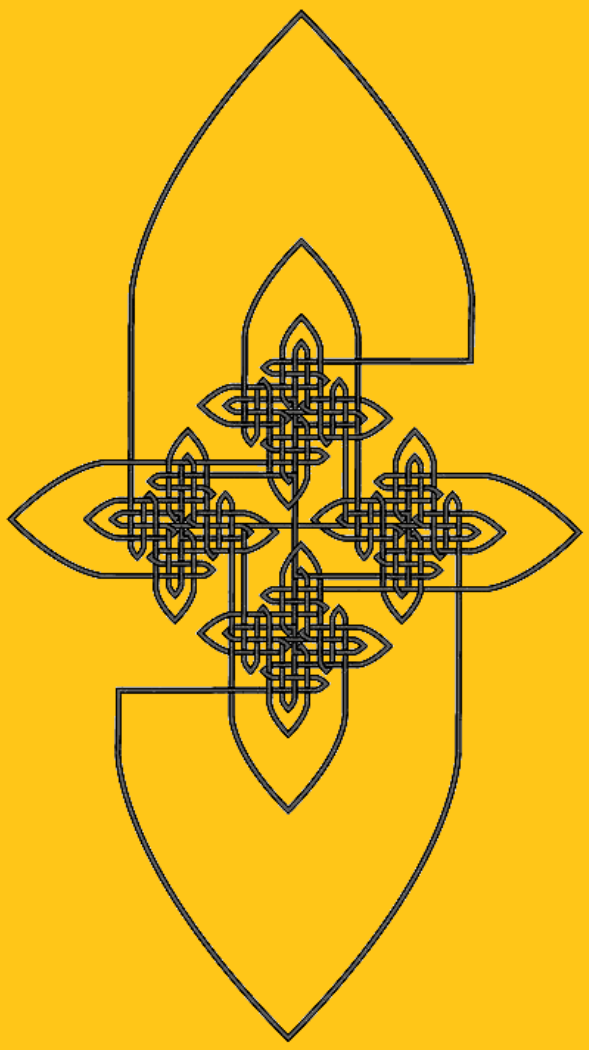
2012 Washington State Two–Year Colleges Annual Mathematics Conference



May 10 – 12

Wenatchee Conference Center
Wenatchee, WA

Hosted by Tacoma Community College

2012 Annual Conference

Program Highlights and Venues

Thursday	Event
4:00 – 6:45 and 8:00 – 9:00 PM	Registration in the Red Lobby
7:00 – 8:00 PM	Opening Speaker Dr. Robert Fathauer in Orchard South
8:00 – 10:00 PM	Social in the Red Lobby Hosted by Cengage Learning

Friday	Event
7:15 – 8:45 AM	Breakfast in Orchard South
7:30 – 9:00, 10:00 – 10:30 and 11:30 – noon	Registration in the Red Lobby
8:30 – 11:45 AM, 1:00-4:30 PM	Exhibits in the Fountain Lobby
11:30 – 1:00 PM	Lunch in Orchard South
4:00 – 6:00 PM	Extracurricular Activities meet Red Lobby • Friendly basketball at Wenatchee Valley College gym (1300 5th Street, Wenatchee, 98801) • Wine tour & tasting at Chateau Faire Le Pont Winery (1 Vineyard Way, Wenatchee, 98801)
6:00 – 7:00 PM	Dinner in Orchard South
7:00 – 8:00 PM	Keynote Speaker Dr. Jim Stigler in Orchard South
8:00 – 10:00 PM	Social in the Red Lobby Hosted by Pearson Education and the Carnegie Foundation for the Advancement of Teaching and Learning

Saturday	Event
7:15 – 8:45 AM	Breakfast in Orchard South
8:45 – 11:00 AM	Exhibits in Fountain Lobby

