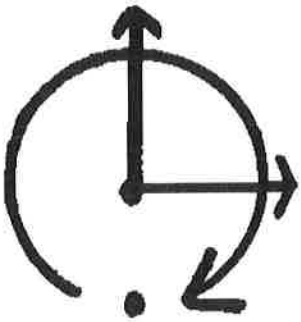
2006 Northwest Two-Year College

Mathematics Conference

April 20 – 22, 2006

3rd Quinennial
Joint Washington-Oregon Conference

Skamania Lodge
Stevenson, Washington



PROGRAM HIGHLIGHTS

THURSDAY	EVENT
7:00 – 8:00 PM	OPENING SPEAKER: PAULINE CHOW
8:00 – 11:00 PM	SOCIAL HOSTED BY ADDISON WESLEY, PRENTICE HALL, AND THOMSON LEARNING (HOOD RIVER SUITE #421)

FRIDAY	EVENT
7:15 – 8:45 AM	BREAKFAST BUFFET
11:30 – 1:00 PM	LUNCH
5:45 – 7:00 PM	DINNER BUFFET
7:00 – 8:00 PM	KEYNOTE SPEAKER: JAY LEHMANN
8:00 – 11:00 PM	SOCIAL HOSTED BY HOUGHTON MIFFLIN AND MCGRAW-HILL (HOOD RIVER SUITE #421)

Saturday	EVENT
7:15 – 8:45 PM	BREAKFAST BUFFET AND AWARDS

Conference Schedule

Date	Time	Event
Thursday, April 20th	5:30 – 7:00 PM	Registration
	7:00 – 8:00 PM	**Opening Speaker: Pauline Chow**
	8:00 – 8:30 PM	Registration
	8:00 PM – 11:00 PM	Hosted Social
Friday, April 21st	7:15 AM – 8: 45 AM	Breakfast Buffet
	8:00 AM – 11:30 AM	Registration
	8:30 AM – 11:45 AM	Publisher's Exhibits
	9:00 AM – 10:00 AM	**Session I**
	10:00 AM – 10:30 AM	Refreshment Break
	10:30 AM – 11:30 AM	**Session II**
	11:30 AM – 1:00 PM	Lunch
	1:00 PM – 4:30 PM	Publisher's Exhibits
	1:15 PM – 2:30 PM	**Session III**
	2:30 PM – 3:00 PM	Break
	3:00 PM – 4:15 PM	**Session IV**
	5:45 PM – 7:00 PM	Dinner Buffet
	7:00 PM – 8:00 PM	**Keynote Speaker: Jay Lehmann**
	8:00 PM – 11:00 PM	Hosted Social
Saturday, April 22nd	7:15 AM – 8:45 AM	Breakfast Buffet
	8:00 AM – 8:45 AM	Individual Annual Business Meeting: ORMATYC, WAMATYC
	8:30 AM – 11:45 AM	Publisher's Exhibits
	9:00 AM – 10:00 AM	**Session V**
	10:00 AM – 10:30 AM	Refreshment Break
	10:30 AM – 11:45 AM	**Session VI**
	11:45 AM	Checkout and Departure

2006 Northwest Two-Year College Mathematics Conference

Invited Speakers

Thursday Evening Kickoff Speaker – O. Pauline Chow

Title: Using Humor in the math classroom

O. Pauline Chow has taught at Harrisburg Area Community College, Harrisburg, PA for the last 21 years. Prior to joining HACC, she taught at the University of the Sciences in Philadelphia for four years. She received the Lindback Foundation Distinguished Teaching Award in 1982. She was given the recognition of Exemplary Teaching in Developmental Education from the Pennsylvania Association of Developmental Educators in 2005.

Professor Chow will share her best practices and entertain with her Top Ten Lists! Don't miss "Pick up lines at a bar".

She is active in various math organizations (Past President of PSMATYC, Board member of PCTM, elected Board member of PADE) and presents at local, state (PCTM/PSMATYC and PADE), and national (AMATYC and NADE) conferences.

Friday Evening Banquet Speaker – Jay Lehmann

Title: Don't Believe Everything You Hear

Join in the fun of using curve fitting to debunk age-old myths, government claims, and politicians' pronouncements. We just might confirm a few common-held beliefs, too. Whether debunking or confirming, we'll discuss compelling applications that will ignite greater enthusiasm and yearning for learning in our students.

Jay Lehmann has taught for the past 18 years at College of San Mateo, where he received the "shiny apple award" for excellence in teaching. He has presented talks on curve fitting and other topics at over 45 conferences including AMATYC and ICTCM over the past ten years. He has participated in grant projects to retool an arithmetic course and to learn how to assess the effectiveness of teaching. He is currently on the board for California Mathematics Community College Consortium (CMC3). He plays in a rock band with four other "nearly hairless" guys. Jay has written elementary algebra and intermediate algebra textbooks published by Prentice Hall.

WORKSHOP ABSTRACTS

Abstracts (in alphabetical order by presenter's last name) as given by presenters

Stefan Baratto
Clackamas Community College
Technical Math, Statistical Analyses, and Excel
Participants will learn to use projects requiring students to use Excel in their technical math classes. These projects use descriptive statistics, simulations, and statistical process control (SPC) in applied settings. Introduction to Excel materials for students and instructors will also be included on CDs for participants to take with them.

Farshad Barman
Portland Community College
A Hitchhiker's Mathematical Guide to the Solar System.
This presentation will introduce all the mathematics that are needed to predict and plot the location of the Sun, the planets and the stars in the sky at a given date and time. The mathematics will include Kepler's Laws, orbits of the planets, location of the stars, and matrix transformation and rotation of the 3-D axes. The session will include several projects based on this work for students in trigonometry, calculus and differential equations.

Marvin Bittinger
IUPUI
Baseball and Mathematics
Hey, throw out the first pitch - it's baseball season! Today it's also baseball and MATHEMATICS season as we consider many applications of math to baseball. Topics will range from speeds of pitches, to the tale of the tape, to batting records, and to the physics of a baseball bat.

Richelle (Rikki) Blair
Lakeland Community College
Active Student Learning: Why and How?
Research in the science of learning mathematics emphasizes the importance of students being actively engaged in the learning process. This session will discuss current research in active student learning, classroom activities that can be used in Introductory and Intermediate Algebra, and how you can get started.

Laura Bracken
Lewis-Clark State College
Teaching Exponentials and Logs Early in Intermediate Algebra
Exponential and logarithm functions are usually the last topic in intermediate algebra, if we get there at all. The presentation will discuss how these topics can better be introduced immediately after the study of polynomials. After several years of piloting, this is now a permanent fixture of our curriculum.

