TECHNICAL PROGRAM

Sunday Afternoon

Green Chemistry and Its Role in Chemical Education **MH163**

Mary M. Kirchhoff, Julie A. Haack, James E. Hutchison, Organizers; Mary M. Kirchhoff, Presiding

2:00		Opening Remarks, **Dr. Mary Kirchhoff**
2:05	**1**	Green Chemistry and Its Role in Chemical Education, **Paul Anastas**
2:30	**2**	The Importance of Green Chemistry Education in Protecting Human Health and the Environment, **Tracy Williamson**
2:55	**3**	Waste-Free Friedel-Crafts Acylations, **Bob Hembre**
3:20		**Break**
3:35	**4**	Industrial Relevancy in the Classroom, **John C. Warner**
4:00	**5**	Green Chemistry Applications in the Curriculum, **Mary Kirchhoff,** Paul T. Anastas
4:25	**6**	Nike Product Stewardship - Driving Sustainability and Green Chemistry into Innovative Products, **John Frazier**

Survival 101 for the New College Chemistry Instructor I: New Teachers' Experiences **FH3**

Cinzia Muzzi, Diane Bunce, Organizers

2:00		Opening Remarks
2:05	**7**	Working a Hostile Crowd, **Bryan May**
2:30	**8**	Is your Teaching Style Compatible with a Diverse Group of Students?, **Cinzia Muzzi**
2:55		Break
3:05	**9**	Choosing a Textbook: It's That and More!, **Christina (Tina) Bailey**
3:30	**10**	TextRev: A Window Into How Students Use Textbook Resources, **Bradley Smith,** Dennis Jacobs

Computers in Chemical Education I: Selected Topics **SL110**

Donald Rosenthal, Organizer

2:00		Opening Remarks, **Donald Rosenthal**
2:05	**11**	Lecturing with PowerPoint: Success at a Price, **Cathy Middlecamp**
2:30	**12**	What's Up With Chime These Days?, **Elizabeth Dorland**
3:00	**13**	CONFCHEM On-Line Chemistry Conferences, **Brian Tissue,** Donald Rosenthal
3:20		Break
3:30	**14**	Making CAI Make a Difference in General Chemistry, **Stephen K. Lower**

4:00	**15**	Ions and Cations: Real World Consulting for Industry-Based Chemistry Students, **Paul Kelter**
4:30	**16**	Computing in Chemistry: The Evolution of a Computing Course for Science Majors, **Carl Snyder**

Providing a Seamless Transition for Students from High-School to Community College to 4-Year Institution **ES74**

Amar Yahiaoui

2:00		Opening Remarks, **Amar Yahiaoui**
2:05	**17**	Development of a Faculty-Led Academic Science Transfer Community, **Karen Walters Dunlap**
2:35	**18**	What Happens When They Transfer?: Using a New Statewide Database to Examine the Performance of Chemistry Students After Transfer., **Mary Whitfield**
3:05		Break
3:15	**19**	The College of Technology: A Seamless Pathway Program, **Karen Wosczyna-Birch,** Ron Adrezin
3:45	**20**	Transfer of Virginia Community College Organic and Analytical Courses to Senior Virginia Institution, **George Grant**

Interdisciplinary Curricula: Chemistry Beyond Chemistry I **BH109**

Ana M. Gaillat, Organizer

2:00		Opening Remarks, **Ana M. Gaillat**
2:05	**21**	The MERL CD-ROM: Teaching Chemisry Through a Story of Environmental Technology Development, **Paul Tratnyek,** Barbara Balko
2:30	**22**	Authoring Interdisciplinary Online Activities with CreateStudio, **David Yaron,** D. Jeff Milton, Rebecca Freeland, Donovan Lange, Michael Karabinos
2:55	**23**	The Five Biggest Ideas in Science, **Charles M. Wynn, Sr.**
3:20		Break
3:30	**24**	An Interim Course, **Bryan Hearn,** Katie Allen, Waylon Broach, Kristin Kozar
3:50	**25**	Reconciling Physical and Chemical Electricity, **John Martin - moved to 9:55 Mon**
3:50	93	Should We Teach Chemists To Communicate? **Patrick Bailey**
4:10	**26**	Atomic Unified Field and Quantum Gravity from Rydberg's Equation, **Jonathan Brooks**
4:30	**27**	Big Ideas in Science: Introductory Science for Education Majors, **Thomas Holme,** William Kean, Eric Hagedorn

Laboratory Computing **HH153**

Linda Kuehnert, Presiding

2:00		Opening Remarks, **Linda Kuehnert**
2:05	**28**	Using the PASCO Photogate as an Automatic Drop Counter for Titration Experiments, **David Wing**
2:35	**29**	Computer-Assisted Data Acquisition for General Chemistry Lab: Conductometric Titration, **Lisa Benkowski,** Brian Nablo, Carolyn J. Morse, Lisa Volaric, Todd L. Austell
3:05		Break
3:15	**30**	Computers in the General Chemistry Laboratory: Acid-Base Titrations, **William Randall** **Moved to Tuesday 4:15**
3:45	**31**	A LIMS System for Analytical Chemistry Courses, **John Kenkel**

Lab Format Innovations in Chemical Education I **SL140**

Maria T Oliver-Hoyo, Organizer

2:00		Opening Remarks, Maria T. Oliver-Hoyo
2:05	**32**	Pre-lab Questions: What's the Use?, **Anne Kondo,** Wendy L. Elcesser, John C. Woolcock
2:25	**33**	Moving Towards Inquiry Laboratories, **Vickie M. Williamson**
2:45	**34**	A Gradual Restructuring of the General Chemistry Laboratory Using the Science Writing Heuristic, **James Rudd,** Thomas J. Greenbowe
3:05		Break
3:15	**35**	Guided Inquiry and Scientific Writing in the General Chemistry Laboratory, **Misti Ault Anderson**
3:35	**36**	Problem-Based Laboratories for Non-Science Majors: A Method for Evaluating Student Understanding **Brenda Harmon**
3:55	**37**	Peer-Mentoring in the General Chemistry Laboratory: Student Satisfaction and Perception of the Extent of Learning in Lab, **Michael Golde,** Christine L. McCreary
4:15	**38**	New Experiments for Teaching Organic Laboratory Using the Guided Inquiry Learning Approach, **Ingrid Montes,** Chunqiu Lai, Marilyn García, Alberto Maldonado, Margarita Meléndez, David Sanabria
4:35	**39**	Educational Innovations at a Research I Institution: The cAcL2 Project, **DeeDee Allen**

Active Learning Throughout the Chemistry Curriculum I **SL130**

Rick Moog, Organizer

2:00		Opening Remarks, **Rick Moog**
2:10	**40**	Creating a Lectureless Organic Course: From Lecture Notes to Learning Cycles, **R. Daniel Libby**
2:35	**41**	Inquiry-Based Learning in the Organic Chemistry Laboratory, **Frank Creegan**
3:00		Break
3:15	**42**	Guided Inquiry Learning in Organic Chemistry: A 5-Year Retrospective view, **Roy Butler**
3:40	**43**	Guided Inquiry Organic Chemistry in Large and Small Classes, **Andrei Straumanis**
4:15		Panel Discussion

Putting the Fun in Chemistry **BI124**

Mary Harty, Presiding

2:00		Opening Remarks, **Mary Harty**
2:05	**44**	Chemistry in Comics, **Al Hazari**
2:30	**45**	Learning Terminology by Solving Puzzles, **Terry Helser**
2:55	**46**	Humorous General Chemistry Exams, **Venera Jouraeva**
3:20		Break
3:30	**47**	Science at the Movies, **Mary Harty,** Sara Selfe
4:00	**48**	Joyous General Chemistry Laboratory, **Venera Jouraeva**

Contribution of Journals to Science and Chemical Education I **ES80**

Yuri Orlik, Organizer

2:00		Opening Remarks, **Yuri Orlik**
2:05	**49**	The Many Facets of the Journal of Chemical Education, **John Moore,** Jon L. Holmes, Elizabeth A. Moore, Mary E. Saecker
2:35	**50**	Withdrawn
3:00	**51**	Importance of the Journal "Educación Química" on the Academic Updating of Teachers., **Andoni Garritz**
3:25		Break
3:35	**52**	Using the Internet to Enhance Dissemination The Chemical Educator, **Clifford LeMaster**
4:00	**53**	Bilingual Journal of Science Education, **Yuri Orlik,** Luz C. Hernandez
4:25	**54**	Withdrawn

Women Influencing Chemical Education: Textbook Authors **SL120**

Carol Baker Libby, Albert H. Martin, Organizers

2:00		Opening Remarks, **Carol Baker Libby, Albert H. Martin**

2:05	**55**	Becoming an Author, **Loretta Jones**
2:30	**56**	Writing a Text Is A Balancing Act, **Karen Timberlake**
2:55	**57**	Would I Do It Again?, **Paula Yurkanis Bruice**
3:20		Break
3:35	**58**	Hard labor? Women Who Write Textbooks, **Lucy Pryde Eubanks,** Cathy Middlecamp
4:00	**59**	Panel Discussion on the Process and Experience of Writing a Textbook

General Papers I - Other **SL150**

Gowsala Sivam, Presiding

2:00		Opening Remarks
2:05	**60**	A Two in One Organic Chemistry Course, **James Beard**
2:30	**61**	General-Organic-Biochem (GOB) E-Homework Available in Fall 2002, **James Spain,** Lucille Garmon
2:55	**62**	Chemical Science and the Health Professions: A Challenge to Chemical Education and the Professional Disciplines, **Arden W Forrey,** Lindsay Hoffman, Michael Everitt
3:20	**63**	Computerized Modules for Enhancing Math and Problem Solving Skills in Hispanic General Chemistry Students, **Francisco Echegaray,** Noel Motta
3:45		Break
3:55	**64**	Are Hydrogen Cars Ready To Invade The North American Market?, **Marie-Claude Dupuis**
4:20	**65**	Further Evidence for Maintaining Biodiversity of Plant Species in the Tropics, **Sonia Peter**
4:45	**66**	Ammonia and Ammunition; Food and Fertilizers, **Gordon Woods**

Sunday Evening

7:30PM

Opening Ceremony **Performing Arts Center**

George Kriz, Sara Selfe, Presiding

8:00PM

Plenary Lecture **Performing Arts Center**

67 Let's not Waste the Opportunity to Inspire in College and High School Chemistry, ***Ronald Breslow****, Columbia University, Department of Chemistry, New York, NY 10027*

Monday Morning

8:00AM – 9:00AM

Plenary Lecture **Performing Arts Center**

68 Misconceptions in Teaching and Research - No Time, No Money, ***Michael Doyle****, President, Research Corporation University of Arizona, Tucson, AZ*

Resources for Green Chemistry Education **MH163**

Ken Doxsee, Mary M. Kirchhoff, Julie A. Haack, Organizer; Ken Doxsee, Presiding

9:30		Opening Remarks**, Dr. Ken Doxsee**
9:35	**69**	Educational Materials for a Greener Organic Chemistry Laboratory Curriculum, **James Hutchison**
10:00	**70**	Green Chemistry Materials for Introductory Chemistry – Part I, **Mary Ann Ryan**
10:25	**71**	Green Chemistry-Introductory Lab Modules from ACS, **Michael Tinnesand**
10:50		Break
11:00	**72**	Resources for the Infusion of Green Chemistry into Lecture Courses, **Michael Cann**
11:25	**73**	Industry Collaboration in Green Chemistry Education, **John C. Warner**

Survival 101 for the New College Chemistry Instructor II: Pedaogy and Classroom Instruction **FH3**

Cinzia Muzzi, Diane Bunce, Organizers

9:00		Opening Remarks
9:05	**74**	Interpreting and Addressing Student Apprehension Concerning Chemistry, **Diane Bunce**
9:30	**75**	What Works and What Doesn't, **John Kotz**
9:55	**76**	Innovations in the Traditional Lecture: Some Cases of Student and Faculty Response, **Norbert Pienta**
10:20		Break
10:30	**77**	Small Groups Are Worth the Effort, **Julianne Smist,** Saundra McGuire, **Leslie G. Butler**
10:55	**78**	Your Partner for Successful Teaching: Small Groups, **Susan Nurrenbern**

Lab Format Innovations in Chemical Education II: Interdisciplinary **SL140**

Maria T Oliver-Hoyo, Organizer

9:30	**79**	Application Lab for General Chemistry, Qualitative/Quantitative Analysis of Metal Cations, **James Durandetta,** Salah M. Blaih, Susan A. Griffiths-Brophy

9:50	**80**	Biophysical Chemistry Laboratory in the Undergraduate Biochemistry Curriculum, **Robert Blankenship**
10:10	**81**	The Pursuit of Active Learning in a Qualitative Analysis Lab, **Randall Hicks,** Holly M. Bevsek
10:30		Break
10:40	**82**	Bitter Pit and Determination of Calcium in Apples: A Project-Based Exercise in General Chemistry, **Don A. Storer,** Rajiv S. Soman
11:00	**83**	Implementation of Model Research Projects in the General Chemistry Laboratory, **Kevin E. Johnson,** Jodi M. Paar
11:20	**84**	Service Learning Across the Chemistry Curriculum: Collaborative and Complimentary Projects, **Jennifer Sorensen,** Susan C. Jackels
11:40	**85**	Integration of Chemistry, Biology, and Physics: The Interdisciplinary Laboratory, **Kerry Karukstis,** Gerald R. Van Hecke, Catherine S. McFadden, Richard C. Haskell, F. Sheldon Wettack

