WCCTA 11th Annual Conference
October 23-25, 2003
Sleeping Lady Mountain Retreat
Leavenworth, Washington

SOLVENTLESS ALDOL CONDENSATION REACTION*

# WCCTA Conference Program
## October 23-25, 2003

### Thursday, October 23

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
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<tbody>
<tr>
<td>3-10 pm</td>
<td>Check-in</td>
<td>Office</td>
</tr>
<tr>
<td>4:30-6:30 pm</td>
<td>Informal Gathering</td>
<td>Grotto Bar</td>
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<tr>
<td>6:30-7:30 pm</td>
<td>Dinner</td>
<td>Kingfisher Dining Hall</td>
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<tr>
<td>7:30-11:30 pm</td>
<td>Informal Gathering</td>
<td>Grotto Bar and The Hot Pool (no glass at the pool!)</td>
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### Friday, October 24 Morning

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
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<tbody>
<tr>
<td>7:30-8:30 am</td>
<td>Breakfast</td>
<td>Kingfisher Dining Hall</td>
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<tr>
<td>8:45-9 am</td>
<td>Welcome</td>
<td>Chapel</td>
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<tr>
<td></td>
<td>Wally Orchard</td>
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<tr>
<td>9-10 am</td>
<td>Keynote Address</td>
<td>Chapel</td>
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<tr>
<td></td>
<td>Ken Doxsee, University of Oregon</td>
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<td></td>
<td><em>Green Chemistry</em></td>
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<tr>
<td>10-10:25 am</td>
<td>Green Chemistry-question and answer period</td>
<td>Chapel</td>
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<tr>
<td>10:25-10:30 am</td>
<td>Meet the local ACS Dharshi Bopegedera</td>
<td>Chapel</td>
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<tr>
<td>10:30-11:15 am</td>
<td>Break with vendors</td>
<td>Salmon Gallery</td>
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<tr>
<td>11:15-12 noon</td>
<td>Carole Berg</td>
<td>Flicker</td>
</tr>
<tr>
<td></td>
<td><em>Pros and cons of Lab Reports and Quizzes</em></td>
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<tr>
<td></td>
<td>Richard Logan</td>
<td>Woodpecker</td>
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<tr>
<td></td>
<td><em>Twelve Years of General Chemistry</em></td>
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<td></td>
<td><em>Capstone Group Projects in Water Quality on Squilchuck Creek</em></td>
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<tr>
<td>12-1:15 pm</td>
<td>Lunch</td>
<td>Kingfisher Dining Hall</td>
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<tr>
<td>Time</td>
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<tr>
<td>1:15-2 pm</td>
<td>Pasco Scientific—Lance Mayhofer&lt;br&gt;Make the Invisible Visible in Your Chemistry Class</td>
<td>Flicker</td>
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<tr>
<td></td>
<td>Buck Scientific—Jerry DeMenna&lt;br&gt;Real-World Hands-on Experiments with the FUN-SCI Program</td>
<td>Woodpecker</td>
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<tr>
<td>2-2:45 pm</td>
<td>Vicky Minderhout Thorsell&lt;br&gt;Student Perceptions of and Performance of Problem Solving in a Process Oriented Classroom</td>
