March 21-22, 2003 Delgado Community College
City Park Campus
New Orleans, LA

Consult the $2YC_3$ Website, http://2YC3.vinu.edu, for the latest updates on future conferences!

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dynamo! Tom Gruber, Past Chair, for his amazing friendly energy, and wonderful ideas for planning the best conferences. Rick Bolesta, Immediate Past Chair, for the outstanding job he did in that position, bringing new members to the organization with his good leadership and sense of humor. Frank Koch, outgoing Chair, for his leadership qualities and his good advice to me during last year—he is truly dedicated to this organization! Dolores Aquino, Membership Chair, for her excellent work with membership and her ability to always keep on task. Ed Dobrzynski, Treasurer, for handling the finances in such a professional manner and keeping us solvent. Michaeleen Lee, whom I have not met personally, but already admire for taking on the task of Industrial Sponsor Chair yet one more time. Carol Handy, Newsletter Editor, for her classy personality and the unassuming, yet fabulous way she takes care of disseminating the news.

I am truly happy to be a part of this group and am looking forward to fruitful years; the task ahead is a challenge, but a good one. I hope that many of you will desire to join us and be a part of the dedicated colleagues and help us continue the job of fostering excellence in teaching.

Kaveh Zarrabi, Carolyn Collins, Gunay Ozkan,Marion Hammond, Community College of Southern Nevada, Las Vegas, NV, 157th $2YC_3$ conference.

2001 chair, Frank Koch, presents a plaque to William Mooney, the first chair of $2YC_3$.

Call for application for the office of Chair-Elect of COCTYC for the year 2004

Application for Chair-Elect must include:

a. Pertinent personal data such as name, college, job title, address, etc.
b. Brief statement of pertinent qualification, signed by the nominee.
c. A statement indicating a willingness to serve signed by the nominee.
d. A statement of support from an appropriate person in the applicant's school.
e. To be eligible to be nominated an individual must:
   1. be a two-year college chemistry teacher
   2. have been a dues paying member of $2YC_3$ a minimum of three years prior to nomination
   3. be a member of DivCHED
   4. be a member of ACS
   5. have demonstrated leadership and organizational ability by serving as Chair or Co-Chair for a conference and in one or more of the following capacities:
      a. served three years on the Executive Committee
      b. served as Local Arrangements Chair for a Conference
      c. chaired a sub-committee
      d. contributed within the past three years two or more ways such as:
         -acted as local industrial sponsor coordinator, -chaired a conference section
         -presented a paper at a conference, -moderated a panel at a conference
         -other ways an individual has contributed

-Applications must be received by the Chair no later than September 1, 2002.
-The COCTYC will serve as a nominating/screening committee to generate a slate of two candidates.
-Each $2YC_3$ member shall vote for one nominee and the candidate who received the greater number of votes shall be declared elected.
-Ballots must be received by the Chair postmarked no later than 12/31/2002.
-Ballots will be counted by the Chair in the presence of a Notary.
-The results of the election will be reported in the first possible newsletter.

CALL FOR PAPERS!

Join us for a wonderful experience:
The 17th Biennial Conference on Chemical Education
at Western Washington University, Bellingham, Washington
July 28 – August 1, 2002. The best time to visit the Pacific Northwest!
Theme: Chemistry—The Elements of Change.

The conference will include a varied and interesting $2YC_3$ component with many Symposia already in place. Here are the titles:

- Environmental Chemistry Lecture and Laboratory
- Lab Format Innovations in Chemical Education
- Interdisciplinary Curricula: Chemistry beyond Chemistry
- Green Chemistry in Action
- Green Chemistry and Its Role in Chemical Education
- The Role of Community Colleges in Teacher Preparation
- Articulation with 4-Year Schools
- Advising in 2-Year Colleges
- Revisiting the General Chemistry Curriculum
- How to motivate students in 2002
- Chemical Literature and Information retrieval in the 2-Year Colleges
- Biotechnology and Chemical Technology Programs

We invite submission of papers for these symposia. The deadline for submission of Abstracts for Papers and Posters is February 25, 2002.