Conference Schedule

Date	Time	Event
Thursday, May 10th	4:00 – 6:45 PM	Registration
	7:00 – 8:00 PM	Opening Speaker Dr. Robert Fathauer
	8:00 – 9:00 PM	Registration
	8:00 – 10:00 PM	Hosted Social
Friday, May 11th	7:15 – 8:45 AM	Breakfast
	7:30 – 9:00 AM	Registration
	8:30 – 11:45 AM	Exhibits
	9:00 – 10:00 AM	Session I
	10:00 – 10:30 AM	Break & Registration
	10:30 – 11:30 AM	Session II
	11:30 – Noon	Registration
	11:30 AM – 1:00 PM	Lunch
	1:00 – 4:30 PM	Exhibits
	1:15 – 2:15 PM	Session III
	2:15 – 2:45 PM	Break
	2:45 – 3:45 PM	Session IV
	4:00 – 6:00 PM	Extracurricular Activities
	6:00 – 7:00 PM	Dinner
	7:00 – 8:00 PM	Keynote Speaker Dr. Jim Stigler
	8:00 – 10:00 PM	Hosted Social
Saturday, May 12th	7:15 – 8:45 AM	Breakfast
	8:00 – 8:45 AM	WAMATYC Annual Business Meeting
	8:45 – 11:00 AM	Exhibits
	9:00 – 10:00 AM	Session V
	10:00 – 10:30 AM	Break
	10:30 – 11:30 AM	Session VI
	11:30 AM	Checkout and Departure

Invited Speakers

Thursday Evening Kickoff Speaker – Dr. Robert Fathauer

Combining Mathematics and Art for Recreation, Esthetics, and Education

The intersection of mathematics and art has proven fertile ground for recreational mathematics, unique art, and mathematics education. Beginning with an interest in the art of M.C. Escher, Dr. Fathauer has been exploring this ground for two decades. He has used Penrose-like tilings as the basis for Escheresque designs that were made into puzzles. He has also discovered numerous fractal tilings in which tiles are scaled down and fit together according to matching rules to form infinite tilings that are bounded in the Euclidean plane. Using his fractal tilings as a starting point, he has devised a couple of different iterative methods for constructing fractal knots. He has also combined his interest in fractals and in mathematical forms in nature to create photographic fractal trees. In addition to puzzles, these ideas have been employed in manipulatives, posters, and books for mathematics education. These ideas have also been the basis for art prints, and Dr. Fathauer has been heavily involved in a dramatic growth in the field of mathematical art over the last decade.

Dr. Robert Fathauer received the Bachelor of Science degree from the University of Denver in 1982 with a double major in Physics and Mathematics. In 1987, he received a Ph.D. from Cornell University in Electrical Engineering. From 1987 to 1994 he worked as a research scientist and group leader at the Jet Propulsion Laboratory. His interest in the work of M.C. Escher led him to design his own Escheresque tessellations and create art prints from them starting in the early 1990's. In 1993 he started a business called Tessellations that specializes in puzzles and other products that combine mathematics and art. Over time, his artistic interests have expanded to include fractals and knots. He played the lead role in organizing exhibitions of mathematical art that have become regular features of the Bridges Conference and the Joint Mathematics Meetings. He has written articles on Escher-like tessellations, fractal tilings, and fractal knots, and his books include *Designing and Drawing Tessellations* and *Fractal Trees*.

Friday Evening Keynote Speaker – Dr. Jim Stigler

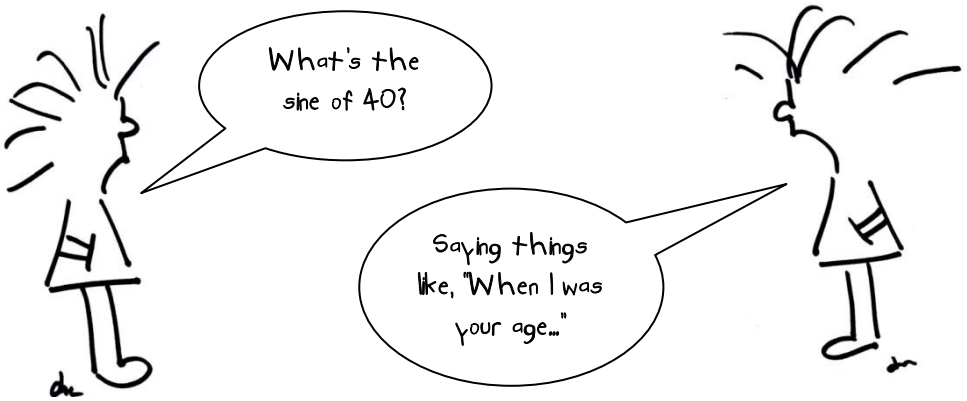
Changing the Culture of Teaching: Perspectives on Mathematics Teaching and How to Improve It

In this talk Professor Stigler will present data on community college developmental mathematics students. He will focus on the role that teaching has in explaining their level of mathematical understanding and how to improve it. He will draw on cross–cultural studies of teaching to provide context for his conclusions.