Computers in Chemical Education II: Selected Topics **SL110**

Donald Rosenthal, Organizer; Scott Van Bramer, Presiding

9:30	**86**	Interfacing Databases on the Web: Active Server Pages (ASP), **Jimmy Reeves**
10:00	**87**	The Analytical Sciences Digital Library, **George Long**, Stuart Chalk, Cameron Dorey, Ted Kuwana, Cindy Larive
10:30	**88**	Resources for Physical Chemistry: The Mathcad Collection and Physical Chemistry On-line Projects, **Theresa Julia Zielinski**
11:00	**89**	Content and Technology Issues to Be Considered When Creating Computer Animations, **Michael J. Sanger**
11:30	**90**	The Emerging Technology of Web-enabled DVD and It's Potential as an Educational Tool, **Gabriela C. Weaver**
12:00	**91**	Developing, Reviewing, Publishing Software the Old Fashioned Way; It's Time to Change , **Jon Holmes,** John W. Moore

Interdisciplinary Curricula: Chemistry beyond Chemistry II **BH109**

Ana M.Gaillat, Organizer

9:30		Opening Remarks, **Ana M. Gaillat**
9:35	**92**	Reinventing the Wheel: Attractive Chemistry, **Geoff Hamilton**
9:55	**93**	Should We Teach Chemists to Communicate?, **Patrick Bailey moved to 3:50 Sunday**
10:15	**94**	Two Cultures in a Classroom: A Course in Literature and Science, **A. Truman Schwartz,** Tanya Pollard

10:35		Break
10:45	**95**	Fill Your Class with Art and Color, **MaríaEsther Del Rey,** Yolanda Castells, Federico García
11:10	**96**	Astronomical Insights into Chemistry, **Robert Karcha**
11:35	**97**	Medical Practicum: An International and Interdisciplinary Course at Manchester College, **Terrie Salupo-Bryant,** Mark A. Bryant

The Sorcerer's Apprentice I **FR4**

John J. Fortman, Organizer

9:30		Opening Remarks, **John J. Fortman**
9:35	**98**	Gil Haight at Illinois, **Steven Zumdahl**
9:50	**99**	Lighting up the Screen: How to Rise Above an Errant Demo, **Derek A. Davenport**
10:10	**100**	Gil Haight: Mentor/Punster/Friend Par Excellence, **Bassam Shakhashiri**
10:30	**101**	The Other Side of Gil Haight, **Shirley Haight**
10:50		Break
11:00	**102**	Close Packing of Dancing Bears and Atoms in Proteins, **David C. Richardson,** Jane S. Richardson
11:15	**103**	Transcription Factors and Translation Factors as Molecular Targets for Cancer Prevention, **Nancy Colburn**
11:25	**104**	Computer Graphics in the Service of Physical Chemistry, **Jay Anderson**
11:40	**105**	Recollections of Gil Haight, **Friends and Colleagues**

Combinatorial Chemistry and Undergraduate Instruction **HH153**

Daniel M. Ketcha, Richard T. Taylor, Organizers

9:30		Opening Remarks
9:35	**106**	Combinatorial Chemistry: 'How', No Longer 'Why', **Anthony Czarnik**
10:00	**107**	Combinatorial Chemistry in the Sophomore Organic Lab, **Richard Taylor**
10:25		Break
10:35	**108**	Combinatorial Chemistry in the Idealized Advanced Organic Chemistry Laboratory, **Daniel Ketcha**
11:00	**109**	Polymer-supported Borohydride-Based Reagents: Scope and Selectivity Studies in Reductive Amination, **Young Yun,** Sunil Rana, Owen Gooding, Jeff Labadie, Sukanta Bhattacharyya

Contribution of Journals to Science and Chemical Education II **ES80**

Yuri Orlik, Organizer

9:30		Opening Remarks, **Yuri Orlik**
9:35	**110**	20+ years of Chemistry in Action!, **Peter E. Childs,**

10:00	**111**	The Contribution of 'Ensenanza de las Ciencias' to the Research and Innovation of Science Education, **Carlos Furió**
10:25	**112**	Contribution of Journals to Science and Chemical Education in Mexico. **Yolanda Castells,** Ma. Esther Del REY, Martha Garcia-Reyes
10:50		Break
11:00	**113**	University Chemistry Education, **Patrick Bailey,** John Garratt
11:25	**114**	Belarusian Journal for Chemistry Teachers, **Vadim V. Sviridov,** Dmitry I. Mychko

What are the Opportunities for a BS Chemist? **SL150**

Jean Parr, Jura Viesulas, Mary Jordan, Organizers

9:30	**115**	What are the Opportunities for a BS Chemist!: A Panel Discussion

Ways to Help Students Learn **ES74**

Paul Frazey, Presiding

9:30		Opening Remarks, **Paul Frazey**
9:35	**116**	Beyond End-of-Chapter Problems: Challenges and Opportunities for Students, **John Whitmer**
9:55	**117**	Pre-Reading Assignments in General Chemistry, **Anna McKenna,** Jack F. McKenna
10:15	**118**	Broadening the Avenue of Learning in An Introductory General Chemistry Class, **Parinbam (Raj) Thamburaj**
10:35		Break
10:45	**119**	Using Exam Redo's to Improve Student Comprehension, **Deborah Mead**
11:05	**120**	The WICK Writing Program for an Organic Chemistry Course, **Kenneth Pohlmann**
11:25	**121**	Visual Aids to Understanding Acid-base Equilibria, **Evan Williams**
11:50	**122**	Are We Putting the Cart Before the Horse in Use of e-Homework?, **James Spain**

Lessons Learned in Providing Distance Learning Labs **BI234**

Leslie Hersh, Organizer

9:30		Opening Remarks, **Leslie Hersh**
9:40	**123**	Distance Learning Laboratory Methods: Kitchen Chemistry for Intro Courses, **Doris Kimbrough,** and Jimmy Reeves
10:25	**124**	Inquiry Based Learning: The Use of Mixed Mode Chemistry Laboratory Modules, **Sophia Nussbaum**, Cyprien P Lomas, Joanne Nakonechny

10:55	**125**	The Use of Virtual Laboratory Activities to Introduce Inquiry Learning Into Procedural Experiments, **Robert Belford,** David Yaron, Rea Freeland, Donovan Lange, Mike Karabinos
11:25	**126**	Grouped On Campus Labs with Distance Ed, **Leslie Hersh**

New Challenges for Laboratory Directors I **SL120**

Lynne O'Connell, Organizer

9:30		Opening Remarks, **Lynne O'Connell**
9:35	**127**	Advantages of Networked Data Collection in the Chemistry Laboratory, **Estel Sprague**
10:00	**128**	Teaching Biochemistry in a Mass Enrollment Freshman Lab, **Gordon A. Bain,** John W. Moore, Jeremiah P. Depta, Timothy M. Herman, Michael H. Patrick
10:25	**129**	Surviving a Mandated Chemical Stockroom Cleanup: Some Do's and Don'ts, **Jacqueline Whitling,** Roberta W. Kleinman
10:50		Break
11:00	**130**	Electronic Laboratory Notebooks in the Advanced Undergraduate Labs, **Todd Woerner,** Misti A. Anderson
11:25	**131**	The Use of Calibrated Peer Review in an Organic Laboratory Course, **Lynne O'Connell**

Active Learning Throughout the Chemistry Curriculum II **SL130**

Rick Moog, Organizer

9:30		Opening Remarks, **Rick Moog**
9:35	**132**	Student Focused Active Learning, **James Spencer**
10:10	**133**	Using Active Learning Methods in General Chemistry-Are They Effective?, **Patrick Wegner**
10:35		Break
10:45	**134**	The Learning Curve: Reflections From Exam Rewrites, **Karen Anderson,** Grace A. Cooper
11:10	**135**	An Investigation of Student Learning in the Guided Inquiry Approach to General Chemistry, **Patrick Daubenmire,** Diane M Bunce
11:45		Panel Discussion

Monday Afternoon

Green Chemistry in Action **MH163**

Julie A. Haack, Mary M. Kirchhoff, James E. Hutchison, Organizers; Julie A. Haack, Presiding

2:00		Opening Remarks, **Julie A. Haack**
2:05	**136**	Green Chemistry Demonstrations, **Jeffrey Pribyl**

2:25	**137**	Using Technology to Teach Green Chemistry, **Kimberly J Smith**
2:45	**138**	Unintended Consequences: Green Experiments From a Distance Learning Curriculum, **Doris Kimbrough,** Jimmy Reeves
3:05		Break
3:20	**139**	Being Green- Don't Forget the Building, **Allan Hovland**
3:40	**140**	The Asymptotic Approach to Green Organic Chemistry Experiments: An Elephantine Task, **Tom Goodwin**
4:00	**141**	The Green Organic Chemistry Program at the University of Oregon, **Kenneth Doxsee**
4:20	**142**	Environmental Engineering Project, **Felicisima Espinosa,** Nathaniel S. Dugos, Lili P. Padilla

Survival 101 for the New College Chemistry Instructor III: Testing and Assessment **FH3**

Cinzia Muzzi, Diane Bunce, Organizers

2:00		Opening Remarks
2:05	**143**	Integrating Library Research into Chemistry Courses, **Carmen V. Gauthier,** Mary M. Flekke
2:30	**144**	Technology as Both a Teaching and Assessement Tool, **Charles Ward**
2:55	**145**	Conceptual Questions in the Classroom, **William R. Robinson,** Eunyoung Hurh
3:20		Break
3:30	**146**	Assessing Your Students' Understanding of Chemistry, **Thomas Greenbowe,** K. A. Burke
3:55	**147**	The Testing Trap, **I Dwaine Eubanks**

Lab Format Innovations in Chemical Education III: Technological **SL140**

Maria T Oliver-Hoyo, Organizer

2:00		Opening Remarks, **Maria T. Oliver-Hoyo**
2:05	**148**	Web Based Multimedia Presentation of the Chemistry Lab Experiments as a Useful Teaching Aid. **Sophie Lavieri**
2:30	**149**	Chemistry at a Distance: Does It Measure Up, **Jimmy Reeves,** Doris Kimbrough, Barbara Heath, Jen Mullen, Ruby Casanova
2:55	**150**	Using Guided Inquiry, The Science Writing Heuristic and Computer Simulations to Restructure the Lab, **Thomas Greenbowe**
3:20		Break
3:30	**151**	Enhancing the Organic Laboratory Through Electronic Learning, Barbara Gaddis**, Allen M. Schoffstall**, Connie S. Pitman
3:55	**152**	An NMR Laboratory Course at SUNY Oswego - Integrating Computers with NMR Spectroscopy, **Joseph LeFevre**

4:20 **153** Road to Discovery- a Coordinated Lab Curricula in Undergraduate Chemistry, **Amy Lindsay**

4:45 **154** Internet-Mediated Access to FT-NMR and Other Spectroscopies, **Gregory Moehring,** Shailendra Kumar, Karen D'Arcy, Gary Lyon, Salim Diab

5:10 **155** The Irydium Virtual Lab: A Flexible Tool for Constructing Online Learning Activities, **David Yaron,** Donovan Lange, Rebecca Freeland, Michael Karabinos, Beatrix Aukszi, Daniel H. Huchital

Computers in Chemical Education III: Selected Topics **SL110**

Donald Rosenthal, Organizer

2:00 **156** Interactive Tutorials on the Internet, **Stanley Smith**

2:30 **157** Vintage Wine in New Bottles, **Steven Zumdahl,** Susan A Zumdahl, Donald J. DeCoste

3:00 **158** A Hybrid Course Content Delivery Scheme, **Roberto Gregorius**

3:30 **159** Local Web Site as a Teaching Tool, **David Trapp**

4:00 **160** Computational QSAR for 500 Students in Introductory Chemistry, **James Peploski**

4:30 **161** Using Matlab in Data Acquisition. An Undergraduate Experiment in the Advanced Analytical Laboratory, Margaret Antler, Eric Dunbar Salin, **Grazyna H. Wilczek-Vera**

Research in Chemistry Education I **SL150**

Stacey Lowery Bretz, Organizer

2:00 Opening Remarks, Stacey Lowery Bretz

2:05 **162** HOCS Problem Solving Vs. LOCS Exercise Solving in Chemistry, **Uri Zoller**

2:25 **163** Using ACS Standardized Exams to Measure Success of Teaching Strategies, **Susan Schelble**

2:45 **164** Effects of Explicitness on Mental Model Building, **Vickie M. Williamson**

3:05 **165** Biochemistry is Like a Circle: Analogies in Biochemistry, **MaryKay Orgi**ll, George M. Bodner

3:25 Break

3:30 **166** Assessing Student Understanding of General Chemistry Using Knowledge Space Theory, **Ramesh Arasasingham**

3:50 **167** Comparison of Misconceptions Between U.S. and Korean General Chemistry Students., **Eunyoung Hurh,** Douglas R. Mulford, George M. Bodner, William R. Robinson

4:10	**168**	Facing Reality - The Path From Naive Conceptions To Scientific Models, **Guy Ashkenazi**
4:30	**169**	A Case for Some Uncertainty in Chemical Education, **Alan Goodwin**