Please submit abstracts on the Internet, if possible.
Website http://atom.chem.wwu.edu/acs/bcce2002.html

Please feel free to contact Sara Selfe, Program Chair : bcce@edcc.edu
Or Clarita Bhat, $2YC_3$ Program Chair: ccbhat@aol.com

$2YC_3$/Division of Chemical Education Joint Membership Form

This is a special offer for $2YC_3$ members who are not already members of the Division of Chemical Education. The dues for $2YC_3$ are $15.00 and the dues for the Division of Chemical Education are $20.00. If you are not now a member of the Division of Chemical Education, you can join the Division and renew your membership with $2YC_3$ for only $30.00, a savings of $5.00.
Renew my $2YC_3$ membership ____ I wish to join DivCHED as: _____ a Member (ACS Members only)
_____ an Affiliate (non ACS Members)*
*affiliates have all membership privileges except voting and holding elective office

Your Name: _____

Home Address: _____
Street **City, State** **Zip Code**

Work Address: _____
Street **City, State** **Zip Code**

College Phone: _____ _____ **Email:** _____

Send $2YC_3$ Newsletter and CHED Newsletter to Home _____ Work _____
Send ACS Member Form Yes _____ No _____
$2YC_3$ Membership Information: Are you a
_____ Two-Year College Teacher? _____ Four-Year College Teacher?

_____ High School Teacher? _____ Other

Please send your check, payable to $2YC_3$, for $15 ($2YC_3$ only) or $30 (joint membership) to: Dolores C. Aquino, San Jacinto College Central, 8060 Spencer Highway, Pasadena, TX 77501-2007

158 th Southern Conference
Web Enhanced Learning
Friday, April 3 to Saturday, April 4, 2002
Florida Community College, West Charleston Campus - South Campus
11901 Beach Blvd, Jacksonville, FL 32246
http://web.fccj.org/~ethall/2yc3/website.htm

Program Chair: Edwin Thall (ethall@fccj.org)
Local Arrangement: Richard Morris (rmorris@fccj.org)
Exhibits: Steve Milczanowski (smilczan@fccj.org)
High School Liason: Karen Sanchez (ksanchez@fccj.org)

Thursday, April 4

Planned Activities: Golf, Shark Tooth Hunt, Informal Dinner at Jacksonville Landing
Email Local Arrangement Chair (rmorris@exchange.fccj.org)

Friday, April 5

8:00-4:00 Registration/Exhibits
8:00-9:00 Mini-Continental Breakfast
9:00-9:15 Welcome and Opening Remarks: Norman Will, FCCJ South Campus President
9:15-10:00 The Analytical Science Digital Library: A Nexus for Teaching and Learning
Stuart Chalk, University of North Florida

The Analytical Sciences Digital Library is a project funded by the National Science Foundation under the National SMETE (Science, Mathematics, Engineering, and Technology Education) Digital Library program. The presentaion highlights the intended scope and usage of the ASDL as well as how the database is setup to allow a variety of portals into the collection.

10:00-10:45 Technology Based Assessments in Chemistry
Melanie Cooper, Clemson University

This presentation describes the development and use of technology based assessments with the focus on case-based problem solving. Students are presented with an open-ended problem and must choose information for solving. Software can be used to identify students that are having difficulty with problem solving strategies.

11:00-11:30 Creating Internet Workbook for Science Students
David Byres, Florida Community College Jacksonville

The Internet has a wide range of academic resources, but the diversity of available information often confuses students. This presentation will demonstrate how to find useful websites, and then produce a workbook for students. This type of "guided exploration" is much more effective than expecting students to locate and evaluate information in an unstructured environment.

11:00-11:30 A New Look At Colorimetry
John Amend, Montana State University

Colorimetry is one of the most versatile techniques in analytical chemistry, and is widely used in environmental and medical science as well as chemistry. However, it is difficult to demonstrate the importance of wavelength selection and the effect this has on the Beer's law response of a chemical system. Presenters will demonstrate an inexpensive diode array colorimeter that can measure transmission, absorbance, and scatter simultaneously at ten wavelengths throughout the visible and near IR spectrum. Unique software permits quick comparison of Beer's law plots at different wavelengths, as well as demonstration of spectral absorption band shift during kinetics experiments.The instrument also measures turbidity, and its wavelengths are keyed to Hach water quality tests for environmental science. Its software is also applicable with data collected manually with a Spectronic-20 spectrophotometer.