Michael Burke
College of San Mateo
Tools for Thought: Using Math and English to Explore Contemporary Issues
Tools for Thought, a learning community linking Intermediate Algebra and Freshman Composition, has the goal of integrating quantitative skills with reading and writing skills. The integration is accomplished through units focused on real-world human and environmental issues. The session will present an overview of the class, the assignments, assessment tools, and student work. Audience: math teachers interested learning communities, in writing, or in serious applications with real data

Laurie Burton
Western Oregon University
Using Visual Algebra Pieces to Model Algebraic Expressions and Solve Equations
Use concrete algebra pieces to explore patterns, understand algebraic expressions $(3x+2)$ and solve equations $(3x+2=5$ and $x^2+3x-2=-4)$. Adaptation of the MLC's Visual Algebra curriculum can be used in Math for Elementary Teachers, Introductory and Intermediate Algebra and in tutoring sessions for students who have difficulty grasping the abstraction of a variable.

O. Pauline Chow
Harrisburg Area Community College
Hyperbolic Functions: From Algebra to Calculus
What is a hyperbolic radian? What are the similarities between the hyperbolic and trigonometric functions and their inverses? Any applications?

Mark Clark
Palomar College
What's driving your developmental math curriculum?
Applications can provide a strong real world connection and value for the skills being taught in a developmental math course. Come discuss what it means to drive the curriculum with applications rather than skills alone. Find out how using a little technology can keep the balance of applications and skills in the curriculum.

Danny Clark
St. Petersburg College
The Evolving Developmental Mathematics Course Redesign: Web-based Instructional Assistance
The presentation will provide faculty with a learner centered approach for redesigning Developmental Mathematics using an instructional service via the web known as SMARTHINKING. The service provides students a means to accessing an instructor at the teachable moment to address weaknesses identified in a pre-testing.

Jeff Crabill (Additional Presenters: De Szoeke)
Linn-Benton Community College
Basic Mathematics at LBCC -- Past, Present, & Future
In 1992, LBCC changed the teaching of Basic Mathematics from a lecture-based model to a model that challenges both the teacher and student. Presenters will give an overview of the model used at LBCC to teach Basic Mathematics emphasizing the history and the future of the course.

Tevian Dray
Oregon State University
Bridging the Gap between Mathematics and the Physical Sciences
The key to bridging the gap between mathematics and the physical sciences is geometric reasoning. We will discuss the art of teaching geometric reasoning, emphasizing, but not limited to, vectors and vector calculus, using materials developed as part of the NSF-funded Vector Calculus Bridge project at Oregon State University.

Dave Favreault
Mt Hood Community College
A Proactive Approach to Student Persistence as Implemented at MHCC
The presenter will provide an overview of a campus wide persistence program at MHCC and will discuss the involvement of the Mathematics department as a key partner.

Hideshi Fukaya
Casio Education Technology
Technology Designed to Explore Mathematics - The Next Version of ClassPad
What does the future hold? Software must be designed to meet the needs of educators and provide students with a tool that will let them write text, natural math, explore using a spreadsheet, algebra or Geometry. Learn how the next version of ClassPad Manager Software can be used to explore mathematics in the classroom and for online learning.

Steve Gladfelter
Lane Community College
Using Spreadsheets to Teach Mathematics Concepts: A Sample Lesson
We will work through a lesson that uses Microsoft Excel to facilitate the teaching of an algebra topic. This presentation will be open to anyone who has an interest in incorporating spreadsheet software into their math courses. We will consider a linear optimization problem in which the student is asked to compare the pricing structure of two home entertainment options, and analyze ways to improve the competitiveness of one of the options. The spreadsheet-based component will focus on converting algebraic expressions into the syntax of an Excel formula, working with lists to compare two changing quantities, and using a chart to analyze the cost structures. The spreadsheet will be designed so that students can change a global constant (such as monthly cost), and see that change immediately reflected in the table and the chart. In the process, students will learn how the slope and y-intercept of a line are related to its equation, before the topic is formally introduced in a lecture. Students will also learn various aspects of the software itself, such as using formulas, cell referencing, creating charts and managing lists. The lesson we will use has been developed in accordance with AMATYC and NETS-student standards.

Bill Griffiths
Lane Community College
Software to Produce Dynamic Math Problems and Tests for Online Courses
Demonstrate software for creating problems for a public database of dynamic problems and for creating online tests using those problems. The dynamic problems are defined using common mathematical notation. Software, documentation and tutorial material will be supplied. Audience: online math testing interest.

Joyce Hammer
Green River Community College
Department Leadership – The Thrill and Agony of It All!
Demonstrate software for creating problems for a public database of dynamic problems and for creating online tests using those problems. The dynamic problems are defined using common mathematical notation. Software, documentation and tutorial material will be supplied. Audience: online math testing interest.

Rebecca Hartzler (Additional Presenters: Hammer, Laveglia, Leoni)
Seattle Central Community College
Inspirations from the MAC^3 Project
The Mathematics Across the Community College Curriculum project has influenced over 28 disciplines and two-dozen institutions. Come get inspired about the many mathematics applications that exist in other disciplines.

Jeffrey Hayen
Southwestern Oregon Community College
A Unified Approach to Exponentials, Radicals, and Logarithms: The Ruling Triumvirate
Students of Intermediate Algebra (and often Precalculus) have a common tendency to struggle with the concepts and principles associated with radicals and logarithms. In an effort to further demystify these mathematical objects, this presentation aims to motivate their existence and properties, as well as elucidate their interrelatedness. As a bonus, some remarkable results for exponential, radical, and logarithmic expressions will be presented.

Kayana Hoagland
South Puget Sound Community College
Getting the Most out of FACTORS
This presentation will start by exploring the "Locker Problem" which can be used after students know their times tables. Vocabulary and understanding surrounding factors, factor pairs, perfect squares, prime numbers, prime factors, total number of factors, tree diagrams, exponents, even and odd amounts, irrational numbers, square roots, calculator skills, ceiling and floor functions, factor pairs, multiples, critical thinking, and technical writing are all teased out of this one problem. Because so many different concepts can be addressed, students are forced to choose their vocabulary carefully and truly understand the meaning of various words which often get confused such as factor and multiple or square rooting and squaring. This traditional introductory algebra topic transcends into areas of probability and logic. With minor modifications it can be used with junior high or upper elementary school students. Audience members should bring a scientific calculator and come prepared to work in small groups. Handouts will be provided. If time allows other problems involving factors and critical thinking will be introduced.