The Sorcerer's Apprentice II **FR4**

John J. Fortman, Organizer

1:30		A Viewing of Some of Gil Haight's Famous Demo Bloopers
2:00	**170**	The Power of Haight: Molding the Shape of Chemical Education in Post-WWII America, **Glenn A. Crosby**
2:10	**171**	Lessons That Go On Teaching, **Lynne Parr Galligan**
2:25	**172**	For the Love of Teaching Chemistry, **Andy Jorgensen**
2:40	**173**	I Can Do That!, **George Bodner**
3:00	**174**	Demo Videos in the Gil Haight Tradition, **John Fortman**
3:20		Break
3:30	**175**	Gil Haight: Cyborg Professor, **Loretta Jones**
3:45	**176**	Selamat Datang Professor Gil Haight (Oh For a Key), **Lawrence Garber**
4:00	**177**	Roasts and Toasts for Gil Haight, **More Friends and Colleagues**
4:25	**178**	Pedagogy, Peril, Prisms, Provocation, and Potential: A Haphazard History of Haight in JCE, **John Moore**
4:45	**179**	Truth and Consequences in the Practice of Chemical Education, **Gil Haight, Jr**

Innovations in Technician Education **ES80**

Mary O'Brien, Organizer

2:00		Opening Remarks, **Mary O'Brien**
2:05	**180**	Chemical Technician Skill Standards: An Update, **Sam Stevenson**
2:30	**181**	Before We Teach - We Must Reach: Model Recruitment Programs for Chemical Technician Programs, **Linda Thomas-Glover**
2:55	**182**	Building Chemical Technology Skills With Reiterative Projects, **Susan Marine**
3:20		Break
3:30	**183**	Analytical Chemistry For Technicians – Revised, **John Kenkel**
3:55	**184**	Contextual Laboratory Curriculum for Chemical Technology, **Julianne Braun,** Carol L. White, Ken Hughes, Robert Hofstader
4:20		Round table Discussion and Closing Remarks**, Mary O'Brien**

Preparing Future Science Teachers: What Are We Doing to Recruit and Train Outstanding Students? I **ES74**

Anna Cavinato, Organizer

2:00		Opening Remarks, **Anna Cavinato**
2:05	**185**	The OCEPT Project - A Collaboration for Preparing Science Teachers, **Marjorie (Marj) Enneking**
2:30	**186**	Teaching Everyday Science: A Teacher Preparation Course for K-8 Preservice Teachers, **Gwen Shusterman,** Joyce O'Halloran
2:55	**187**	Successful Activities in Support of Future Science Teachers' Preparation, **Anna Cavinato**
3:20		Break
3:45	**188**	Project TEACH: A Model for Community College Involvement in Teacher Prep, **Keith Clay,** Mary Whitfield
4:10	**189**	The Role of the ACS Committee on Professional Training (CPT) in Educating HS Chemistry Teachers, **Margaret Merritt**
4:35	**190**	A Novel Approach to the Preparation of Science Teachers, **Vicente Talanquer,** Ingrid Novodvorsky, Tim Slater, Debra Tomanek

European Approaches to Chemistry Reform at the Undergraduate and Graduate Levels **HH153**

Sylvia Ware, Organizer

2:00		Opening Remarks, **Sylvia Ware**
2:05	**191**	Maintaining the Quality of the Undergraduate Degree, **Richard Whewell**
2:25	**192**	Undergraduate Curriculum Reform in Europe, **Terence N. Mitchell**
2:45	**193**	Want to Evaluate Your Competence in Chemistry? Take the European Chemistry Test!, **Pascal Mimero**
3:05		Break
3:20	**194**	The Use of Multimedia in Teaching Chemistry from Metachem to WebChem, **Antonio Lagana**
3:40	**195**	Graduate Education in Europe, **Anthony Ashmore**
4:00	**196**	Comparing US and European Undergraduate and Graduate Education, **Jerry Bell, Donald Jones, Diane Bunce, Cathy Nelson**
4:20		Panel Discussion

Active Learning Throughout the Chemistry Curriculum III **SL130**

Rick Moog, Organizer

2:00		Opening Remarks, **Rick Moog**
2:05	**197**	Teaching General Chemistry Using Information Technology and Interactive Engagement Methods, **Geoffrey Herring**
2:30	**198**	An Eclectic Approach to Active Learning in an Honors General Chemistry Course, **Jeffrey Kovac**

2:55	**199**	Assessing for Success, **Richard Armstrong**
3:20		Break
3:30	**200**	The Play-Doh Project: Making Thinking Visible, **Mark Walter**
3:55	**201**	Discovery-based Experiments with Molecular Modeling, **James Currie,** William Jordan, Kevin Johnson, Crispin Wong
4:20	**202**	Effective Guided Inquiry Laboratories: Guidelines and Examples, **Richard Moog,** James N. Spencer
4:45		Panel Discussion

Inquiry Approaches to Teaching Chemistry I **BI234**

Catherine Milne, Organizer

2:00		Opening Remarks, **Catherine Milne**
2:05	**203**	Students Prefer a Demanding Guided Inquiry Format for their General Chemistry Laboratory, **Isam Marawi,** Bobby Friel, Catherine Albaugh
2:30	**204**	Inquiry-based Laboratory Activities Based on the Chemistry Rich Process of Copper Mining, **Phil McBride,** A. M. Sarquis
2:55	**205**	The Role of Inquiry in Penn's MCE Program: Development, Evolution and Daily Practice, **Constance Blasie**
3:20		Break
3:30	**206**	Guided Inquiry Activities for High School Chemistry, **Laura Spencer**
3:55	**207**	The Development of a Thinking-Skills-Centered General Chemistry Laboratory Curriculum, **Kereen Monteyne,** Mark S Cracolice
4:20	**208**	Types of Inquiry: Points of Difference, **Luis Montes,** Mark G. Rockley, Bruce Ackerson, Tom Westbrook, Mwarumba Mwavita
4:45	**209**	From Cooking to Thinking: Developing Inquiry-based Labs, **Anne Falke**

New Challenges for Laboratory Directors II **SL120**

Lynne O'Connell, Organizer

2:00		Opening Remarks, **Lynne O'Connell**
2:05	**210**	You Win Some, You Lose Some, and Some Get Rained Out: Highlights of 10 years of Running General Chemistry Labs, **Joe Keiser**
2:30	**211**	Department Teaching Circles: Promoting Curriculum Change Through Cooperation Instead of Coersion, **John Woolcock,** Wendy Elcesser
2:55		Break
3:05	**212**	Addressing Perceived Disadvantages of Inquiry Experiments in General Chemistry, **Richard Bauer,** James P. Birk
3:30	**213**	Integrating Lecture/Lab in the Introductory Chemistry Course, **Phil McBride,** A.M. Sarquis

1:30PM – 3:30PM
Green Chemistry in Action (Poster Session)
Carver Gymnasium

Mary M. Kirchhoff, Julie A. Haack, James E. Hutchison, Organizers

214 A Green Chemistry Experimental Database, **Julie Haack**

215 New Green Chemistry Education Resources for the Undergraduate and High School Curriculum, **Mary Ann Ryan,** Michael Tinnesand

216 The Greening of the General Chemistry Laboratory, **Deborah Exton**

217 Nitration of Aromatic Compounds: An Atom Economic Nitration Using a Recyclable Catalyst, **Gary Lampman,** Kevin Mallory

218 Proton NMR and Recycling the Mixture of Ethyl Acetate and Hexanes. An Experiment for Teaching and Research Laboratories on Sustainability, **Kwang-Ting Liu**

219 Waste-Treatment Experiments in General Chemistry Laboratories, **Kwang-Ting Liu,** Chun-Guey Wu

220 Solid Wastes as an Opportunity to Transform and Recover Materials, **Yolanda Castells**, María E. Del Rey, Federico García

221 Withdrawn

222 Sustainable Chemistry in Education, Research and Production -An Organic Teaching Lab Course for the New Millenium, **B. Jastorff,** B Konig, D. Lenoir, H. Parlar, J. Metzger, R. Stormann, J. Ranke**,** G. Kreisel, B. Ondruschka, M. Bahadir, H. Hopf

1:30PM – 3:30PM
Poster Session I – General **Carver Gymnasium**

John Gelder, Organizer

223 Experimental Work with Open Format Practice Protocols, **Leticia Cervantes,** Guillermina Sánchez

224 Do Personality Styles Influence Learning Styles in College Science Courses?, **Gail Meyer,** Keith Coffey, Jeannette Swant

225 Is Salt Melting When It Dissolves in Water?, **Alan Goodwin**

226 Learning to Think by Reading Well., **Myrna Carrillo,** Elizabeth Nieto, Gisela Hernández, Magdalena Alvarez

227 Reasoning Ability in Chemistry: A Correlation with Algorithmic/conceptual Problem-solving Ability?, **Brian Ehlert,** John C. Deming, Kereen Monteyne, Mark S. Cracolice

228 Looking for Answers About Evaluation as a Regulation on Thermodynamics Teaching, **Xochitl Arevalo Mora,** Ramiro E. Dominguez-Danache, MA. Teresa Herrera Barrera, Juvenal Flores De La Rosa, Minerva E. Tellez Ortiz

229 Development of Chemistry Self-Concept and Attitude-toward-Chemistry Inventories, **Christopher Bauer**

Tuesday Morning

8:00AM
Plenary Lecture **Performing Arts Center**

251 Undergraduate Research: Why Should An Administrator Even Care? ***Karen W. Morse****, President, Western Washington University, Bellingham WA*

Survival 101 for the New College Chemistry Instructor IV: Career and Profession **FH3**

Cinzia Muzzi, Diane Bunce, Organizers

9:30		Opening Remarks
9:35	**252**	JCE: A New Teacher's Best Friend, **John Moore,** Elizabeth A. Moore, Jon L. Holmes, Mary E. Saecker
10:00	**253**	Getting a Job in Academia: Tips from a Recent Candidate, **Dawn Del Carlo**
10:25		Break
10:35	**254**	Teaching at a Community College - the Best of Both Worlds, **Richard Jones**
11:00	**255**	Professional Development and Expectations. **Christina (Tina) Bailey,** Philip S. Bailey

Demonstrations for Teaching and Learning **SL140**

Roxie Hulet Kelly, Presiding

9:30		Opening Remark, **Roxie Hulet Kelly**
9:35	**256**	Student-Performed Demonstrations: Laboratory Component for Non-Science Majors, **Charles Ophardt,** Eugene Losey, Michelle Applebee
10:00	**257**	Withdrawn
10:25		Break
10:35	**258**	A General Chemistry Extra Credit Project: Demo at an Elementary School, **Janice Kadis**
11:00	**259**	Withdrawn
11:25	**260**	Demonstrations with Non-Chemicals: A Backdoor Approach to Answering the Question: What is Chemistry?, **Ed Vitz**

Web-Based Assessment for High School and College Chemistry I **HH153**

Patrick Wegner, Ramesh Arasasingham, Barbara Gonzalez, Organizers

9:30		Opening Remarks**, Patrick Wegner**
9:35	**261**	Using WebAssign to Grade Chemistry Homework, Quizzes, and Tests, **John Risley,** Peg Gjertsen
10:00	**262**	Web-based Assessment in Large Scale Instruction in General Chemistry, **Ramesh Arasasingham**

10:25	**263**	The OWL Electronic Homework/Learning System, **William Vining,** Beatrice Botch, Roberta Day
10:50	**264**	Automated, Web-Based Second-Chance Homework, **Randall Hall**
11:15	**265**	MCWeb Serves Up Success. **David Licata,** Brady Bilhartz, Courtney Lantz
11:40	**266**	C.A.L.M. - A Web-based Directed Learning Tool, **Steven M. Wietstock,** Romualdo deSouza

Undergraduate Research: Cornerstone of a Chemistry Degree I **SL120**

Mark E. Bussell, David Patrick, Organizers

9:25		Opening Remarks
9:30	**267**	Withdrawn
9:30	**334**	Academic Excellence: Data from Institutions and Faculty, **Michael Doyle**
10:15	**268**	Opportunities and Challenges for Undergraduate Research at Primarily Undergraduate Institutions, **Shenda Baker**
10:45		Break
11:00	**269**	Issues and Challenges of Undergraduate Research at a Public PUI, **Ron Estler**
11:30	**270**	A Review of Research Experiences for Preservice and Inservice High School Science Teachers, **John van Zytveld**

Partnerships in Teaching and Learning of Chemistry **ES80**

Constance Blasie, Organizer

9:30		Opening Remarks, **Constance Blasie**
9:35	**271**	Withdrawn
9:55	**272**	Facilitators and Barriers to Teacher Implementation of Molecular Visualization, **Lisa Brown,** Vickie M Williamson, M Larry Peck
10:15	**273**	Convincing High School Teachers to Adopt Change, **Diane Bunce,** Katherine Havanki
10:40		Break
10:50	**274**	Using Collaboration to Identify Pedagogical Content Knowledge for a Chemistry Education Course, **Catherine Milne**
11:10	**275**	University of Pennsylvania's MCE Program: The Successful Result of Collaborative Partnerships, **Constance Blasie**
11:30	**276**	Improving Teaching and Learning of Chemistry (Physical Science) K-12 Through Partnerships, **Jeannette Brown**