"It Worked for Me", chemistry teachers are invited to share a new or different teaching concept (approach) by submitting an article for publication in the Chemistry Outlook by emailing Carol Handy, our newsletter editor, at mh2ch@aol.com.. The following article was submitted by Tim Thorstenson from Bismarck State College.

A "Conceptual" Approach to Solubility Rules for Introductory Chemistry
Tim Thorstenson, Bismarck State College

My approach to teaching chemistry is to put as much material as possible into the form of a conceptual understanding where properties, reactivity, and other "macroscopic" behavior can be understood and explained in terms of what is happening to the particles (atoms, molecules, ions) that make up the matter.

With respect to teaching solubility rules, I was not too terribly happy with the idea of having students memorize a table with rules such as "compounds containing alkali metal ions are generally soluble". This is especially true in light of the fact that I cover chemical bonding first and spend considerable time explaining why ions have the charge they do and why metals and nonmetals combine in the ratios they do.

I provide my students with a table that summarizes solubility in terms of ionic charge and is based on the premise that as the charge of the cation and anion increase, the strength of attraction between the ions increases. As a rule, this results in low solubility when the cation charge is +2 or greater AND the anion charge is –2 or greater, because the water molecules are unable to break these stronger attractions. Solubility rules can then be summarized in a table like the one that follows.

Solubility Guidelines Based on Ionic Charge:

Compounds Containing a:	Will Generally be:	Common Exceptions:
+ 1 cation **OR** **- 1 anion**	**SOLUBLE**	Ag^+ is insoluble with the halide anions (F^-, Cl^-, Br^-, I^-) – The halide anions are insoluble with Pb^{2+} OH^- is insoluble if the cation has a +2 or higher charge (However, Ca^{2+}, Sr^{2+}, Ba^{2+} are sparingly soluble)
+ 2 or > cation **AND** **- 2 or > anion**	**INSOLUBLE**	No common general exceptions – SO_4^{2-} is generally soluble (but insoluble with Sr^{2+}, Ba^{2+}, Pb^{2+}) S^{2-} is soluble with Ca^{2+}, Sr^{2+}, Ba^{2+}

This table is, of course, a simplification. However, it does provide the same predictive capabilities as conventional solubility tables provided in freshman chemistry texts. Most importantly, presenting solubility concepts from this perspective puts the students into the mindset of thinking about WHY ionic compounds are soluble or insoluble in the fundamental terms of the strength of attraction between the ions.

This approach allows students to view solubility as something they can understand in terms of the concepts they have learned. As such, it provides a solid example of an answer to the perennial question "why do we learn all this stuff?" by showing how fundamental concepts can actually be used and applied. I would also expect that this approach enhances the long term retention of solubility concepts.

I would appreciate any thoughts or comments that anyone may have in regard to this approach to teaching the concept of solubility. My e-mail address is thorsten@gwmail.nodak.edu.

The election results are in!
Our New 2003 Chair Elect is Sonja Davison
and our 2002-2004
Industrial Sponsors Chair is Michaeleen Lee
Congratulations to both!

Please check the conference web site for a map of Jacksonville and of the FCCJ South Campus
http://web.fccj.org/~ethall/2yc3/website.htm

Directions from Airport

Use service road to exit airport and go South on I-95. After about 1 mile, take 9A South (Exit 126A). After about 15 miles, 9A becomes St. Johns Bluff. Turn left at Beach Blvd. FCCJ South Campus 1 mile on the left.

Directions from I-95

Driving South: About 1 mile after the Jacksonville Airport, take 9A South (Exit 126A). After about 15 miles, 9A becomes St. Johns Bluff. Turn left at Beach Blvd. FCCJ South Campus 1 mile on the left.

Driving North: Take exit 101 (J. Turner Butler Blvd.) and turn right (east). Exit St. Johns Bluff and turn left. Go to Beach Blvd. and turn right. FCCJ South Campus 1 mile on the left.

Conference Lodging

Courtyard Marriott (5 miles from Conference)
4600 San Pablo Road
Jacksonville, FL 32224
(904)-223-1700
$69 for king or 2 double beds (ask for 2YC3 conference rate)
Comment: On grounds of Mayo Clinic and easy drive to conference. Rooms are attractive (normal weekday rate $140). 50 rooms reserved until March 15.

Suburban Lodge (1 mile from Conference)
3162 St. John's Bluff South
Jacksonville, FL 32246
(904)-928-9116
$49 for 2 double beds (ask for FCCJ rate)
Comment: This is a new motel very close to conference. Reserve early since $49 rate only if rooms available.