<td>Flicker</td>
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<tr>
<td></td>
<td>Dharshi Bopegedera&lt;br&gt;Hosting a “Career Week” for Chemistry Majors</td>
<td>Woodpecker</td>
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<tr>
<td>2:45-3:30 pm</td>
<td>Break with vendors</td>
<td>Salmon Gallery</td>
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<tr>
<td>3:30-4:15 pm</td>
<td>Justine Furutani and Tracy Furutani&lt;br&gt;Solubility Determination Exercise</td>
<td>Flicker</td>
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<td>Dean Waldow&lt;br&gt;Implementing a Research-Rich Laboratory Experience in Physical Chemistry: Thermodynamics and Kinetics</td>
<td>Woodpecker</td>
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<tr>
<td>4:15-4:45 pm</td>
<td>Rebecca Sunderman&lt;br&gt;A Course in Experimental Design</td>
<td>Woodpecker</td>
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<tr>
<td>4:45-5:30 pm</td>
<td>General Chemistry Discussion&lt;br&gt;Open topics&lt;br&gt;Carole Berg, facilitator</td>
<td>Flicker</td>
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<tr>
<td></td>
<td>Kathy Carrigan, Nancy Barker, and Ralph Morasch&lt;br&gt;Panel on Design and Construction of New Science Buildings</td>
<td>Woodpecker</td>
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<tr>
<td>5:30-6:30 pm</td>
<td>Break</td>
<td>Preprandials at the Grotto</td>
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<tr>
<td>6:30-7:30 pm</td>
<td>Dinner</td>
<td>Kingfisher Dining Hall</td>
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<tr>
<td>8-10 pm</td>
<td>Bruce Watson, Canandaigua Wine Co. NW Operations&lt;br&gt;The Chemistry of Wine, followed by Wine Tasting</td>
<td>Woodpecker</td>
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<tr>
<td>8-9 am</td>
<td>Breakfast and Checkout (Checkout must be complete before 11 am)</td>
<td>Kingfisher Dining Hall and Reception</td>
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</table>
| 9-9:45 am    | Robin Terjeson  
*Clark, Lower Columbia College, WSU-Vancouver Institute* | Flicker                    |
|              | David Thorsell  
*Predicting Success in General Chemistry through the Use of a Diagnostic Exam* | Woodpecker                |
| 9:45-10:30 am| Organic Discussion  
*"The use of ACS exams" and other topics*  
*Jay Mueller, facilitator* | Flicker                    |
|              | GOB Discussion  
*"How will changes in UW GOB affect the rest of us" and other topics*  
*Wally Orchard, facilitator* | Woodpecker                |
| 10:30-11am   | Check Out—must be completed by 11am                                  |                           |
| 11-11:45 am  | Four year college discussion  
*"Integrating research into the undergraduate curriculum" and other topics*  
*Dharshi Bopegedera, facilitator* | Flicker                    |
|              | Two year college discussion  
*Open topics*  
*Bob Schmitt, facilitator* | Woodpecker                |
| 12-1 pm      | Lunch                                                               | Kingfisher Dining Hall    |
| 1-1:30 pm    | Business meeting and door prizes                                    | Chapel                    |
FRIDAY OCTOBER 24, MORNING SESSION