Nancy Imig
Southern Oregon University
Online Homework isn't just for online classes anymore!
The creation and completion of online homework will be demonstrated. Support and feedback for students within and beyond MyMathLab assignments will be shown. The gradebook will be shown as updated with online work and as used for offline assignments and test scores. Announcements and offline assignments will be posted.

Amelia Keeny
McGraw-Hill Higher Education
The Clicker Technology--Fad or New Standard
This session will discuss how the "clicker" technology has changed classroom learning. A number of examples of how Math instructors are incorporating the technology into their courses will be provided. Also this session will share what the latest research is saying.

John Kellermeier
Tacoma Community College
Teaching Math from a Multicultural and Feminist Perspective
This hands-on workshop will look at what literature from the multicultural, curriculum inclusion and feminist movements has had to say about mathematics and how it is taught. Various suggestions and strategies for teaching math with attention to race, class and gender will be given. A model for teaching mathematics with a workshop approach will be presented.

Mike Kenyon
Green River Community College
Portfolios as end-of-course assessment
As an alternative to or in conjunction with traditional final exams, portfolios can be used to assess students' progress toward course goals as well as students' perceptions of that progress. This session will offer some ideas for structuring portfolios and will also offer examples of student work.

Steve Kinholt (Additional Presenters: Hammer)
Green River Community College
Math for Elementary Teachers – Sharing your Thoughts, Successes, and best Lessons
A discussion group intended for those who currently teach math for elementary teachers or for those interested in starting courses. We will lead a discussion concerning important issues in such a course. Participants should bring copies of their syllabus and a favorite lesson to share.

Jerry Kissick
Portland Community College
Writing as a Vehicle to Learn Math
Presenters will discuss the use of short writing assignments which describe basic algebraic procedures and projects which describe the solutions of non-trivial problems. Both presenters will bring examples of student work and discuss how these activities relate to increased student learning and to the new version of Crossroads.

Greg Langkamp (Additional Presenter: Hull)
Seattle Central Community College
Field Activities in Environmental Mathematics
Courses that integrate mathematics with environmental science motivate students to think quantitatively about local and global environmental issues. Field activities enhance comprehension through hands-on data acquisition and practical analysis with basic functions and statistics. This talk will present two outdoor activities that can be explored in your school's backyard.

Phyllis Leonard
Chemeketa Community College
General Education Outcome Statements for the AAOT
Discussion session: Use mathematics to solve problems. Recognize when mathematics is applicable to a scenario, apply appropriate mathematics in its solution, accurately interpret and communicate the results.

Douglas Lewis
Yakima Valley Community College
Modeling Four Dimensions Where Two Planes Can Intersect in a Single Point - Helping Students Think in Higher Dimensions
The presentation is for linear algebra instructors and others interested in exploring geometry in higher dimensions and includes opportunities to play higher dimensional tic-tac-toe as well as a look at the physical model of and mathematics underlying two planes intersecting in a single point.

David Lippman
Pierce College
Free Software
For everyone tired of paying licensing fees or wanting more control over their software, this talk will review free/open-source software options you can use, including math text editors and graphers, as well as alternatives to Maple/Mathematica, MatLab, Maple-TA, Blackboard, MS Office, and more.

Scott MacDonald (Additional Presenter: Tran)
Tacoma Community College
Developing a computer mediated learning system from scratch
In January 2005, Tacoma Community College decided to develop new computer mediated learning classes. Developing the new classes for fall quarter with no previous experience was a difficult process. TCC chose Hawkes Systems' software, so it will be used for demonstration, but the talk will apply to any software system.

Michael Marciniak
Portland Community College
How to Teach Statistics the ASA Way
The author attended the November 2005 GAISE (Guidelines for Assessment and Instruction in Statistical Education) workshop prior to the AMATYC meetings in San Diego. How should we be teaching Intro Stats in 2006? Hear the latest and the greatest ideas according to the statistical gods and goddesses tasked by ASA to answer this question. Included will be practical ideas, problems, and activities to take back to the classroom.

William Moore
Board for Community & Technical Colleges (SBCTC)
Extra! Extra! Read All About It: Washington State has a New Set of Standards for Higher-level (Calculus) Courses
Audience: Anyone interested in the standards development process, math examples development. Pre-calculus, calculus and other advanced math instructors would also benefit from attending. Washington State's Transition Mathematics Project (TMP) has an extra resource for students: the Extra Expectations for calculus and other advanced courses. The new expectations, now featured in TMP's College Readiness Standards, were crafted by a cross-sector team of Washington State math instructors throughout 2005. The Extra Expectations recognize that some students need more than college readiness in math; they need an 'extra' set of skills and knowledge to succeed in calculus-based courses, majors and career tracks. An accessible and extensive array of corresponding example problems and tasks are under development to ensure that skill and knowledge expectations are clear. For more on TMP and the Extra Expectations, visit www.transitionmathproject.org.

Laura Moore-Mueller
Green River Community College
R3 Surfaces: more than symbols?
A fun project for multivariate calculus that helps students understand the concepts of three-dimensional surfaces will be presented. The presentation will include discussion of guidelines, displays of student-built models, and a demonstration of Maple 10 . The presentation is intended for, but not limited to, calculus instructors.

Valerie Morgan-Krick
Tacoma Community College
Retreat! Revitalize and re-vision your math department
The Tacoma CC Math department found a retreat setting to be a wonderful to way connect, clarify, create, and get a lot done in a short amount of time. Val will share a 1-day do-it-yourself retreat agenda that may get your department moving in new and exciting ways.

Yves Nievergelt
Eastern Washington University
Fitting straight lines to real data: orthogonal regression algorithms from the precalculus level and up.
This workshop will show real data, reasons for fitting lines to them, algorithms for fitting lines minimizing orthogonal distances to them, with geometry, precalculus, calculus, and linear algebra.

Becky Plassmann (Additional Presenters: Cheney, Rule, Smith)
Central Oregon Community College
Physical Models Used to Support Learning
COCC faculty will present a collection of physical objects that we have used successfully in classes ranging from pre-algebra and algebra through calculus and statistics. Objects include a Lego car that draws sine waves, models used in finding volumes in calculus, an experiment demonstrating sample bias in statistics, and others.

Paul Riopel
Texas Instruments
Instant Feedback and Classroom-based Assessment with TI-Navigator
Texas Instruments provides integrated instruction, assessment and content for math and science classrooms. TI-Navigator combines software with TI graphing calculators to create a connected, interactive learning environment. Instantly know your students' understanding and progress through Quick Poll, Screen Capture and a shared activity center. TI-Navigator enables assessment that informs instruction.