Holiday Inn (about 10 miles from Conference)
1617 North First St.
Jacksonville Beach, FL 32250
(904)-249-9071
$104 Ocean Front $94 City View (ask for FCCJ rate)
Comment: For those who yearn to be on beach, drive is about 20 minutes. Banquet site.

Comfort Inn (about 10 miles from Conference)
1515 N. First Street
Jacksonville Beach, FL 32250
(904)-241-2311
1-800-654-8776
$119 Oceanfront/$99 Pool view/$89 City view (ask for 2YC3 rate)
Comment: For those who yearn to be on beach, drive is about 20 minutes.

Brampton Inn (about 10 miles from Conference)
1201 North First St.
Jacksonville Beach, FL 32250
(904)-241-5333
$79 All Ocean Front (ask for FCCJ rate)
Comment: For those who yearn to be on beach, drive is about 20 minutes.
Very adequate motel although not as well maintained as Holiday Inn or Comfort Inn.

Contact Richard Morris (rmorris@fccj.org) for lodging questions

11:30-12:00 The Use of Spreadsheets in General Chemistry Lab
Nancy Mullins, Manatee Community College

In the applied sciences, spreadsheets are used to graph, to perform interative calculations, and to present results in an organized way. Students now need to learn these skills, as well as some fundamental programming skills to compete in the work environment. Spreadsheets are also highly useful to the instructor, and I use spreadsheets in 50% of my labs. Applications include: collection and display of student data to demonstrate a point or a relationship, reduction of student workload so that they can focus on their outcomes, verification of calculations before submission of lab work, and even the creation of individualized assignments, assignment keys, and passworded grade postings. This session will focus on examples of each of these types of application. Participants will be given access to several excel templates and their corresponding lab activities, and discussion will include the coding contained in the spreadsheet application.

11:30-12:00 Publishing Intellectual Properties on the Web
Doug Matthews, Teacher Press

Teacher Press works with educators interested in publishing intellectual properties both in book form and on The Web. The presentation will offer examples of the materials sought (course notes, enhancement materials, lab manuals, handouts, etc.) to assist teachers and students.

12:00-1:30 Lunch Break

1:30-2:15 Unique One-Year Chemical Technology Program
Bert Knesel, Midlands Technical College, Columbia, SC

Midlands Technical College (Columbia, SC) has initiated a new one-year certificate Chemical Technology Program. The presentation will describe the rationale for the unique 31 credit program which does not include any general education courses.

Integrating Technology into Chemistry Classroom: Theory Versus Reality
Tom Grow, Pensacola Junior College

With increasing availability of computor-related resources, educators are rushing to incorporate technology into the classroom. However, integrating these technologies are often difficult, time-consumming, and not always beneficial. This presentation offers suggestions for utilization of technologies in the chemistry classroom.

2:30-3:30 Discussion Group: Advantages/Disadvantages of Teaching Chemistry Online
Leader: Karen Sanchez, Florida Community College Jacksonville

2:30-5:00 Integrating Research into Laboratory Instruction: A New Look at Laboratory Interfacing
John Amend, Montana State University

While development of inquiry and research skills are major goals of modern secondary and college science curricula, laboratory tools affordable for teaching seldom have the flexibility and resolution needed for research. The MicroLab Environmental Interface uses new integrated circuits, engineering, and software technology to provide affordable research-grade resolution and flexibility to instructional labs. Participants in this "hands-on" workshop will explore the information that can be gained from quick and inexpensive high resolution laboratory measurements, and the use of tools that make the student/researcher an active participant instead of an observer in an experiment.