Research in Chemistry Education II **SL150**

Stacey Lowery Bretz, Organizer

9:30	**277**	An Instrument to Reveal Subconscious Cognitive Processes During Mental Rotation of Molecules, **Mike Briggs,** George M. Bodner

9:50	**278**	Probing the Continuum of Problem Solving Ability Among Organic Chemists, **David Cartrette,** George M. Bodner
10:10	**279**	Solving Organic Mechanisms in Absence of the Traditional Cues, **Gautam Bhattacharyya,** George M. Bodner
10:30		Break
10:35	**280**	Changes in Attitude and Behavior of Participants at a Workshop on Molecular Visualization, **Thomas Jose**
10:55	**281**	Promoting Understanding by Redesigning A General Chemistry Course, **Jose Vites**
11:15	**282**	Assessment of the Impact Chemistry Text and Figures Have on Blind Students' Learning, **Provi Mayo,** George, M Bodner
11:35	**283**	Images of Scientists, **Denise L. Brode**

Chemscape Chime as a Visualization Tool I **MH163**

Jennifer L. Muzyka, Liz Dorland, Organizers

9:30		Opening Remarks
9:35	**284**	Chime Tutorials in a Biochemistry Course, **Charles Grisham**
10:00	**285**	The Online Macromolecular Museum: A Collaborative Learning Experience, **David Marcey**
10:25	**286**	Web Term Papers: Learning Biochemistry by Creating Website Content., **Warren Gallagher,** Scott C. Hartsel
10:50		Break
11:00	**287**	Understanding Protein Conformational Changes and Allostery Through Interactive Molecular Visualization, **James Caras**
11:25	**288**	Helping Students Create Presentations With the Chime Plugin, **Duane Sears,** Erin Hildebrand

Computers in Chemical Education: IV Selected Topics **SL110**

Donald Rosenthal, Organizer; Scott Van Bramer, Presiding

9:30	**289**	Computer-Based Resources for Chemistry, **John Martin**
9:55	**290**	Virtual ChemLab Project: Sophisticated Laboratory Simulations for Undergraduate Laboratories, **Brian Woodfield,** Matthew C. Asplund, Merritt B. Andrus
10:20	**291**	The Virtual Molecular Dynamic Laboratory, **Reen Gibb**
10:45	**292**	Digital Chemistry Prelab Exercises, **Paul Vorndam,** Roger Saul, Melissa Atencio
11:10	**293**	Combining Animations and Testing in General Chemistry, **Brian Pankuch**
11:35	**294**	Dynamic Visualization in Chemistry: Solid State Structures and Student Learning, **Rachel Morgan,** James P. Birk

12:00	**295**	Equilibrium Calculations in the 21st Century – Using a Personal Digital Assistant (PDA), **Robert Allendoerfer**

What's New with the NSF Systemic Reform Initiatives I? **SL240**

Eileen Lewis, Brock Spencer, Arlene Russell, Pratibha Varma-Nelson, Organizers

9:30	**296**	MID Project Active Learning Exercise, Eileen L. Lewis**, Brock Spencer**
10:15	**297**	What Do We Know About Teaching and Learning in Chemistry?, **Eileen L. Lewis**
11:30	**298**	Can You Change the Way You Teach and the Way Your Students Learn Chemistry?, **John Gelder,** K.A. Burke, Thomas Greenbowe
11:55	**299**	Workshops to Promote Curricular Reform: Participant Goals and Strategies for Assessments, **Jennifer Lewis**

Active Learning Throughout the Chemistry Curriculum IV **SL130**

Rick Moog, Organizer

9:30		Introductory Remarks, **Rick Moog**
9:35	**300**	Introduction of Guided Inquiry Activities into Physical Chemistry: A Case Study, **Clayton Spencer**
10:00	**301**	Engaging Students in Learning Physical Chemistry, **David Hanson,** Theresa Julia Zielinski, Erica L. Harvey, Robert Sweeney
10:25		Break
10:35	**302**	Engaging Students in Physical Chemistry, **Renee Cole**
11:00	**303**	Intercollegiate Cooperative Learning: The "Be Our Guest" Physical Chemistry On-line Project, **Theresa Julia Zielinski,** Alexander Grushow, Erica Harvey, Deborah G. Sauder, George M. Shalhoub
11:25		Panel Discussion

Interdisciplinary Curricula: Chemistry beyond Chemistry III **BH109**

Ana M. Gaillat, Organizer

9:30		Opening Remarks, **Ana M. Gaillat**
9:35	**304**	Chemistry Across the Curriculum: A Multidisciplinary Lab Centered Course on Sustainable Development, **Guru Rattan K. Khalsa**
9:55	**305**	A Collaborative Project to Examine Environmental Justice Issues in a Local Community, **Emily Niemeyer,** Vanessa L. Davis
10:15	**306**	Introducing Environmental and Economic Considerations in the General Chemistry Course, **Kerry Karukstis**
10:40		Break

10:45	**307**	Energy: An Interdisciplinary Environmental Science Class, **Howard Drossman,** Val Veirs
11:10	**308**	The Human Body in Motion: Biology, Chemistry, and Physics at Work and Play, **Francis Burns**
11:35	**309**	The Center for Workshops in the Chemical Sciences (CWCS), **Lawrence J. Kaplan,** Emelita D. Breyer, David M. Collard, Jerry C. Smith

Technology Application in Chemistry Using Graphing Calculators **BI234**

Penney Sconzo, Organizer

9:30		Opening Remarks, **Penney Sconzo**
9:35	**310**	Chemistry Beyond Chemistry: Introducing New Technology-Based Labs For the Non-Science Major. **Judith Iriarte-Gross,** Dara Grissom
10:00	**311**	Rate Laws, Rate Constants, and Activations Energies with the CBL, **Charles Eaker**
10:25	**312**	Is the Quadratic Equation Going the Way of the Slide Rule?, **Eileen DiMauro**
10:50	**313**	Math 0: Using Equation Solver to Calculate LeChatelier Shifts, **Harvey Gendreau**
11:15		Break
11:25	**314**	I Love Lucy, Tadpoles to Pollywogs, and Good Vibrations: Brief Tour of Graphing Calc. Apps. in Chem, **Sean Madden,** Wayne Wilson
11:50	**315**	Investigating Ideal and Non-Ideal Gases, **Penney Sconzo**

Tuesday Afternoon

Research in Chemistry Education III **SL150**

Stacey Lowery Bretz, Organizer

2:00	**316**	Chemistry misconceptions of preservice chemistry teachers. Part II, **Amy Phelps**
2:20	**317**	Structure of Knowledge of Chemistry Students: Implications for Teacher Education, **Vicente Talanquer**
2:40	**318**	High School Chemistry Teachers' Views Regarding Aspects of the Nature of Scientific Explanation, **Laurie S. Langdon**
3:00		Break
3:05	**319**	Rules and Tools for Learning Chemistry: Implications for High School Chemistry, **Catherine Milne**
3:25	**320**	Developing the Pedagogical Knowledge of New Chemistry Graduate Teaching Assistants, **Romola Rodriques,** Janet Bond
3:45	**321**	Short Circuiting Conceptual Understanding: Impact of Expert Blind Spot in Chemical Education, **Janet Bond Robinson**

Web-Based Assessment for High School and College Chemistry II **HH153**

Patrick Wegner, Ramesh Arasasingham, Barbara Gonzalez, Organizer

2:00	**322**	A Cross-Institutional Analysis of Visualization and Proportional Reasoning in General Chemistry, **Barbara Gonzalez**
2:25	**323**	The Impact of Web-based Worked Examples on Student Performance in Introductory Chemistry. **Kent Crippen**
2:50	**324**	How Helpful are Practice Tests in the Learning Process, **John H. Penn,** John Valari
3:15	**325**	Electronic Homework for Non-science students, **Alton Banks**
3:40	**326**	Web-Delivered Tools and Learning Assessment in General Chemistry on a Community College Campus, **Janice E. Chadwick**

Chemscape Chime as a Visualization Tool II **MH163**

Jennifer L. Muzyka, Liz Dorland, Organizers

2:00	**327**	Interactive Web Page Development with CHIME and JAVA, **Robert Lancashire**
2:25	**328**	Adding Interactivity to Chime: the Mol4D Structure editor and Compchem Interface, **Hens Borkent**
2:50		Break
3:05	**329**	Two Novel Nonmolecular Uses of Chime, **Robert Hanson**
3:30	**330**	Spectroscopic Unknowns for Organic Chemistry Students using Chime and JCAMP, **Jennifer Muzyka**

Undergraduate Research: Cornerstone of a Chemistry Degree II **SL120**

Mark E. Bussell, David Patrick, Organizers

1:15	**331**	What Needs To Be In The "Cornerstone" To Support The Structure?, **Karen Morse**
1:45	**332**	What's Involved in Doing "Productive" Undergraduate Research at a PUI?, **Thomas Wenzel**
2:15		Break
2:30	**333**	A Survey of External Funding of Research at Predominantly Undergraduate Institutions, **George Rubottom**
3:15	**334**	Moved to 9:30am after Paper 266
3:15		Panel Discussion

Microscale Chemistry in the High-School Setting **ES80**

Dave Ehrenkranz, Organizer

2:00		Opening Remarks, **Dave Ehrenkranz**

2:05 **335** Microscale Experiments Related to Intermolecular Interactions, **Mordechai Livneh**
2:30 **336** Microscale in Brazil - Chemistry, Physics and Biology with Discovering Science Series, **Roque Cruz**

Interdisciplinary Curricula: Chemistry beyond Chemistry IV **BH109**

Ana M. Gaillat, Organizer

2:00 Opening Remarks, **Ana M. Gaillat**
2:05 **337** The Chemistry and Politics of AIDS and Cancer- Creating Courses for the Non-Science Major, **Tom Hagan**
2:30 **338** Incorporation of Ethical and Societal Issues into the Chemistry/Biochemistry Curriculum, **Mary Lou Caspers,** Elizabeth S. Roberts-Kirchhoff, Mark A Benvenuto, Joseph V. Swisher
2:55 **339** Chemistry at the Nanoscale for Non-chemists, **George M. Bodner,** James M. Tour, Mary McHale, Stephanie H. Chanteau
3:20 Break
3:30 **340** Co-Teaching Forensic Chemistry, **Sapna Gupta**
3:55 **341** Forensic Science: An Interdisciplinary, Multimedia Course for Teaching Science and Critical Thinking, **Lawrence J. Kaplan**

Earth, Wind and Fire **SL140**

Steven D. Gammon, Presiding

2:00 Opening Remarks, **Steven D. Gammon**
2:05 **342** Apparent and Hidden - Chemistry for Kids, **Muhamad Hugerat,** Sobhi Basheer
2:30 **343** Water Chlorination: A Deep Pool of Chemical Concepts., **Doug De La Matter**
2:55 **344** Withdrawn
3:20 Break
3:25 **345** Withdrawn
3:50 **346** An Experiment Illustrating How Iron Metal is Used to Remediate Contaminated Groundwater, **Barbara Balko**
4:15 **347** Building a Working Model of a Water Barometer, **Dan Sullivan,** Edmund L. Tisko

What's New with the NSF Systemic Reform Initiatives II? **SL240**

Eileen Lewis, Brock Spencer, Arlene Russell, Pratibha Varma-Nelson, Organizers

2:00 **348** Educating Teaching Assistants in New Models for Teaching and Learning, **Angelica Stacy**

2:40	**349**	What's all the Fuss About Fat? General Chemistry in the Context of Dietary Fats and Human Health, **Sandra Laursen**, Heather Mernitz, Brock Spencer
3:20	**350**	How Can We Reduce Air Pollution from Automobiles?, **Linda Zarzana,** Howard Drossman
4:00	**351**	Vitamin C; How Much Should I Take? - A Demonstration, **Jack Bell,** Roc Ordman

Inquiry Approaches to Teaching Chemistry II **BI234**

Catherine Milne, Organizer

2:00	**352**	Pooling Lab Results Via the Web, **Philip Hunter**
2:25	**353**	Modeling Scientific Inquiry in the Classroom: Applying a Inquiry-Based Model of Instruction, **Catherine Milne**
2:50		Break
3:00	**354**	Inquiry Guided Learning at the Introductory Level, **Alton Banks**
3:25	**355**	A Case Study Exploring How Graduate Students Instruct Inquiry Based Labs, **Kimberly J Smith**

General Papers – Laboratory **SL130**

Mary Whitfield, Presiding

2:00		Opening Remarks, **Mary Whitfield**
2:05	**356**	Making Consistency Count in the Laboratory, **Stephen Summers**
2:25	**357**	Withdrawn
2:45	**358**	Two Innovating Experimental Strategies to Recognize Important Principles in Chemistry, **Cristina Rueda,** Humberto Topete
3:05		Break
3:15	**359**	Augmenting Chemistry in Context Lab Experiments, **Evan T. Williams,** Curtis Keedy
3:35	**360**	Computers in the First Year General Chemistry Laboratory., **William Randall**
3:55	**361**	Writing the Lab Report: My Way, Your Way, or the Right (Write) Way?, **Wendy L. Elcesser,** Anne Kondo, John Woolcock

Preparing Future Science Teachers: What Are We Doing to Recruit and Train Outstanding Students? II **ES74**