John Savage
Montana State University - Bozeman COT
Online Journaling in a Liberal Arts Math Course
This presentation reports on the author's recent study of the potential benefits of including writing as a component of a college liberal arts math course. Among other findings, the study concludes that the writing strategy was effective from both the learners' and the teacher's perspectives and that it should be continued in future courses.

Eric Schulz
Walla Walla Community College
Mathematica: A tool for both the Teacher and Student
Mathematica is so much more than a computer algebra system! This presentation will demonstrate how the presentor uses Mathematica as a general purpose writing tool (exams, handouts, books), as a dynamic classroom presentation tool, and for electronic submission of student work. Several custom palettes for these activities developed by the presentor will be demonstrated and shared with participants.

Erik Scott
Highline Community College
College Readiness: One Method of Implementing the Standards
This presentation is for instructors teaching precollege math sequences who would like more control over which 70% of the material the "C"-students actually know. The speaker will share his yearlong experiment with a proficiency/mastery assessment strategy that is consistent with the proposed College Readiness Standards.

David Shellabarger (Additional Presenters: McNair, Smith)
Lane Community College
Third Year Report on Flexible Sequence Algebra from Lane CC
An interactive presentation summarizing the results of a FIPSE grant to date, and seeking reactions and suggestions from participants. The short course format holds promise to answer problematic issues in beginning and intermediate algebra for adults, such as interrupted studies, time for explorations, and placement.

Angela Stabley
Portland Community College
Student Projects in Statistics II
Using student projects as a method of making Statistical hypothesis testing practical. I will outline and bring examples of student projects for each of the hypothesis tests studied in Math 244 class, namely: ANOVA test, Chi Squared Test, F test, T tests for two means, Z tests for equality of proportions.

Michael Sullivan
Joliet Junior College
Classroom Activities in an Introductory Statistics Course
The American Statistical Association (ASA) funded the Guidelines for Assessment and Instruction in Statistics Education (GAISE) Project. This project details six recommendations for teaching the introductory statistics course. One of these recommendations is that the course should foster active learning in the classroom. We will look at some classroom activities that help to solidify student understanding of statistical concepts and promote active learning.

Hugh Sullivan (Ph. D.)
Eastern Washington University
An Introduction to Fuzzy Mathematics
New and innovative mathematical ideas and constructs which are providing the architecture for emerging intelligent technologies are coming together cohesively under the name "Fuzzy Mathematics". This presentation introduces fundamental concepts and provides an overview of the emerging technologies.

Marty Triola
Dutchess Community College
Statistics Fun
The introductory statistics course can be fun for professors and students. Fun projects, activities, and exercises will be described. The presenter will stress the importance of enhancing statistics education so that students can better develop important life skills, such as the use of technology, critical thinking, and public speaking.

Alan Tussy
Citrus Community College
The Eureka! Experience- Instructional Techniques that Encourage It
Watch several of your colleagues participate in an intriguing experiment designed by a famous educational psychologist. Learn about the successive stages students go through to grasp mathematical terms and concepts. Witness the Eureka! experience- that point in the learning process when students confidently claim, "Now I get it!"

Kimberly Vincent
Washington State University
Introduction of Quadratic Functions and Graphs Using Sequences and Geometer's Sketchpad
The presenter will demonstrate one approach to develop understanding of quadratic functions by generalizing sequences, followed with applications of Geometer Sketchpad to move from plotting points to a continuous curve and finally the vertex form for the graph. For all (College, High school, or CC) who introduce quadratic functions.

Gregg Waterman
Oregon Institute of Technology
A Curious Sequence
Those familiar with the explicit formula for generating the terms of the Fibonacci sequence 1, 1, 2, 3, 5, 8, ... might have been somewhat surprised to find that an explicit formula for its terms exists. Even more surprising perhaps is the nature of that formula. In this presentation an explicit formula will be developed that generates the sequence 1, 2, 2, 3, 3, 3, 4, 4, 4,4, 5, ... consisting of one 1, two 2s, three 3s, and so on. The details involve the greatest integer function, which will be clearly introduced, and some college algebra skills.

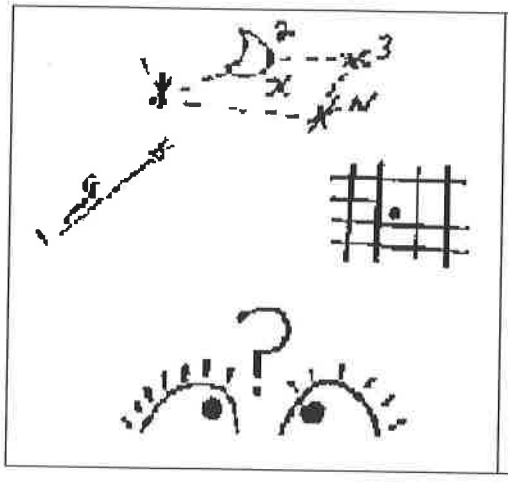
Gary Whalen
Thomson Learning
Using the Power of ThomsonNOW for Online Classes
More and more faculty are teaching courses online and are demanding greater control over how material is delivered, the content of what is delivered, and how a student accesses their online course. ThomsonNOW provides an amazing amount of control in how and what you present and a variety of assignment types in an easy-to-use course management system.

Diane Whitfield
Casio Education Technology MRD Center
A Different Aproach to Complex Numbers
Learn how to visualize complex numbers geometrically. Following this introduction, you will learn the basic skills needed to use the ClassPad 300 and explore the relationship between complex numbers and geometry. We will also consider how the ClassPad Manager Software can be used to improve a lecture. Beginners are welcome.

David Whittaker
Cascadia Community College
Maple-based First-quarter Calculus
Recognizing that students learn more and retain ideas better when they discover concepts for themselves, this presentation will explore a new lab-based curriculum (using Maple) for first-quarter calculus. For teachers of calculus with experience or interest in Maple, looking for an alternative to traditional lectures.

Dusty Wilson (Additional Presenters: Baer, Ostrander)
HIghline Community College
Seismic Rays and the Interior of the Earth
How do we know what the inaccessible interior of the Earth is like? Could it be blue cheese? gouda? Explaining how we know what we know is crucial to great science teaching and yet is often hard when the answer involves complex mathematics, computer modeling, and seismic data. Over a nine month period, Dusty Wilson, Tina Ostrander and Eric Baer have worked on a project to develop a student exercise that explores these questions.

Dee Winn (Additional Presenters: Dick, Leonard, Rodecap, Smith)
Umpqua Community College
The Oregon Mathematics Leadership Institute
The Oregon Mathematics Leadership Institute is a federally funded program designed to promote mathematics content and leadership education in several Oregon school districts. The mathematics content focuses on collaborative learning. In August 2005, the first of three institutes occurred with great success. This presentation gives an overview of the program and hands-on examples of the institute's work.