2:30-5:00 Workshop for Developing Online Course
Ken Whitten/Susan Slavicz, Florida Community College Jacksonville

In this interactive workshop, attendees will explore basic tasks that should be considered prior to beginning the development of online courses. Methods will be identified for handling these issues. Attendees will develop a shell for future development of an online course. Concepts involved with the uses of cooperative learning, constructivist learning and mastery learning will be examined. Online uses as well as those in the traditional classroom will be explored. Attendees should bring with them a syllabus for a course they would like to teach online. Training in the uses of either WebCT, Blackboard Course Manager or a similar online course development tool is a prerequisite for this workshop

2:30-5:00 Tour: Anheuser Busch

7:00-9:00 Banquet: Frederick Senese, Frostburg State College Frostburg, MD

Saturday, April 6

8:00-9:00 Mini-Continental Breakfast

8:00-12:00 Registration/Exhibits

9:00-9:30 Developing Chemistry Videos and Animation
Karen Sanchez/Steve Milcanowski, Florida Community College Jacksonville

9:30-10:15 Interactive Electronic Reports for Chemistry Laboratory Courses
Myung-Hoon Kim, Georgia Perimeter College-Dunwoody Campus

A grading scheme, a brief history, and an example of an interactive Electronic Laboratory Report (ELR) for chemistry experiments is presented. The automatic grading by computer is prompt, uniform and impartial. This is currently implemented under a local area net work (LAN) environment so that instructors can access records in a server directly from their offices. It has been a great time-saver for boith instructors and students.

10:30-11:15 Simulation Experiments
Bettina Heinz, Palomar College & California State University San Marcos

Distance learning, greater selection of activities, and manipulation of parameters are some of the benefits associated with simulated experiments. This session will highlight simulated experiments designed by the presenter including titration, flame tests, spectra, TLC, extraction, MP/BP, SN1/SN2, kinetics, Millikan oil drop, and Rutherford gold-foil.

11:30-12:15 Developing $2YC_3$ Web Resource
Edwin Thall, Florida Community College Jacksonville

Search the Web for chemistry-related topics such as quantum mechanics or thermodynamics and numerous links are offered. Who writes these articles and how does one get involved in the enterprise? The focus of this session is the presenter's involvement in writing Web articles and proposal for developing $2YC_3$ Web resource.

12:15-2:00 Lunch Break
$2YC_3$ Open Forum (all members urged to attend)

2:00-2:30 Chemistry in the Cyberspace Frontier
John Schmidt, McGraw-Hill Publishing

The presenter will discuss issues and challenges of the Web-based Chemistry course including support available from McGraw-Hill Publishing.

2:30-5:00 Tour: Millennium Chemicals

2:30-4:00 Peer-Led Team Learning and the Community College
Dennis Bartow, Prince George Community College
Victor Strozak, CUNY
Paul Horton, Indian River Community College

Funded by NSF, PLTL promotes active learning in chemistry by using students as guides and mentors to small groups of six to eight students in weekly structured problem-based workshop sessions. This workshop offers an overview of PLTL, followed by a discussion of the benefits and impact of the workshop approach from the perspectives of community college faculty, peer leaders, and undergraduate chemistry students.

2:30-4:30 Understanding Sensors and Environmental Measurements: Analog Measurements
John Amend, Montana State University

Almost every measurement in chemistry involves an instrument of some sort. Instruments need not be "black boxes" to students, and they will use them more effectively if they understand the basic principles by which these tools operate. While this "hands-on" workshop presumes no background in electronics, participants will learn to use basic analog sensors and operational amplifier circuits to build inexpensive instruments that will measure temperature, light, pH, and to make colorimetric measurements. A "take-home" experiment manual will be provided for participants.

3:45-4:30 Prentice Hall

3:45-4:30 Discussion Group: What to Teach & Eliminate in General Chemistry
Leader: Bert Knesel, Midlands Technical College, Columbia, SC

4:30 Closing Remarks

6:00 **Excursion & Dinner in St. Augustine (30 miles from FCCJ)**

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Phosphorous

preregistration

Pre-Registration (158th Conference Jacksonville, FL)

Name_____

Institution_____

Address_____

City_____ **State**_____ **Zip**_____

Phone_____ **E-mail**_____

Your current 2002 Memberships: $2YC_3$ _____ ACS_____ DivCHED_____

Teach at: 2-yr. College_____ 4-yr. College_____ High School_____

Conference Fees:

$2YC_3$ Membership if not already member	**$15**	**$_____**
Conference Registration	**$15**	**$_____**
Friday Evening Banquet	**$30**	**$_____**
Friday Box Lunch	**$6**	**$_____**
Saturday Box Lunch	**$6**	**$_____**
	TOTAL	**$_____**

Send registration form & check (payable to JAX $2YC_3$) by March 15 to:
Richard Morris
158th $2YC_3$ Conference
Florida Community College Jacksonville
11901 Beach Blvd.
Jacksonville, FL 32246