Anna Cavinato, Organizer; Joanne Chickering, Presiding

2:00		Opening Remarks, **Joanne Chickering**
2:05	**362**	Modeling the National Science Education Standards: Developing a Course for Prospective K-8 Teachers, **Rhonda Scott-Ennis**
2:30	**363**	Research and Inquiry in High School Chemistry, **Anna McKenna,** Brian J. Johnson, Robert Fulton

The Periodic Table **OM483**

Marthz Kurtz, Presiding

2:00		Opening Remarks, **Martha Kurtz**
2:05	**364**	Periodic Patterns: It's not Just Groups and Periods, **Geoff Rayner-Canham**
2:30	**365**	Periodicity in Bond Energies, **Arden Zipp**
2:55		Break
3:05	**366**	Periodic Fun, **Al Hazari**
3:30	**367**	Mendeleev's Magnificent Matrix, **Gordon Woods**

1:30PM-3:30PM
Poster Session II – General **Carver Gymnasium**

John Gelder, Organizer

368	Evaluation Strategy for the Laboratory of Heterogeneous Equilibrium , **Xochitl Arevalo Mora,** Ramiro E. Domingues-Danache, MA. Teresa Herrera Barrera, Juvenal Flores De La Rose, Minerva E. Tellez
369	Project ChemBOND: Evaluation of New Activities for Introductory College Chemistry, **Jerome Haky,** H. J. Dodson, L. E. Hostetter, N. R. Romance, D. W. Louda, C. E. Carraher, D. M. Chamely
370	The Use of Discrepant Events in Chemistry Teaching, **Wendy Naughton,** Nathan Barrows, Suzanne Charnick, Resa Kelly, Sr. Nicole Kunze, Matthew Love, Brooks Williamson
371	Previous Ideas. A Database Page on the Web., **Silvia Bello**
372	Teaching Tools for Visualization and Proportional Reasoning in Chemistry, **Robert Ause**
373	Modeling the Learning Process Using Class Activities, **David Thorsell,** Vicky Minderhout, Susan Jackels
374	Changing the Classroom Behavior of Teachers through Partnership in Chemical Education Research, **Katherine Havanki,** Diane Bunce
375	Professional Development for High School Chemistry Teachers: Integrating Pedagogy and Content Through Action Research, **Stacey Lowery Bretz**, Jen Nagy-DiPizzo, William Snyder
376	Chemometric Analysis of Candy Colorings: A Modern Approach to an Old Favorite, **Penny Snetsinger**
377	Qualitative Analysis for the Identification of five Mysterious Liquids, **Carmen Sansón-Ortega,** Rosamaria Gonzalez-Muradas, Pilar Montagut-Bosque
378	Biochemistry Laboratory with a Comparative Methods Focus, **Deborah Louda**
379	Improving Scientific Writing in First-Year Chemistry Students Using Progressive Template Assistance, **Lisa Volaric,** Lisa A Benkowski, Todd L Austell
380	Incorporation of Extensive Computing Activities in the General Chemistry Laboratory, **Martha Newchurch**
381	A Chemistry Project using Vernier Ion-Specific Probes to Monitor Water Quality, **James Florance**

382 Implementing a PCOL Project: Challenges and Changes in the "Cl_2O_4 in the Atmosphere" Lab, **Kristy Mardis**

383 An Integrated Writing Guide for Journal Article Style Lab Reports, **John Hagen,** Lisa Volaric

384 Same Experiments for Different Subjects, **Graciela Fernandez,** Rosa Luz Cornejo

385 Laboratory Poster Sessions: A Tool for Building Student Enthusiasm in General Chemistry, **Stacey Fiddler**

386 Introducing Capillary Electrophoresis into the Undergraduate Chemistry Curriculum, **Sharron W. Smith,** Kevin Bennett

387 Routine integration of MO Calculations in Organic Chemistry Laboratory, **Leslie Hull**

388 The Introduction of Nontraditional Disciplines into the General Chemistry Curriculum, **Scott McKay,** Steven R. Boone

389 The Development of Friendly Context Modules for Beginning Chemistry Students, **Scott McKay,** Steven R. Boone, Renee S. Cole, Robert W. Kopitzke, Guinevere A. Giffin

390 MO Presentation of Bonding in Hypervalent Molecules like Phosphoesters and Ylides, **John Wong**

391 Design and Development of Didactic Units for the Concepts of Chemical Reaction and Oxidation Reduction, **Guadalupe Carballo Balvanera,** Francis Navarro León

392 A Student Self Assessment Tool, **Lyle McAfee**

393 Pre-lecture Reading Quizzes Using WebCT in General Chemistry., **Larry Margerum**

394 Weighing to count, **Ma. Magdalena Álvarez-Ruíz,** Gisela Hernández-Millán, Myrna Carrillo-Chávez, Elizabeth Nieto-Calleja

395 The Importance of the Silicates, **Marta Rodríguez,** Mercedes Meijueiro

396 Guided-Inquiry in Inorganic Chemistry, **Dean Johnston**

397 Short Term Stays. A Teaching Project, **Yolanda Caballero,** Guillermina Salazar

398 Glorious 100 years of Noble Prize in Chemistry, **Jaswant Rathore,**

399 How Was the Periodic Table Built?, **Elizabeth Nieto,** Myrna Carrillo, Gisela Hernández, Magdalena Alvarez

400 Cathodic Protection and Corrosion of Nails, **Robert Gayhart**

401 Archimedes Meets Chemistry. Volume Measurements by Buoyancy, **Charles Malerich,** Patricia K. Ruff

402 Paper-and-Glue Unit Cell Models, **Ellen Yezierski,** James P. Birk

403 A 3-dimensional Reaction Chamber for Visualizing Chemical Reactions and Processes, **Ron Valcarce,** Ron Valcarce, Shad Clausing

30 Computers in the General Chemistry Laboratory: Acid-Base Titrations, **William Randall**
Moved from Sunday

Wednesday Morning

8:00AM

Plenary Lecture — Performing Arts Center

404 Plenary Basic Chemical Literacy for All: What should everyone know? What Skills should everyone have? Are we there yet? How can we get ther?, ***George D. Nelson,*** *Director, Science, Mathematics, and Technology Education, Western Washington University, Bellingham, WA*

Teaching Organic First — HH153

David Reingold, Organizer

9:30		Opening Remarks, **David Reingold**
9:40	**405**	Organic-First at Bucknell, **Thomas Shawe**
10:05	**406**	Organic Chemistry First at New College, **Paul Scudder**
10:30		Break
10:45	**407**	Teaching Organic Chemistry as the First Course in an Integrated Two-Year Introductory Curriculum, **Richard G. Scamehorn**, James W. Beatty
11:10	**408**	Early Organic in a Quarter System, **Lyle Peter,** Grayson L. Capp, Paul A. Lepse, Daisy Y. Zhang, Greg Phelan
11:45	**409**	Bioorganic First at Juniata College, **David Reingold**

What's New with the NSF Systemic Reform Initiatives III? — SL240

Eileen Lewis, Brock Spencer, Arlene Russell, Pratibha Varma-Nelson, Organizers

9:30	**410**	Impact of Being a Peer-Leader on Students at St. Xavier University, Chicago, **Leo Gafney,** Pratibha Varma-Nelson
9:55	**411**	Role of the WPA Program in Curricular Reform, **Pratibha Varma-Nelson**, Leo Gafney
10:20	**412**	Assessing Student Performance and Involvement in the PLTL Model, **Lauren E. H. McMills,** Karen E. Eichstadt, Kenneth L. Brown, Jared A. Butcher Jr., Mark C. McMills, David Young
10:45	**413**	Peer-led Workshops in an Honors-Level General Chemistry Course, **Morton Z. Hoffman**, Alan D. Crosby
11:10	**414**	Peer-Led Team Learning (PLTL) in Introductory Chemistry Courses at San Jose/Evergreen Comm. College, **Sami A. Ibrahim**, Madeline Adamzceski

11:35	**415**	My First Year Experience of PLTL in an Organic Chemistry Course, **Kenneth Pohlmann**

Using Molecular Visualization in General Chemistry Classes I **FR3**

Vickie M. Williamson, Organizer

9:30		Opening Remarks, Vickie M. Williamson
9:40	**416**	Withdrawn
10:05	**417**	3D Stereo Visualization in Chemistry in Large Lecture Halls, **Kenneth D. Jordan**, Joseph J. Grabowski
10:30	**418**	Molecules & Ions: Redefining Concepts Through Experiment and Molecular Visualization, **Guy Ashkenazi**
10:55		Break
11:05	**419**	Can Software Help Chemistry Students Utilize Multiple Visualizations to "Think" Chemistry?, **Joel Russell**
11:30	**420**	Web-Based Molecular Level Inquiry Laboratory Activities, **Michael Abraham**, John Gelder

High School Demos and Tricks of the Trade **SL140**

Doug De La Matter, Bettyann Howson, Organizers

9:30		Opening Remarks
9:35	**421**	Romeo and Juliet: A Scientific Passion, **Alfredo Mateus**
10:00	**422**	Bleeding Potato, **Susan Oldham**
10:15	**423**	An Hour of "Quick and Easy" Demonstrations, **Doug De La Matter**
11:15	**424**	Our Favorite Demonstrations From 15 Years of Summer Workshops, **Robert Lewis**, John G Little, Geroge Gross
11:40	**425**	Laboratory Demonstrations For Teaching Combustion, **Edward Senkbeil**

Research in Chemistry Education IV **SL150**

Stacey Lowery Bretz, Organizer

9:30	**426**	Identifying the Mathematical Weaknesses of Students in Physical Chemistry, **Paul Yates**
9:50	**427**	Collaboration Across Institutions: Discussion Board Analysis of Physical Chemistry On-Line Modules, **Marcy Towns**, Laura E. Slocum, Renee Cole, Theresa Julia Zielinski
10:10	**428**	A Qualitative Analysis of On-line Discourse in a General Chemistry Distance-Learning Course, **Gabriela C. Weaver**, Ardimus E. Litzenberg
10:30		Break

10:35	**429**	Adding Interactive Problem-Solving Help to Online Homework Assignments - Is it Really Helpful?, **Katherine I. Barnhard**, John W. Moore
10:55	**430**	Comparison of Achievement in Interactive vs. Dynamic vs. Static Learning Approaches, **Juliane Pasos**, Vickie Williamson
11:15	**431**	Chemistry Students in Optional Peer-Led Study Groups: Why They Join and Do They Benefit?, **Claire Sandler**
11:35	**432**	Putting a Human Face on Chemistry: A Project for Liberal Arts Chemistry, **Kate Popejoy,** George S. Kriz

Creating an Integrated Laboratory Network: Science for Students Anytime/Anywhere **SL110**

Larry Gilbert, Organizer

9:30		Opening Remarks, Larry Gilbert
9:40	**433**	Development of An Integrated Laboratory Network (ILN), **Devon Cancilla**
10:05	**434**	Teaching and Learning Tools for An Integrated Laboratory Network, **Larry Gilbert**
10:30		Break
10:40	**435**	The Classroom Environment for an Integrated Laboratory Network, **David Patrick**
11:05	**436**	Bringing Lab Science to Students Through an Integrated Lab Network, **Doug Clark**

What Can We Teach (and Learn) with Electron Density? I **BI234**

Alan Shusterman, Gwen Shusterman, Organizers

9:30		Opening Remarks, **Alan Shusterman**
9:45	**437**	Electron Density: A Basis For an Understandable and Rigorous Introduction to Chemistry, **Richard Bader**
10:15	**438**	Using Electron Density Plots to Improve Students' Conceptions of Molecular Polarity and Miscibility, **Michael Sanger**
10:45		Break
11:00	**439**	Withdrawn
11:30	**440**	Ten Years of Teaching with Electron Density Models in General Chemistry, **Gwen Shusterman**

Revisiting the General Chemistry Curriculum I **MH163**

Robin Terjeson, Rick Bolesta, Organizers

9:30		Opening Remarks
9:40	**441**	What Do We Teach and Not Teach in General Chemistry Courses?, **Arden Zipp,** Peter Sheridan, Thomas Corley, Irene Kajak

10:00	**442**	Re-structuring the Undergraduate Chemistry Curriculum: Some Initial Steps, **Romualdo deSouza**
10:20	**443**	Integrating Pyrotechnics as a Theme in General Chemistry, **Matthew Johnston**
10:40	**444**	Getting Serious About Communicating What Chemists Do, **John Kenkel**
11:00		Break
11:10	**445**	Increasing Access and Opportunity: A New Approach to General Chemistry, **Raymond J. Trautman**
11:30	**446**	The Annotated Bibliography: Sampling Chemical Literature in General Chemistry, **Bryan May**

General Papers - Physical Chemistry **ES80**

Karen Stevens, Organizer

9:30		Opening Remarks, **Karen Stevens**
9:35	**447**	Flash Photolysis of Benzophenone: A Student-Generated Experiment using Real-Time Data Acquisition, **Mack Lawrence**
10:00	**448**	Sorting Out Intermolecular Forces, **Jonathan Mitschele**
10:25		Break
10:35	**449**	Withdrawn
11:00	**450**	Using MathCad to Explore the Femtosecond Dynamics of a Harmonic Oscillator, **Mark Ellison**