KEYNOTE ADDRESS, 9am-10am, Chapel

Green Chemistry

Kenneth Doxsee, University of Oregon

Abstract: Green chemistry has been defined as "the design and use of methods that eliminate health and environmental hazards in the manufacture and use of chemicals." Green chemistry represents the future of sustainability in both the chemical industry and the "chemistry industry," with the latter representing companies not typically considered "chemical" that nonetheless depend heavily on chemical products. A new program at the University of Oregon introduces the concepts and practice of green chemistry to students throughout the chemistry curriculum, focusing in particular on the organic chemistry laboratory. In addition to knowing it is doing "the right thing," the University has found numerous practical advantages in its conversion to green chemistry, including high student interest and morale (leading to increasing numbers of chemistry majors and minors), effective recruiting at the undergraduate and graduate levels, minimized costs for waste disposal (even when working on the macroscale), and the ability to carry out experimentation without the need for expensive air handling (fume hood) capability. Graduate research at the University of Oregon explores a range of green concepts and technologies, including the design of selective catalysts, the synthesis of materials with promising energy-conversion properties, the preparation of reagents for the selective extraction of radioisotopes from waste water, and the development of green approaches for solid-state synthesis.

Questions and Answers, 10am-10:25am

11:15am-12 noon, Flicker
Pros and cons of Lab Reports and Quizzes

Carole Berg, Bellevue Community College

Abstract: A discussion of current lab report books and quizzes given in my BCC inorganic and organic/biochemistry lab classes. This will be an open discussion to share problems and insights into lab reporting.
11:15am-12 noon, Woodpecker
Twelve Years of General Chemistry Capstone Group Projects in Water Quality on Squilchuck Creek

Richard M. Logan, Wenatchee Valley College

Abstract: A review of data, student presentations, and laboratory vagaries of group projects for General Chemistry. After twelve years of assigning water quality projects to groups of 6-7 students as a capstone of the year of General Chemistry, I have encouraging but distressing news. It is worth every effort to provide group work that requires collaboration. Especially, if the project requires extensively referenced laboratory projects requiring students to develop laboratory procedures, report results in written and oral forums, and develop leadership skills in cooperating toward a common goal. The downside is that students do not succeed at these goals very well and often do not appreciate the skills gained until three to eight years after completing the course. I will present anecdotal evidence of the outcomes of this type of learning project in General Chemistry at Wenatchee Valley College.

FRIDAY OCTOBER 24, AFTERNOON SESSION

1:15pm-2pm, Flicker
Make the Invisible Visible in Your Chemistry Class

Lance Mayhofer, Pasco Scientific

Abstract: What if your students could perform simple, meaningful chemistry experiments that improve their comprehension of challenging chemistry concepts? In this workshop you’ll learn how handheld data loggers, sensors and software can be used to create a more meaningful chemistry learning environment. Find out how Electronic Workbook software can guide students through complicated, standards-based explorations without interfering with scientific discovery.

1:15pm-2pm, Woodpecker
Real-World Hands-on Experiments with the FUN-SCI Program

Jerry DeMenna, Buck Scientific

Abstract: Come see a few “fun” and “interesting” (aka: non-boring!) experiments for advanced high school and for collegiate teaching and basic graduate research of analytical instrumentation (IR, UV-Vis, fluorimetry, colorimetry, atomic absorption, GC and HPLC). All systems will be set up with our unique “FUN-SCI” experiments during the presentation. The “FUN-SCI’ program focuses on topics that the students deal with or are concerned with every day (food, beverages, cosmetics, drugs, cars, environment, crime, etc.); and thus inspire them to remember what they did during the experiment.
2pm-2:45pm, Flicker
Student Perceptions of and Performance of Problem Solving in a Process Oriented Classroom

Vicky Minderhout Thorsell, Seattle University

Abstract: In a process oriented classroom the learner uses methodologies for key performance processes and self-assessment to improve future performance. One such key process in chemistry is problem solving. Performance of problem solving requires that conceptual understanding be put into action through some application. We use a problem solving methodology as an educational tool to help novices become more practiced and professional. While the typical single answer word problem can be solved using a fairly simple process, open-ended problems or ones in which numerous concepts are applied require a more robust process that guides the learner to determine what is important, to collect and assess available information, to develop a model and to identify assumptions. Since 1997 we have taught our biochemistry sequence using a problem solving methodology coupled with self-assessment to improve performance. I began collecting data (exams, self-assessments and final growth reports) on these efforts in 1999. These data show a direct correlation between high quality self-assessment and effective problem solving on exams. In addition, student responses in final growth reports indicated that small curricular changes in the presentation of the problem methodology had a large effect on the student's awareness and perception of problem solving activities in the class. I will report both quantitative and qualitative data, and student quotes and discuss student buy-in.

2pm-2:45pm, Woodpecker
Hosting a “Career Week” for Chemistry Majors

Dharshi Bopegedera, The Evergreen State College

Abstract: In my presentation I will discuss my experience of hosting a “Career Week” for the benefit of chemistry majors at The Evergreen State College. The purpose of the “Career Week” is to help students obtain information about graduate schools, medical schools and employment in the chemical industry. I will discuss the academic background students bring to this event, the schedule of a typical “Career Week”, and the involvement of the Career Development Office of The Evergreen State College in this process. I will share the input given by former students about “Career Week” and how it helped them in their search for careers in chemistry.
3:30pm-4:15pm, Flicker
Solubility Determination Exercise

Justine Furutani and Tracy Furutani, North Seattle Community College

Abstract: Solubility can be a dry topic in introductory and general chemistry. We have developed a solubility-study simulation in which students “purchase” differing amounts of different salt samples, perform solubility tests (as a dry-lab simulation) and use the results to determine the relative order of salt solubility. Ancillary goals of the exercise are to show students the grant proposal writing procedure and the journal publication procedure in a fast-paced learning adventure.