2006 PUZZLE CONTEST

1. Five men crash-land their airplane on a deserted island in the South Pacific. On their first day they gather as many coconuts as they can find into one big pile. They decide that, since it is getting dark, they will wait until the next day to divide the coconuts. That night each man took a turn watching for rescue searchers while the others slept. The first watcher got bored so he decided to divide the coconuts into five equal piles. When he did this, he found he had one remaining coconut. He gave this coconut to a monkey, took one of the piles, and hid it for himself. Then he jumbled up the four other piles into one big pile again. To cut a long story short, each of the five men ended up doing exactly the same thing. They each divided the coconuts into five equal piles and had one extra coconut left over, which they gave to the monkey. They each took one of the five piles and hid those coconuts. They each came back and jumbled up the remaining four piles into one big pile.
What is the smallest number of coconuts there could have been in the original pile?

A. 1234 B. 2121 C. 4512 D. 3121

2. Two students play a game based on the total roll of two standard dice. Student A says that a 12 will be rolled first. Student B says that two consecutive 7s will be rolled first. The students keep rolling until one of them wins. What is the probability that A will win?

A. $\frac{7}{13}$ B. $\frac{1}{2}$ C. $\frac{1}{4}$ D. $\frac{1}{\pi}$

3. The sum of the reciprocals of two real numbers is -1, and the sum of their cubes is 4. What are the numbers?

A. $x = (1 \pm \sqrt{5})/2,\ y = (1 \mp \sqrt{5})/2.$ B. $x = (1 \mp \sqrt{5})/2,\ y = (1 \mp \sqrt{5})/2.$

C. $x = 1 \quad y = -1$ D impossible to solve

4. Find the value of the infinite product $P = \frac{7}{9} \times \frac{26}{28} \times \frac{63}{65} \times \ldots \times \frac{k^3 - 1}{k^3 + 1} \times \ldots$

A. 0 B. $\frac{3}{2}$ C. $\frac{2}{3}$ D. $\frac{1}{\pi}$

5. Player A has one more coin than player B. Both players throw all of their coins simultaneously and observe the number that come up heads. Assuming all the coins are fair, what is the probability that A obtains more heads than B?

A. 0 B. $\frac{1}{2}$ C. 1 D. $\frac{2}{3}$

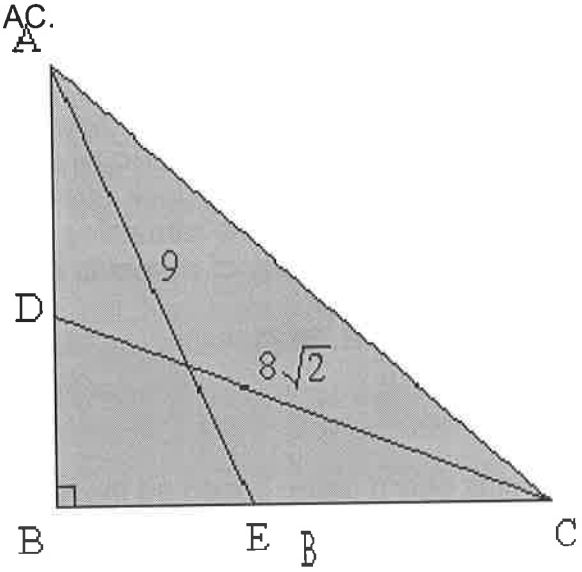
6. ABC is a right triangle with angle $\angle ABC = 90°$. D is a point on AB such that $\angle BCD = \angle DCA$. E is a point on BC such that $\angle BAE = \angle EAC$. If AE = 9 inches and CD = $8\sqrt{2}$ inches, find AC.

A. $5\sqrt{6}$

B. $6\sqrt{5}$

C. $8\sqrt{2}$

D 9



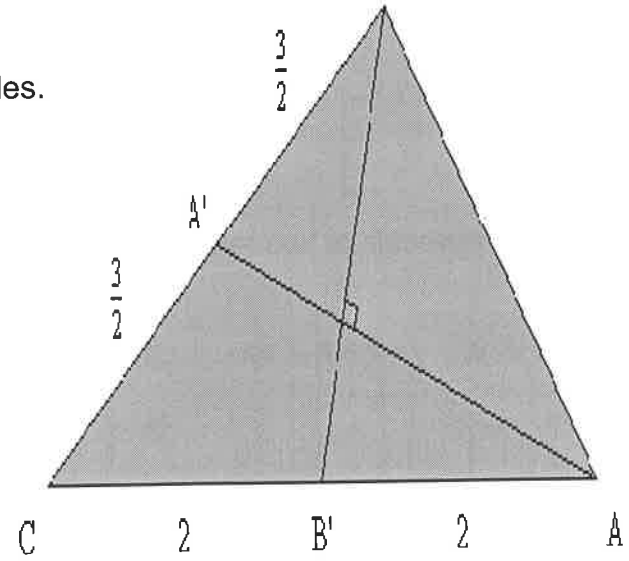
7. Suppose the medians AA' and BB' of triangle ABC intersect at right angles. If BC = 3 and AC = 4, what is the length of side AB?

A. $\sqrt{5}$

B. 2

C $\sqrt{3}$

D $\sqrt{2}$



ROOM / SESSION	ADAMS	CASCADE A	CASCADE B	HOOD RIVER SUITE
I Friday 9:00 – 10:00	Technical Math, Statistical Analyses, and Excel Baratto	Teaching Exponentials and Logs Early in Intermediate Algebra Bracken	Mathematica: A tool for both the Teacher and Student Schultz	Retreat! Revitalize and re-vision your math department Morgan-Krick
II Friday 10:30 – 11:30	Using the Power of ThomsonNOW for Online Classes Whalen	Introduction of Quadratic Functions and Graphs Using Sequences and Geometer's Sketchpad Vincent	Maple-based First-quarter Calculus Whittaker	Extra! Extra! Read All About It: Washington State Has a New Set of Standards for Higher-level (calculus) Courses Moore
III Friday 1:15 – 2:30	Teaching Math from a Multicultural and Feminist Perspective Kellermeier	Using Spreadsheets to Teach Mathematics Concepts: A Sample Lesson Gladfelter	How to Teach Statistics the ASA Way Marciniak	Instant Feedback and Classroom-based Assessment with TI-Navigator Riopel
IV Friday 3:00 – 4:15	Active Student Learning: Why and How? Blair	Classroom Activities in an Introductory Statistics Course Sullivan, M.	The Eureka! Experience- Instructional Techniques that Encourage It Tussy	General Education Outcome Statements for the AAOT Leonard
V Saturday 9:00 – 10:00	Developing a computer mediated learning system from scratch MacDonald	Free Software Lippman	Field Activities in Environmental Mathematics Langkamp	Student Projects in Statistics Stabley
VI Saturday 10:30 – 11:45	Seismic Rays and the Interior of the Earth Wilson	Bridging the Gap between Mathematics and the Physical Sciences Dray	Baseball and Mathematics Bittinger	A Different Aproach to Complex Numbers Whitfield