Online Learning and Teaching in Labs **SL120**

Neil Kestner, Nancy Koenigberg Kerner, Organizers

9:30		Opening Remarks
9:35	**451**	GreenLab Modules, **Joyce Baker**, Jim Bier, Ambrose Leong, Richard Lura, Mark Lassiter
9:55	**452**	Multimedia Pre-laboratory Preparation for General Chemistry Laboratory Students at ECU, **Robert Hammond**, George Evans, Paul Gemperline, William Lewis, Robert McIntyre, James Reho, et. al.
10:20	**453**	Creating an On-Line Lab Manual: The ChemLab Website for General Chemistry Lab, **Sally Hair**, Brian P. Reid
10:40		Break
10:50	**454**	Internet Based Prelab Tutorials in the General Chemistry Lab, **Brian Koehler,** Jessica N. Orvis
11:10	**455**	Withdrawn
11:30	**456**	Interdisplinary, Application-oriented Tutorials: Implementation, Design, and Evaluation, **Regina Frey,** Roberta Deppe, Dewey Holten, Michelle Gilbertson, Rachel Casiday, Carolyn Herman

Advanced Placement Chemistry Topics: Learning How To Do It Better I **BH109**

Harvey Gendreau, Organizer

9:30		Opening Remarks, **Harvey Gendreau**
9:35	**457**	AP Chemistry Test Development Committee: The Test Development Process, **Tom Corley**, Carol Brown, John Gelder, John Macklin, James Spencer
10:50	**458**	Acid-Base Review Ideas for AP Chemistry, **Kathy Kitzmann**
11:05		Break
11:15	**459**	Great AP Demos, **Bette Bridges**
11:35	**460**	Introduction to Buffer Solutions-A Demonstration, **Dave Bugay**
11:45	**461**	A Microscale Buffer Experiment for AP Chemistry, **Arden Zipp**
12:05	**462**	A Buffer Demo and a Kinetics Demo for AP Chemistry, **Kathy Kitzmann**

Case Study Methods in the Chemistry Classroom **SL130**

Deborah Exton, Organizer

9:30		Opening Remarks, **Deborah Exton**
9:35	**464**	Learning Strategies & Science Literacy: Implications for Teaching Chemistry with Case Studies, **Stacey Lowery Bretz**, Jerrold Meinwald
10:00	**465**	"Nuclear Choices, Nuclear Dilemmas": a Case Study Driven Freshman Seminar Course., **Deborah Exton**
10:25	**466**	Withdrawn
10:50		Break
11:00	**467**	Critical Thinking in General Chemistry: The Calcium Project, **Cynthia Nichols**
11:25	**468**	Using a Presidential Green Chemistry Challenge Award in Teaching General Chemistry, **Donna Narsavage-Heald**

10:00AM - Noon
Poster Session III - General **Carver Gymnasium**

John Gelder, Organizer

469	A New Tool for Information Retrieval in Chemical Education, **Francisco Torrens**
470	The National Science, Technology, Engineering, and Mathematics Education Digital Library, **Robert K. Boggess**
471	Design a Software to Support the Unit Air Gas Sea in Which we Live, for the Chemistry I Program, **Guadalupe Carballo Balvanera**, Francis Navarro León

472 Stochastic Simulation of Chemical Systems, **Henry Donato, Jr**., Steve Sand

473 Inquiry Computer Module: The Activity Series of Metals, **Katherine Foland**

474 A Flash Spectroscopy Tutorial for the Inorganic Chemistry Laboratory, **Jason Cooke**, Enrico Fok, Greg Nilsson

475 Computers in Support of Learning: Articulating Goals, Engaging Faculty and Finding Resources, **Bilin P. Tsai,** Donald P. Poe

476 Teaching with Chemical Information Systems, **Imelda Valezquez-Montes**

477 Photolysis of Aqueous Solutions of Aromatic Mercury Compounds, **Nick Zevos**, Dylan Stewart, Matthew Pietrzykowski, Thomas Dowd, Edith Seymour

478 Platinum and Ruthenium Complexes of α-Amino Carboxylates and Pyrimidinethiols, **Fazlur Rahman,** Timothy Davenport

479 The Synthesis of Some Pigments for Oil Painting, **Mercedes Meijueiro,** Marta Rodríguez

480 Quantitative Carbon-13 NMR Analyses of Complex Mixtures, **David Fraley**

481 Identification of Amino Acids, John W. Elder, **Robin Anderson**

482 Combination of Rhenium with the Bisdithiolene-pterin Ligand of the Molybdopterin Class of Enzymes, **Timothy Zauche**

10:00AM - Noon

Undergraduate Research Poster Session

Carver Gymnasium

Lisa N. Gentile, Steven R. Emory, Organizers

483 Theoretical Studies of Transition-Metal Dihydride Cations, **J. Bruce Schilling,** Mandy L. Shearer

484 Development and Assessment of Web-Based Multi-media Tutorials for General Chemistry, **James Jubricky,** John B. Todd

485 Viral Template-Directed Assembly of Metal Nanoparticles, **Steven R. Emory**, Christina Y. Hampton, Haley R. Pugsley

486 Purification and Structural Studies of a Presenilin-I Loop Domain with Pathogenic Mutations, **Erin Stanley**

487 Towards the Structural Characterization of Pathogenic Mutants Within the Presenilin Family of Proteins, **Adam Fung**

488 Circular Permutation Studies Using Sperm Whale Myoglobin, **Spencer Anthony-Cahill**, Alexei Lissounov, Anton Stetner

489 Structural Studies of NMDA Glutamate Receptor-Neurosteroid Binding Sites, **Vlad Spivak**, Lee Knight

490 Adventures in Mapping a Neurosteroid Binding Site

on the NMDA Receptor, **Patrick Beebe**

491 Synthesis, Characterization and Evaluation of Cobalt Phosphide Hydrodesulfurization Catalysts, **Denise Bale**, Mark E. Bussell

492 The Surprising Luminescence Behavior of a Series of Group-14 Metalloles, **Jerome Mullin**, Henry J. Tracy, Judith Haug, James A. Martin, Renee Plourde, Megan deLivron

493 Memory Effects of a Liquid Crystal--Solid Interface, **David Patrick**

Wednesday Afternoon

What's New with the NSF Systemic Reform Initiatives IV? **SL140**

Eileen Lewis, Brock Spencer, Arlene Russell, Pratibha Varma-Nelson, Organizers

2:00 **494** Improving Student Learning in Introductory Chemistry, **Alan J. Pribula,** Lawrence Boucher

2:25 **495** The Molecular Science Project: One Year Later, **Arlene Russell**

2:50 **496** Utilization and Evaluation of Calibrated Peer Review, **Marty Perry**

3:15 **497** Integrating Writing Assignments into Undergraduate Science Courses Using Calibrated Peer Review, **James Rudd,** Kelly J. Thomas

3:40 **498** The FLASH Project: Getting Charged up for Chemistry at the Community College, **Marie Villarba**, Tim Su, John Magner, Joann Chickering, Janice Chadwick, Carolyn Collins

4:05 **499** Resuscitating the Writing - CPR in the Chemistry Classroom, **Martin Jones**

Online Learning and Teaching **SL120**

Nancy Konigsberg Kerner, Organizer

2:00 Opening Remarks

2:05 **500** Online Chemistry Designed for Learner Styles, **Leon Combs**

2:30 **501** MERLOT: An Online Learning and Teaching Resource, **Neil Kestner**, Nancy Konigsberg Kerner

2:55 **502** "Chemistry with Toys" Online: What We Have Learned So Far, **Rebecca Sides**, Mary Beth Hogan, A. M Sarquis

3:20 Break

3:30 **503** Computer Supported Collaborative Learning in Chemistry, **Marcy Towns**, Theresa Julia Zielinski

3:55 **504** Hypothesis Based Learning: A Web-based Workshop for In-service Teachers, **Luis Montes**, Sara Precht, Mark G. Rockley, Bruce Ackerson

4:20	**505**	Computers and Analytical Probes in the General Chemistry Laboratory:; New Labs, Internet Based Tutorial, **Jessica Orvis**, Brian Koehler
4:45	**506**	Use of CourseInfo for Total Material Delivery in Freshman Chemistry, **Earl Pearson**

Research in Chemistry Education V **SL150**

Stacey Lowery Bretz, Organizer

2:00	**507**	Learning by Doing: Cognitive Apprenticeship in Research as a Template for Teaching Inquiry, **Amy Preece**, Janet Bond Robinson
2:20	**508**	Students' Views on How Independent Laboratory Projects Stack up Against the More Traditional Lab Exercise **Dawn Del Carlo**, George M. Bodner
2:40	**509**	Effects of Participation in an Open-Inquiry Investigation in the General Chemistry Laboratory, **Rebecca Krystyniak**, Henry W. Heikkinen
3:00	**510**	Closing the Loop in Theory-Practice Learning, **Heather R. Patrick**, Monica M. Ali, Brenda B. Harmon, Lloyd R. Parker, M. Reza Saadein
3:20		Break
3:25	**511**	Utilizing Grounded Theory Methodology In Science Education: Two Research Examples, **William S. Harwood**, Teddie Phillipson
3:45	**512**	Dilution Difficulties: A Biology Issue with Chemistry Implications, **Teddie Phillipson**
4:05	**513**	Classification of Chemical Reactions by College Science Students, II, **Moises Camacho**

What Can We Teach (and Learn) with Electron Density? II **BI234**

Alan Shusterman, Gwen Shusterman, Organizers

2:00	**514**	The Interpretation of Molecular Electron Density Distributions, **Ron Gillespie**
2:30	**515**	Learning Styles: In-School Vs Out-of-School, **Clarisse Habraken**
3:00		Break
3:15	**516**	Volume Rendering: the Electron Density Inside and Out, and Everywhere In Between, **Preston MacDougall**
3:45	**517**	Using Bond Density Models to Teach Concepts of Electronegativity, **Gordon Purser**, Megan M. Papenfuss
4:15	**518**	Getting More Mileage From Potential Maps, **Alan Shusterman**

Advanced Placement Chemistry Topics : Learning How To Do It Better II **BH109**

Harvey Gendreau, Organizer

1:30	**519**	At What Rate Do You Cover Kinetics?, **Dennis Kliza**

2:00	**520**	Reaction Mechanisms - An Inquiry-Based/ Discovery Method, **Richard Armstrong**
2:30	**521**	Withdrawn
3:00		Break
3:10	**522**	1812 Overture Kinetics, **Edmund J. Escudero**
3:40	**523**	Entropy Is Simple -- If You Discard "Disorder", **Frank Lambert**
4:00	**524**	Predicting Products in Chemical Reactions, **Reen Gibb**
4:45	**525**	Net Ionics and the AP Exam, Adele Mouakad, **Marian DeWane**

General Papers - Biochemistry **ES80**

Tanya To, Presiding

2:00		Opening Remarks**, Tanya To**
2:05	**526**	Kinemage Authorship Project to Teach Structure-Function Relationships in Proteins, **Steven Weiner**
2:30	**527**	Thermal Effect Studies on Milk Involving the Chemistry Maillard Reaction, **Akur Srinivasan**
2:55		Break
3:05	**528**	Fluorescence Spectroscopy in the Biochemistry Laboratory, **Elizabeth Roberts-Kirchhoff**
3:30	**529**	Biophysical Characterization of the Forces that Stabilize DNA and Selected Oligonucleotides, **L. J. Kaplan**, Daniel R. Calnan, Shauna M. Dineen, Kamille D. Williams

Using Molecular Visualization in General Chemistry Classes II **FR3**

Vickie M. Williamson, Organizer

2:00	**530**	The Effects of a Molecular Visualization Workshop for High School Teachers, **Vickie M. Williamson**
2:25	**531**	Chemical Bonding: An Interactive Lesson Utilizing Information Technology, **Thomas Jose**, Vickie M. Williamson
2:50	**532**	Exploring Equilibria, **Denise L. Brode**, Vickie M. Williamson, Marcetta Y. Darensbourg
3:15		Break
3:25	**533**	Using Information Technology to Create a Better Understanding of VSEPR, **Juliane Pasos**, Vickie Williamson
3:50	**534**	Reaction Rate Representation, **Lorraine Lindsay**
4:15	**535**	Animate My Molecule; A Chime Experience, **Lisa Brown**, Vickie M Williamson

Spectroscopy **HH153**

Steven Emory, Presiding

2:00		Opening Remarks, Steven Emory
2:05	**536**	Withdrawn
2:30	**537**	Optical Experiments for the Advanced Laboratory, **Lawrence E. Welch**, Judith L. Jenkins
2:55	**538**	Colloidal Particle Syntheses within a Silicone Matrix, **Dean Campbell,** Stacy Swanson, Ellen Freidinger
3:20		Break
3:30	**539**	Integration of Multi-pulse NMR Experiments into Upper Level Chemistry Courses at Truman State University, **Dawood Afzal**
3:55	**540**	A Convenient Reaction for a Kinetic and Activitation Parameter Study using NMR Spectroscopy, **Jeffery Orvis**
4:20	**541**	A New Look at Colorimetry, **Dale Hammond**, John Amend