3:30pm-4:15pm, Woodpecker
Implementing a Research-Rich Laboratory Experience in Physical Chemistry: Thermodynamics and Kinetics

Dean Waldow, Pacific Lutheran University

Abstract: The physical chemistry laboratory curriculum at Pacific Lutheran University is currently shifting towards a research-rich project environment. This shift is augmented by an NSF-CCLI grant that is providing equipment and software. Project adaptations from research literature range from laser-based dynamic and static light scattering and laser-based Raman studies to computational chemistry studies. Expanding projects to include both experiment and computational modeling is also a goal, and should create a more comprehensive link between experimental data and theoretical constructions. It is anticipated that these changes will help make physical chemistry students more aware of the process chemists utilize in exploring the chemical world, create greater interest in the course, and provide a stimulus for them to pursue undergraduate research. This talk will concentrate on the initial implementation in thermodynamics and kinetics with projects focused on hydrogels, nanospheres, and living free radical polymerization.

4:15pm-4:45pm, Woodpecker
A Course in Experimental Design

Rebecca Sunderman, The Evergreen State College

Abstract: How do you pick a research topic? Where does grant money come from? What is the difference between pure research and applied research? How do you know where to start with a research project? Many students graduating from college and planning careers in chemistry are unable to answer these questions. Experimental Design, CHEM 398, was created to prepare students for careers in chemistry. The class was a success and has become an important part of the chemistry curriculum at West Virginia Wesleyan College.
4:45pm-5:30pm, Woodpecker

Panel on Design and Construction of New Science Buildings

Kathy Carrigan, Portland Community College and Nancy Barker and Ralph Morasch, Pierce College

Abstract: An illustrated talk about the new science building at Portland Community College, followed by a general discussion.

FRIDAY OCTOBER 24, EVENING ENTERTAINMENT

8pm, Woodpecker

The Chemistry of Wine

Bruce Watson, Canandaigua Wine Company, NW Operations

Followed by wine tasting.

SATURDAY OCTOBER 25, MORNING SESSION

9-9:45am, Flicker

Clark, Lower Columbia College, WSU-Vancouver Institute

Robin Terjeson, Clark College

Abstract: Clark, LCC and WSUV will be offering 4 yr degree programs in engineering, computer science and biology beginning Fall 2004 at the WSUV site. This project consists of new and/or revised courses at the lower division level so that the students see a seamless 4-yr program. This presentation is to let everyone know about the development of the Institute and the progress to date in collaborating and solving all of the many problems involved. Not the least of which is the quarter/semester dilemma.!!
9am-9:45am, Woodpecker

Predicting Success in General Chemistry through the Use of a Diagnostic Exam

David Thorsell, Seattle University

Abstract: The Seattle University Chemistry Department has been giving the American Chemical Society California Chemistry Diagnostic Test to all students at the beginning of our first quarter general chemistry course since the fall of 1994. The exam consists of 44 questions, 34 of which are based on high school chemistry and the remaining 10 on related skills and knowledge such as measurement, three dimensional visualization, units and math. We have correlated student success in the course, as indicated by their course grade, with total diagnostic exam score and also with the scores on each of the two sections of the exam. I will show data giving the percent of students who have unsuccessful outcomes in the course (grade lower than C- or a withdrawal) and those doing very well in the course (A or B grade) related to performance on the diagnostic exam. Data comparing the performance of students who do poorly on the diagnostic exam but do remedial work before starting general chemistry with those who do poorly but stay in the course anyway will be given. The talk will conclude with a group discussion related to the merits of using such diagnostic exams to prevent entry into general chemistry without first doing remedial work as opposed to using them just for advisory purposes.
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<thead>
<tr>
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<th>Institution</th>
<th>Address</th>
<th>Email</th>
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