JEFFERSON	RAINIER	ST. HELENS	SUMMIT2	WASHINGTON
Online Journaling in a Liberal Arts Math Course Savage	A Proactive Approach to Student Persistence as Implemented at MHCC Favreault	Getting the Most out of FACTORS Hoagland	The Clicker Technology--Fad or New Standard Keeney	Physical Models Used to Support Learning Plassmann
R3 Surfaces: more than symbols? Moore-Mueller	The Oregon Mathematics Leadership Institute Winn	Portfolios as end-of-course assessment Kenyon	An Introduction to Fuzzy Mathematics Sullivan, H.	Third Year Report on Flexible Sequence Algebra from Lane CC Shellabarger
A Hitchhiker's Mathematical Guide to the Solar System. Barman	The Evolving Developmental Mathematics Course Redesign: Web-based Instructional Assistance Clark, D.	Department Leadership -- The Thrill and Agony of It All! Hammer	Fitting straight lines to real data: orthogonal regression algorithms from the precalculus level and up. Nievergelt	A Unified Approach to Exponentials, Radicals, and Logarithms: The Ruling Triumvirate Hayen
Inspirations from the MAC^3 Project Hartzler	Tools for Thought: Using Math and English to Explore Contemporary Issues Burke	Using Visual Algebra Pieces to Model Algebraic Expressions and Solve Equations Burton	A Curious Sequence Waterman	Hyperbolic Functions: From Algebra to Calculus Chow
Writing as a Vehicle to Learn Math Kissick	Online Homework isn't just for online classes anymore! Imig	Technology Designed to Explore Mathematics - The Next Version of ClassPad Fukaya	Basic Mathematics at LBCC -- Past, Present, & Future Crabill	Statistics Fun Triola
Modeling Four Dimensions Where Two Planes Can Intersect in a Single Point - Helping Students Think in Higher Dimensions Lewis	What's driving your developmental math curriculum? Clark, M	Math for Elementary Teachers -- Sharing your Thoughts, Successes, and best Lessons Kinholt	College Readiness: One Method of Implementing the Standards Scott	Software to Produce Dynamic Math Problems and Tests for Online Courses Griffiths

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2006 Exhibitors

Addison Wesley Publishing Company
Co-host of Thursday evening social

Brooks Cole/Thomson Learning
Co-host of Thursday evening social

Casio Education Technology
Saturday morning refreshment break

Houghton Mifflin
Co-host of Friday evening social

McGraw-Hill
Co-host of Friday evening social

Numonics

Prentice Hall
Co-host of Thursday evening social

SmartThinking.com

Texas Instruments

WH Freeman
Friday morning refreshment break

Wiley Inc

2+2 Math Secondary Education Degree program with CWU-Lynnwood

Mathematics Conference History

The first Washington State Community Colleges Mathematics Conference and Retreat was held in 1969. The organizers were Phil Heft, Jim Relf, Larry Larson, and John Van Duff. We are told that the per-person cost at the time was $16.68 and that 33 people attended the conference. It was held at "The Lodge" at Ashford where accommodations required sleeping bags. The menus for the first banquet as well as the name of the first guest speaker remain unsolved mysteries. Today's retreats, usually referred to as Spring Math Conferences, involve more than 200 mathematicians from both two-- and four-year colleges. There are usually a few invited talks, but the bulk of the program is contributed by inspired volunteers. Responsibility for conference planning is past among the 34 Washington community colleges. There's no particular formula for who hosts when; and there is no set location where the meetings are held. As if by magic, volunteers appear (usually a few years in advance) and destination meeting sites are found in the Cascade Mountain corridor, on the Olympic Peninsula, or in the Columbian Gorge. There is a traveling fund, the Washington State Math Conference Foundation that helps the host institution with start-up costs.

Year	Conference Host Schools	Location of Conference
1969	Green River/Highline/Ft. Steilacoom CC's	The Lodge
1970	Spokane Falls CC	The Lodge
1971	Everett CC	Snoqualmie Pass
1972	Everett CC	Snoqualmie Pass
1973	Seattle Central CC	Snoqualmie Pass
1974	Green River CC	Lake Wilderness
1975	Highline CC	Providence Heights
1976	Bellevue CC	Snoqualmie Pass
1977	Shoreline CC	Providence Heights
1978	Edmonds CC	Providence Heights
1979	Olympic College	Port Ludlow
1980	Spokane Falls CC	Sun Mountain
1981	Spokane Falls CC	Sun Mountain
1982	Highline CC	Lake Chelan
1983	Olympic College	Port Ludlow
1984	Green River CC	Alderbrook
1985	Shoreline CC	Sun Mountain
1986	North Seattle CC	Alderbrook
1987	Lower Columbia CC	Alderbrook
1988	Olympic College	Port Ludlow
1989	Bellevue CC	Lake Chelan
1990	Clark College	Alderbrook
1991	Pierce College & Tacoma CC	Lake Chelan
1992	Yakima CC	Yakima
1993	Highline CC	Wenatchee
1994	South Seattle CC	Silverdale
1995	Skagit Valley & Whatcom CC	Wenatchee
1996	Spokane Falls CC & ORMATYC	Skamania Lodge
1997	Green River CC	Lake Chelan
1998	Tacoma CC & Big Bend	Lake Chelan
1999	Edmonds CC	Ocean Shores
2000	Bellevue CC	Wenatchee
2001	Peninsula College & ORMATYC	Skamania Lodge
2002	Clark CC	Yakima
2003	Spokane CC & North Idaho CC	Wenatchee
2004	Pierce CC	Yakima
2005	Highline CC	Ocean Shores
2006	Olympic College & ORMATYC	Skamania Lodge
2007	Wenatchee Valley CC	Wenatchee
2008	North Seattle CC	Lake Chelan
2009		

ORMATYC *is a non-profit educational association. Its purposes are:*

- *To encourage the development of effective mathematics programs*
- *To afford a state forum for exchange of ideas*
- *To further develop and improve the mathematics education and the mathematics-related experience of students in two-year colleges*
- *To promote the professional welfare and development of its members*
- *To afford a forum for input at the state level concerning mathematics education*