General Papers II - Other **CH135**

John Whitmer, Presiding

2:00		Opening Remarks, **John Whitmer**
2:05	**542**	The 2001 AP® Chemistry College-Comparability Study, **Tom Corley**, John Gelder
2:30	**543**	A Survey of Chemistry in the Two-Year College, **Mary Ann Ryan**, Michael Neuschatz, Janet Boese
2:55	**544**	Hamline/3M Project: Liaison for Curricular Change, **Joann Pfeiffer**
3:20		Break
3:30	**545**	Better Learning Through Self-Scheduling: A Journey to Freedom in a High School Chemistry Class, **Kirk Lentz**
3:55	**546**	Theoretical and Practical Reasoning in Chemistry, **Jeffrey Kovac**
4:20	**547**	Piaget and Vygotsky: Learning Environments that Facilitate the Development of Knowledge, **John C. Deming**, Mark S. Cracolice

Revisiting the General Chemistry Curriculum II **MH163**

Robin Terjeson, Rick Bolesta, Organizers

2:00		Opening Remarks
2:05	**548**	Supporting General Chemistry Students with a Chemistry Math Workshop, **Liese Murphree**
2:25	**549**	Assessment of General Chemistry I at SCSU: Part One, **Tamara Leenay**, Jack F. McKenna
2:45	**550**	Assessment of General Chemistry I at SCSU: Part Two, **Jack McKenna**, Tamera L. Leenay, Anna G. McKenna
3:05	**551**	Competency-based Grading in General Chemistry, **Edward Mottel**

Environmental Chemistry Lecture and Laboratory **SL130**

Marina Koether, Organizer

1:40	**552**	Environmental Chemistry Lecture and Laboratory, **Marina Koether**
2:05	**553**	Adopting an Inquiry-based Laboratory Approach in Undergraduate Environmental Chemistry Courses, **Jeffrey Ashley**
2:30	**554**	Modifying Existing Curricula to Support Environmental Chemistry Laboratory Experiments, **John Schaumloffel**
2:55	**555**	Incorporating Environmental Chemistry into the Analytical Laboratory, **Gail Horowitz**
3:20		Break
3:35	**556**	"What's Flowin' Through Rowan?" Linking Environmental Chemistry with Environmental Law, **Devon Cancilla**, Jean Melious
4:00	**557**	Teaching Atmospheric Chemistry: the Content is the Question, **Geoff Rayner-Canham**
4:25	**558**	Experiments in air pollution and health for secondary and undergraduate students, **Dan Jaffe**
4:50	**559**	Science of Chemistry: Environmental Chemistry for the Non-Science Student, **Gail Horowitz**
5:15	**560**	Panel Discussion: Environmental Chemistry Lecture and Laboratory, **Marina Koether**

What's New in the Organic Laboratory? **ES84**

Christina N. Hammond, Organizer

2:00		Opening Remarks, **Christina N. Hammond**
2:05	**561**	A New Design for a Distillation Apparatus, **Michael McCormick**
2:25	**562**	New Life for Old Instruments., **Wayne Larson**, Tish Young
2:45	**563**	Problem Based Labs for Organic Chemistry, **Randal E. Robinson**, Janet Bond Robinson
3:05	**564**	Inquiry-Based Projects for the Organic Laboratory, **Christina Noring Hammond,** Jerry R. Mohrig, Paul F. Schatz
3:25		Break
3:35	**565**	Analysis of the Mechanism for the Dehydration of 2-methylcyclohexanol and 4-methylcyclohexanol, **James Currie,** Rachel Anderson
3:55	**566**	Preparation of Naproxen, **Gary Lampman,** Michael Harned, Thao Le, Katharine Popejoy, Megan Steinman
4:15	**567**	The Systematic Identification of Organic Compounds, **Christine Hermann**, Terra L. Hosp

2:00PM - 4:00PM
Public Hearing for the Varian Environmental Challenge **SL110**

Devon Cancilla, Organizer

Student teams will act as expert witnesses for the lawyers, who will present arguments at a public hearing as to what specific actions can or should be taken in the "What's Flowin' In Rowan" Varian Environmental Challenge.

1:30PM - 3:30PM
Poster Session IV - General **Carver Gymnasium**

John Gelder, Organizer

568 Advanced NMR Spectroscopy: A Novel Two-Week Winterim Course, **Anthony Molinero**, Ken J. Coskran

569 Modified Lecture System and Experiments in Physical Chemistry for Biochemistry Majors, **Kazushige Yokoyama**

570 An Advanced Organic Course in Medicinal Chemistry, **Louis Kuo**

571 The University of Tennessee, Knoxville Pre-College Science and Engineering Outreach Programs, **Al Hazari**

572 Educational Improvement in Puerto Rico by the Globe Program, **Nydia Rodríguez**, Enid Gómez, Juan Lopez Garriga, Ricardo Camacho Zapata

573 Building Sustainable Dycles of Laboratory Curriculum Improvement Using InterChemNet Technology; **Barbara Stewart**, Robert E. Kirk, Francois G. Amar, Mitchell R.M. Bruce

1:30PM - 3:30PM
MA/OP: Revitalizing and Enhancing Secondary **Carver Gymnasium**
Science - Poster Session

Glenn Crosby, Washington State University

All posters are the work of teachers who have participated in either the Washington State University MA in Chemistry Program or in Operation PROGRESS, a national program for professional development of high school teachers held in conjunction with the Biennial Conferences on Chemical Education.

7:00PM
Closing Ceremonies
AH100

George Kriz, Sara Selfe, Presiding

Demonstration Extravaganza by John J. Fortman, Wright State University. Closing remarks from the 17th BCCE planning committee.

Workshops

Saturday July 27, 2002

2:00PM - 4:00PM BI261

W1: Teaching Redox through Electroplating: The ChemCom Approach.

Guy Belleman, American Chemical Society, Washington, DC 20036, g_belleman@acs.org; Michael Tinnesand, American Chemical Society Washington, DC 20036, m_tinnesand@acs.org

2:00PM - 5:00PM CB230

W2: Principles and Practices of Combinatorial Chemistry.

Daniel Ketcha, Wright State University, Dayton, Ohio 45435, daniel.ketcha@wright.edu; Richard Taylor, Miami University, Oxford, Ohio 45056, taylorrt@muohio.edu; Ed Machuga, Argonaut Technologies

2:00PM - 5:00PM CB330

W3: Active Learning: Using Teams to Teach Chemistry.

Steven Zumdahl, University of Illinois, Urbana-Champaign, Urbana, IL 61801, zumdahl@scs.uiuc.edu; Susan Zumdahl, University of Illinois, Urbana-Champaign, Urbana, IL 61801, s-arena@uiuc.edu; Don DeCoste, University of Illinois, Urbana-Champaign,Urbana, IL 61801, d-decos@uiuc.edu

Sunday July 28, 2002

8:30AM - 4:30PM OM483

W4: Chemical Education Research - An Introduction to the Nuts and Bolts of the Discipline

Diane Bunce, The Catholic University of America, Washington, D.C. 20064, bunce@aol.com

9:30AM - 4:30PM CB330

W5: Integrating Research into Laboratory Instruction: A Full Day Workshop on A New Look at Laboratory Interfacing.

Dale Hammond, Brigham Young University-Hawaii, Laie, Hawaii 96762, hammondd@byuh.edu; John Amend, Montana State University, Bozeman, Montana 59717, jamend@chemistry.montana.edu

9:30AM - 12:30PM CB280

W6: Calibrated Peer Review - An Introductory Workshop

Arlene Russell, UCLA, Los Angeles, CA 90095-1569, russell@chem.ucla.edu; Tim Su, City College of San Francisco, Los Angeles, CA 90095-1569, telemark@chem.ucla.edu

9:30AM - 12:30PM CB220

W7: Experiments for High School Chemistry That You Can Use.

Erica Jacobsen, Journal of Chemical Education, University of Wisconsin-Madison, Madison, Wisconsin 53715-1116, jacobsen@chem.wisc.edu; Diana Mason, Department of Chemistry, University of North Texas, Denton, Texas 76203, dmason@unt.edu; John Moore, Journal of Chemical Education, University of Wisconsin-Madison, Madison, Wisconsin 53706-1396, jwmoore@chem.wisc .edu

10:00AM - 12:00PM BI261

W8: Science a Technical World

Michael Tinnesand, American Chemical Society, Washington, DC 20036, m_tinnesand@acs.org; Guy Belleman, American Chemical Society, Washington, DC 20036, g_belleman@acs.org

1:30PM - 5:30PM BH219

W9: Teaching Chemical Information

Susanne Redalje, University of Washington, Seattle, WA 98195-1700, curie@u.washington.edu.

2:00PM - 5:00PM BI258

W10: High School and/or College Mentoring Activity - Integrating Children's Literature and Chemistry in the K-3 Classroom.

Dale Wheeler, Appalachian State University, Boone, NC 28608, wheelerde@appstate.edu; Samuella Sigmann, Appalachian State University, Boone, NC 28608, sigmannsb@appstate.edu

2:00PM - 5:00PM SL240

W11: Incorporating Nanotechnology into the Chemistry Curriculum

George Lisensky, Beloit College, Beloit, WI 53511, lisensky@beloit.edu; Amy Payne, University of Wisconsin - Madison, Madison, WI 53706-1396, payne@chem .wisc.edu; Cindy Widstrand, University of Wisconsin - Madison, Madison, WI 53706-1396, widstrand@chem .wisc.edu; Michael Condren, Christian Brothers University, Memphis, TN 38104, mcondren@cbu.edu; Arthur Ellis, University of Wisconsin - Madison, Madison, WI 53706-1396, ellis@chem.wisc.edu

3:00PM - 5:00PM CH135

W12: ACS College Chemistry Consultants Service (C3S)

Morton Hoffman, Boston University, Boston, Massachusetts 02215, hoffman@chem.bu.edu; Jerome Mullin, University of New England, Biddeford, Maine 04005, jmullin@une.edu.

Monday July 29, 2002

9:30AM - 12:30PM BI354

W13: Vernier Hands-On Data Collection

Dan Holmquist, Vernier Software & Technology, Beaverton, OR 97005, dholmquist@vernier.com; Robyn Johnson, Vernier Software & Technology, Beaverton, OR 97005, rjohnson@vernier.com

9:30AM - 12:30PM BI261

W14: Project ChemBOND: Effective Activities for General Chemistry

Jerome Haky, Florida Atlantic University, Boca Raton, FL 33431, hakyj@fau.edu; Nancy Romance, Florida Atlantic University, Boca Raton, FL 33431, romance@fau.edu; Beatrix Aukszi, Florida Atlantic University ,Boca Raton, FL 33431, baukszi@fau.edu; Donna Chamely, Florida Atlantic University, Boca Raton, FL 33431, dchamely@aol.com

9:30AM - 12:30PM ET321

W15: Web Chemistry; Using the Internet in Teaching High School Chemistry

Bettyann Howson, Chatham High School, Chatham, NJ, Madison, New Jersey 07940, merlin49@bellatlantic.net

9:30AM - 4:30PM CB280

W16: Developing Instructional Web Pages with Chemscape Chime

Jennifer Muzyka, Centre College, Danville, KY 40422, muzyka@centre.edu; Liz Dorland, Mesa Community College

9:30AM - 12:30PM AH05

W17: Engaging Students in Learning Chemistry: Using Web-Based Activities and the Process Workshop

David Hanson, Stony Brook - SUNY, Stony Brook, NY 11794-3400, David.Hanson@sunysb.edu; Troy Wolfskill, Stony Brook - SUNY,Stony Brook, NY 11794-3400, Troy.Wolfskill@sunysb.edu

9:30AM - 11:30PM CB330

W18: Integrating Research into Laboratory Instruction: A New Look at Laboratory Interfacing.

Dale Hammond, Brigham Young Univ. - Hawaii, Laie, Hawaii 96762, hammondd@byuh.edu; John Amend, Montana State Univ., Bozeman, MT 59717, jamend@ chemistry.montanta.edu

10:00AM - Noon ES78

W19: Living by Chemistry - What does molecular structure have to do with smell?

Angelica Stacy, University of California, Berkeley, Berkeley, California 94720-1460, astacy@socrates.berkeley.edu; Jan Coonrod, UC Berkeley/Lawrence Hall of Science, Berkeley, California 94702, jcoonrod@uclink4.berkeley .edu; Rebecca Krystyniak, UC Berkeley/Lawrence Hall of Science, Hayward, California 94541, becky_ krystyniak@yahoo.com; Jennifer Claesgens, UC Berkeley/ Lawrence Hall of Science, Oakland, California 94618, jclaes@uclink4.berkeley.edu

10:00AM - Noon BI258

W20: Coloring Your Chemistry Course -- the Chemistry of Tie-Dye

Anne Moody, Truman State University, Kirksville, MO 63501, amoody@truman.edu; Pam New, University of Central Oklahoma at Edmond, Edmond, OK 73034, pnew@ucok.edu

1:30PM - 5:30PM CB330

W21: Discovery-Based Experiments in Organic Chemistry Laboratory Courses

Allen M. Schoffstall, University of Colorado-Colorado Springs, Colorado Springs, CO 80933-7150, amschoff@mail.uccs.edu; Barbara A. Gaddis, University of Colorado-Colorado Springs, Colorado Springs, CO 80933-7150, bagaddis@mail.uccs.edu; Connie L. Pitman, University of Colorado-Colorado Springs, Colorado Springs, CO 80933-7150, cpitman@mail.uccs.edu

1:30PM - 5:30PM ET321

W22: Environmental Sciences and Reaction Modeling Using Computer-Aided Chemistry

David Gallagher, CAChe Group, Fujitsu, Beaverton, OR 97006, dgallagher@cachesoftware.com

2:00PM - 4:00PM BI258

W23: Coloring Your Chemistry Course -- the Chemistry of Tie-Dye

Anne Moody, Truman State University, Kirksville, MO 63501, amoody@truman.edu; Pam New, University of Central Oklahoma at Edmond, Edmond, OK 73034, pnew@ucok.edu

2:00PM - 5:00PM BI354

W24: Vernier Advanced Computer Data Collection

Dan Holmquist, Vernier Software & Technology, Beaverton, OR 97005, dholmquist@vernier.com; Robyn Johnson, Vernier Software & Technology, Beaverton, OR 97005, rjohnson@vernier.com

2:00PM - 5:00PM AH05

W25: Project Chemlab and JCE: The Easy Way to Find New, Peer-Reviewed Lab Experiments

John Moore, Journal of Chemical Education, University of Wisconsin-Madison, Madison, Wisconsin 53706-1396, jwmoore@chem.wisc.edu; Carolyn Allen, Department of Chemistry, Univ. of North Carolina at Charlotte, Charlotte, North Carolina 28223, cballen@email.uncc.edu; Jon Holmes, Journal of Chemical Education, University of Wisconsin-Madison Madison, Wisconsin 53715-1116, jcesoft@chem.wisc.edu

2:00PM - 5:00PM CB230

W26: Microscale Gas Chemistry I. An Introductory Workshop.