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	Garrett Gregor, Clark College
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1987-88:	Jim Streeter	1996-97:	Don Hutchison
1988-89:	Roger Judd	1997-98:	Frank Goulard
1989-90:	Mary Ellen White	1998-99:	Lynn Trimpe
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1991-92:	Dick Clark	1999-01:	Doug Nelson
1992-93:	Dick Holliday	2001-02:	Dennis Kimzey
1993-94:	Gary Grimes	2002-03:	Renae Weber
1994-95:	Wally Waldman	2003-05:	Kurt Lewandowski
1995-96:	Tom Reimer	2005-07:	Ronda Kingstad

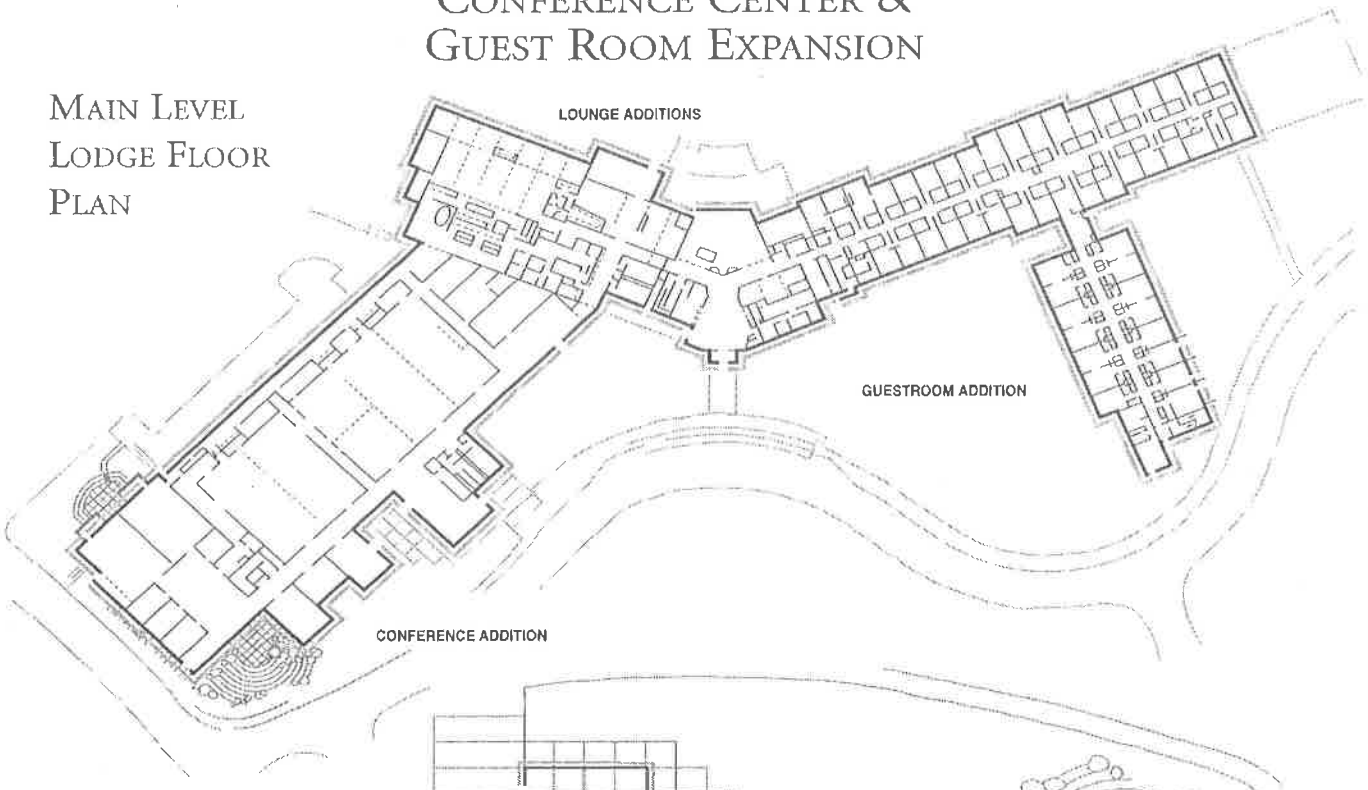
Year		Location of ORMATYC Conference
1987		Eugene
1988		Newport
1989		Newport
1990		Newport
1991		Newport
1992		Newport
1993		Newport
1994		Newport
1995		Newport
1996		Skamania Lodge
1997		Salishan Lodge, Gleneden Beach
1998		Inn at Spanish Head, Lincoln City
1999		Inn at Spanish Head, Lincoln City
2000		Inn at Spanish Head, Lincoln City
2001		Skamania Lodge
2002		Inn at Spanish Head, Lincoln City
2003		Inn at Spanish Head, Lincoln City
2004		Inn at Spanish Head, Lincoln City
2005		Inn at Spanish Head, Lincoln City
2006		Skamania Lodge
2007	April 19-21	Inn at Spanish Head, Lincoln City

Skamania Lodge

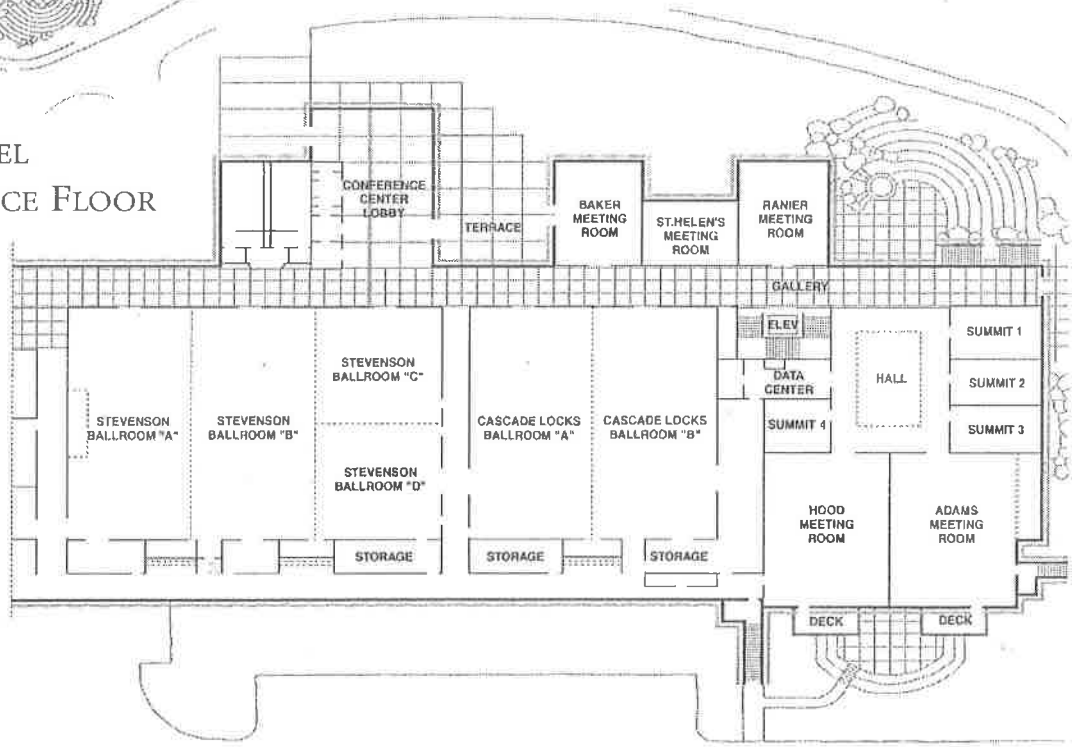
In The Columbia River Gorge

Conference Center & Guest Room Expansion

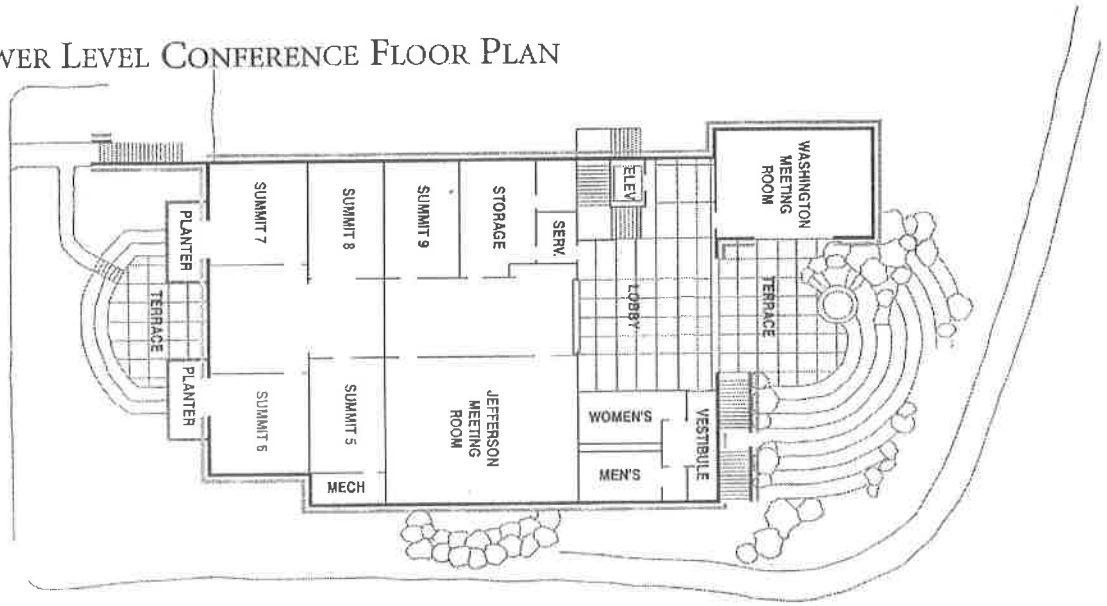
Main Level Lodge Floor Plan



Main Level Conference Floor Plan



Lower Level Conference Floor Plan



Conference Center Room Capacities

Existing Conference Ctr.	Dimensions	Square Footage	Ceiling Height	Theatre	U-Shape	Hollow Square	Classroom	Rounds of 8	Reception
Stevenson Ballroom	99 x 70	6930	14'	450	--	--	256	504	400
Stevenson A	33 x 70	2310	14'	150	46	52	88	152	125
Stevenson B	33 x 70	2310	14'	150	46	52	88	168	125
Stevenson C	33 x 35	1155	14'	70	24	30	40	72	75
Stevenson D	33 x 35	1155	14'	70	24	30	40	72	75
Cascade Locks Ballroom	66 x 70	4620	14'	300	--	--	175	336	300
Cascade Locks A	33 x 70	2310	14'	150	46	52	88	168	125
Cascade Locks B	33 x 70	2310	14'	150	46	52	88	168	125
Cascade Locks C	33 x 35	1155	14'	70	24	30	40	72	75
Cascade Locks D	33 x 35	1155	14'	70	24	30	40	72	75
Meadow Room	26 x 16	416	13'	16	14	--	--	24	40
Galleria	23.5 x 48	1128	13'	--	--	--	--	80	70
Lobby	23.5 x 48	1128	13'	--	--	--	--	40	50

New Conference Ctr.	Dimensions	Square Footage	Ceiling Height	Theatre	U-Shape	Hollow Square	Classroom	Rounds of 8	Conference
Main Level									
Baker	23 x 31	731	10'	50	22	26	24	40	18
St. Helens	23 x 20	460	10'	35	--	--	18	24	16
Rainier	23 x 31	713	10'	50	22	26	24	40	18
Summit 1	14 x 23	322	10'	20	--	--	--	--	14
Summit 2	14 x 23	322	10'	20	--	--	--	--	14
Summit 3	14 x 23	322	10'	20	--	--	--	--	14
Summit 4	16 x 16	256	10'	20	--	--	--	--	8
Hood	32 x 46	1472	10'	108	36	40	50	88	32
Adams	32 x 46	1654	10'	108	36	40	50	96	32
Lower Level									
Washington	23 x 31	713	10'	50	22	26	24	40	18
Jefferson	30 x 39	1170	10'	70	32	36	40	64	30
Summit 5	14 x 30	420	10'	20	--	--	--	--	14
Summit 6	20 x 20	400	10'	32	12	16	18	--	16
Summit 7	20 x 20	400	10'	32	12	16	18	--	16
Summit 8	14 x 24	336	10'	20	--	--	--	--	14
Summit 9	15 x 24	360	10'	20	--	--	--	--	14

Special Thanks to

The Conference Committee extends a special thanks to:

Exhibitor Liaison	**Frank Goulard, Mike Dodge**
Historian/Photographs	**Virginia Somes**
Math Contests	**Donald Robertson**
Media Service Liaison	**Will Bandes**
Name Tags	**Mary Ann Kelso, Mariah Beck**
Printing	**Olympic College Printing Services**
Prizes	**Mary Ann Kelso**
Program Booklet	**Myong Chae**
Program Design	**Ronda Kingstad**
Web Design	**Gary Parker, Myong Chae**
Web Registration	**Mary Ann Kelso, Mariah Beck**

NOTES

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