Bruce Mattson, Creighton University, Omaha, NE 68104, argon@ne.uswest.net; Susan Mattson, Underwood (IA) High School, Omaha, NE 68104, argon@ne.uswest.net; Michael Anderson, Creighton University, Omaha, NE 68152, mikepa@creighton.edu

2:00PM - 5:00PM ES70

W27: Peer-Led Team Learning

Pratibha Varma-Nelson, Saint Xavier University, Chicago, IL 60655, varmanelson@sxu.edu; Jack Kampmeier, University of Rochester Rochester, New York 14627-0216, kamp@chem.rochester.edu

Tuesday July 30, 2002

9:30AM - 12:30PM BI361

W28: Understanding Sensors and Environmental Measurements: Digital Measurements

Dale Hammond, Brigham Young University-Hawaii, Laie, Hawaii 96762, hammondd@byuh.edu; John Amend, Montana State University, Bozeman, Montana, jamend@chemistry.montana.edu

9:30AM - 12:30PM BI354

W29: Vernier Hands-On Data Collection

Dan Holmquist, Vernier Software & Technology, Beaverton, OR 97005, dholmquist@vernier.com; Robyn Johnson, Vernier Software & Technology, Beaverton, OR 97005, rjohnson@vernier.com

9:30AM - 12:30PM CV116

W30: The Molecules of Life: An Introduction to Biomolecular Structure and Function for Non-Science Majors

Trace Jordan, New York University, New York, NY 10003, trace.jordan@nyu.edu

9:30AM - 12:30PM OM483

W31: Nuts and Bolts of Cooperative Learning

R.J. Cooke, Bethany College, Bethany, WV, Burgettstown, PA 15021, r.cooke@mail.bethanywv.edu

9:30AM - 12:30PM AH05

W32: Use of ChemSkill Builder Electronic Homework for General Chemistry Instruction

James Spain, Electronic Homework Systems, Inc., Pendleton, SC 29670, jspain.chemskil@prodigy.net

9:30AM - 12:30PM ET321

W33: Molecular Modeling in the Undergraduate Curriculum

Carrie McBratney, Wavefunction, Inc., Irvine, CA 92612, carrie@wavefun.com; Alan Shusterman, Reed College, alan@reed.edu

9:30AM - 12:30PM CB330

W34: Using Computers in the Undergraduate Laboratory

David Sinay, SCI Technologies, Inc, Newtown, PA 18940, dsinay@scitechnologies.com

9:30AM - 12:30PM CB230

W35: Microscale Gas Chemistry II. An Intermediate Workshop.

Bruce Mattson, Creighton University, Omaha, NE 68104, xenon@creighton.edu; Susan Mattson, Underwood (IA) High School, Omaha, NE 68104, argon@ne.uswest.net; Michael Anderson, Creighton University, Omaha, NE 68152, mikepa@creighton.edu

1:30PM - 4:00PM BI354

W36: Vernier Hands-On Data Collection

Dan Holmquist, Vernier Software & Technology, Beaverton, OR 97005, dholmquist@vernier.com; Robyn Johnson, Vernier Software & Technology, Beaverton, OR 97005, rjohnson@vernier.com

1:30PM - 4:00PM SL110

W37: NSF Programs That Support Undergraduate Education

Iraj Nejad, National Science Foundation, Arlington, VA 22230, inejad@nsf.gov

2:00PM - 4:00PM ES78

W38: Living by Chemistry - How do we make sense of the world around us?

Angelica Stacy, University of California, Berkeley, Berkeley, California 94720-1460, astacy@socrates.berkeley.edu; Jan Coonrod, UC Berkeley/Lawrence Hall of Science, Berkeley, California 94702, jcoonrod@uclink4 .berkeley.edu; Rebecca Krystyniak, UC Berkeley/Lawrence Hall of Science, Hayward, California 94541, becky_krystyniak@yahoo.com; Jennifer Claesgens, UC Berkeley/ Lawrence Hall of Science, Oakland, California 94618, jclaes@uclink4.berkeley.edu

2:00PM - 4:00PM BI258

W39: Teaching Mini-Retreat: Guided Introspection into Your Personal Teaching Journey

Cheryl Frech, University of Central Oklahoma, Edmond, OK 73034, cfrech@ucok.edu

2:00PM - 4:00PM BI249

W40: Developing Demonstrations for the Classroom and the JCE Tested Demonstrations Feature

Ed Vitz, Kutztown University, Kutztown, PA 19530, vitz@kutztown.edu; William Deese, Louisiana Tech University, Ruston, LA 71272, wcdeese@vm.cc.latech.edu; Todd Silverstein, Willamette University, Salem, OR 97301, tsilvers@willamette.edu

2:00PM - 4:00PM CH135

W41: New Strategies for Teaching General Chemistry

Morton Hoffman, Boston University, Boston, Massachusetts 02215, hoffman@chem.bu.edu

2:00PM - 4:00PM BI261

W42: Teaching Redox through Electroplating: The ChemCom Approach.

Guy Belleman, American Chemical Society, Washington, DC 20036, g_belleman@acs.org; Michael Tinnesand, American Chemical Society Washington, DC 20036, m_tinnesand@acs.org

2:00PM - 4:00PM AH05

W43: Pharmaceutical Achievers: Innovative methods and online materials for the chemistry classroom

Aaron Bitler, Chemical Heritage Foundation, Philadelphia, PA 19106-2702, Abitler@chemheritage.org

Wednesday July 31, 2002

9:30AM - 12:30PM BI354

W44: Enrich and Motivate Your Students with Indigenous/ Cross-Cultural Examples in Chemistry

Janan Hayes, Merced College, Merced, CA 95348, jmhayes@merced.cc.ca.us; Patricia Perez, Mt. San Antonio College, Walnut, CA 91789, pperez@mtsac.edu

9:30AM - 12:30PM BI354

W45: Vernier Hands-On Data Collection

Dan Holmquist, Vernier Software & Technology, Beaverton, OR 97005, dholmquist@vernier.com; Robyn Johnson, Vernier Software & Technology, Beaverton, OR 97005, rjohnson@vernier.com

9:30AM - 11:30AM CB230

W46: Understanding Sensors and Environmental Measurements: Analog Measurements

Dale Hammond, Brigham Young University - Hawaii, Laie, Hawaii 96762, hammondd@byuh.edu; John Amend, Montana State Univ., Bozeman, Montana 59717, jamend@chemistry.montana.edu; Frank Koch, Bismark State College, Bismark, ND 58501, fkoch@gwmail.nodak .edu

9:30AM - 12:30PM AH05

W47: Enliven Your Classroom with JCE's Chemistry Comes Alive!

John Moore, Journal of Chemical Education, University of Wisconsin-Madison, Madison, Wisconsin 53706-1396, jwmoore@chem.wisc.edu; Jon Holmes, Journal of Chemical Education, University of Wisconsin-Madison, Madison, Wisconsin 53715-1116, jlholmes@chem .wisc.edu; Nancy Gettys, Journal of Chemical Education, University of Wisconsin-Madison, Madison, Wisconsin 53715-1116, gettys@chem.wisc.edu

9:30AM - 11:00AM BH219

W48: The AP Year: From Student to Colleague

Ruth Rand, Albuquerque Academy, Albuquerque, NM 87109, rand@aa.edu

9:30AM - 12:30PM ES78

W49: Active Learning with ChemLinks/ModularCHEM Topical Modules

Brock Spencer, Beloit College, Beloit, WI 53511, spencer@beloit.edu; Eileen Lewis, University of California - Berkeley, Berkeley, CA 94720, eileen@socrates .berkeley.edu; George Lisensky, Beloit College, Beloit, WI 53511, lisensky@beloit.edu

9:30AM - 12:30PM ET321

W50: Assign Homework and Let WebAssign Grade It

John Risley, North Carolina State University, Raleigh, North Carolina 27695, john_risley@ncsu.edu

10:00AM - Noon CV116

W51: Chemistry, History, and the Internet: Innovative methods and online materials for the chemistry classroom

Aaron Bitler, Chemical Heritage Foundation, Philadelphia, PA 19106-2702, Abitler@chemheritage.org

10:00AM - 12:00noon BI261

W52: Science a Technical World

Michael Tinnesand, American Chemical Society, Washington, DC 20036, m_tinnesand@acs.org; Guy Belleman, American Chemical Society, Washington, DC 20036, g_belleman@acs.org

1:30PM - 5:30PM CB230

W53: Green Chemistry in the Organic Laboratory

Jim Hutchison, University of Oregon, Eugene, Oregon 97403-1253, hutch@oregon.uoregon.edu; Mary Kirchhoff, Green Chemistry Institute, American Chemical Society, Washington, District of Columbia 20036, m_kirchhoff@acs.org; John Warner, University of Massachusetts Boston, Boston, Massachusetts 02125-3393, john.warner@umb.edu

1:30PM - 5:30PM CB330

W54: Ease of Use, No Set-up, Total Package Chemistry

Kathryn Holmes, Pasco Scientific, Roseville, CA 95747, holmes@pasco.com; James Kelly, Pasco Scientific, Roseville, CA 95747, Lance Mayhofer, Pasco Scientific, Roseville, CA 95747

2:00PM - 4:00PM OM483

W55: Teaching Strategies to Enhance Gender and Cultural Equity in High School Chemistry Classes

Joan Beardsley, Squalicum High School - Bellingham, WA 98226, jbeardsl@bham.wednet.edu

2:00PM - 5:00PM BI354

W56: Vernier Hands-On Data Collection

Dan Holmquist, Vernier Software & Technology, Beaverton, OR 97005, dholmquist@vernier.com; Robyn Johnson, Vernier Software & Technology, Beaverton, OR 97005, rjohnson@vernier.com

2:00PM - 5:00PM SL240

W57: A Guided Inquiry Approach to Chemistry Instruction

Rick Moog, Franklin and Marshall College, Lancaster, PA 17604, r_moog@fandm.edu; Frank Creegan, Washington College, Chestertown, MD 21620, frank_creegan @washcoll.edu; Jim Spencer, Franklin and Marshall College, Lancaster, PA 17604, j_spencer@fandm.edu

2:00PM - 5:00PM ET321

W58: Web-Assisted Tools for Chemistry Instruction

Barbara Gonzalez, California State University Fullerton, Fullerton, CA 92834-6866, bgonzalez@fullerton.edu; Janice Chadwick, Fullerton College, Fullerton, CA 92832-2095, jchadwick@fullcoll.edu; Ramesh Arasasingham, University of California Irvine, Irvine, CA 92657-2025, rdarasas@uci.edu; David Licata, Pacifica High School, Garden Grove, CA 92845, dlicata@ccd.edu

2:00PM - 5:00PM ES70

W59: ACS GenChem Project: Past, Present, and Future

Jerry Bell, American Chemical Society, Washington, DC 20036, j_bell@acs.org;

Thursday August 1, 2002

9:30AM - 11:30AM CB230

W60: Experimental Chemistry: Laboratory-Driven General Chemistry Curriculum

Sharron Smith, Hood College, Frederick, MD 21701, ssmith@hood.edu; Susan Ensel, Hood College, Frederick, MD 21701, sensel@hood.edu

9:30AM - 12:30PM ET321

W61: Molecular Modeling in the Undergraduate Curriculum

Carrie McBratney, Wavefunction, Inc., Irvine, CA 92612, carrie@wavefun.com; Nathan Dacuycuy, Wavefunction, Inc., Irvine, CA 92612, nathan@wavefun.com

9:30AM - 12:30PM CB280

W62: Calibrated Peer Review - An Advanced workshop: Implementation and Authoring

Arlene Russell, UCLA, Los Angeles, CA 90095-1569, russell@chem.ucla.edu; Tim Su, City College of San Francisco, Los Angeles, CA 90095-1569, telemark@chem .ucla.edu

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Carolina Biological Supply Company
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