James W. Stigler is Professor of Psychology and Associate Dean for Research and Innovation at UCLA, and a Senior Fellow at the Carnegie Foundation for the Advancement of Teaching. He was Director of the TIMSS video studies, and founder and CEO of LessonLab. He has authored numerous articles and books, including The Teaching Gap (with James Hiebert, Free Press, 1999/2009) and The Learning Gap (with Harold Stevenson, Simon & Schuster, 1992). He received his A.B. from Brown University, a Masters in Education from the University of Pennsylvania, and a Ph.D. in Developmental Psychology from the University of Michigan. He has received numerous awards for his research, including a Guggenheim Fellowship and the QuEST award from the American Federation of Teachers. Stigler is best known for his observational studies of mathematics and science teaching, and has pioneered the use of multimedia technology for the study of classroom instruction.

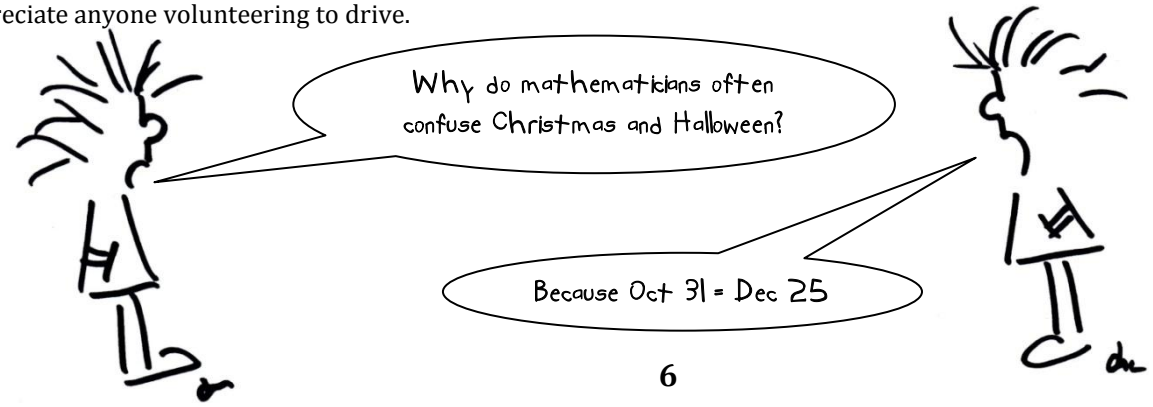
Conference Sessions

Session	I	II
Room	**Friday** **9:00 – 10:00 AM**	**Friday** **10:30 – 11:30 AM**
Red Delicious West	*Using Interactive Figures in the Classroom* Charles Stevens	*The Evolution of TCC's Math Center* Shannon Pressley, Corrine Holmes
Gala 1	*Open Course Library Project: FREE/inexpensive text* David Lippman, Dale Hoffman, Tyler Wallace, Melonie Rasmussen	*Mastering Math, Not the System* Abby McBride
Gala 2	*Ten Strategies for New (and Old) Instructors: Algebra to Calculus* Alice Kaseberg	*How Can We Make Our Exams More Reliable?* Charles Wikman
Gala 3	*A Twofer: Precollege Redesigns at Edmonds and Highline* Helen Burn	*Five Step Process to Develop Contextualized Material* Hector Valenzuela
Gala 4		*Mathematical Models of the Activated Immune System* Megan Powell
Golden Delicious East	*Educating Citizen Statisticians* Robert Gould	*The Emporium Model: Increasing student success in Pre-College Math Courses* Tyler Wallace

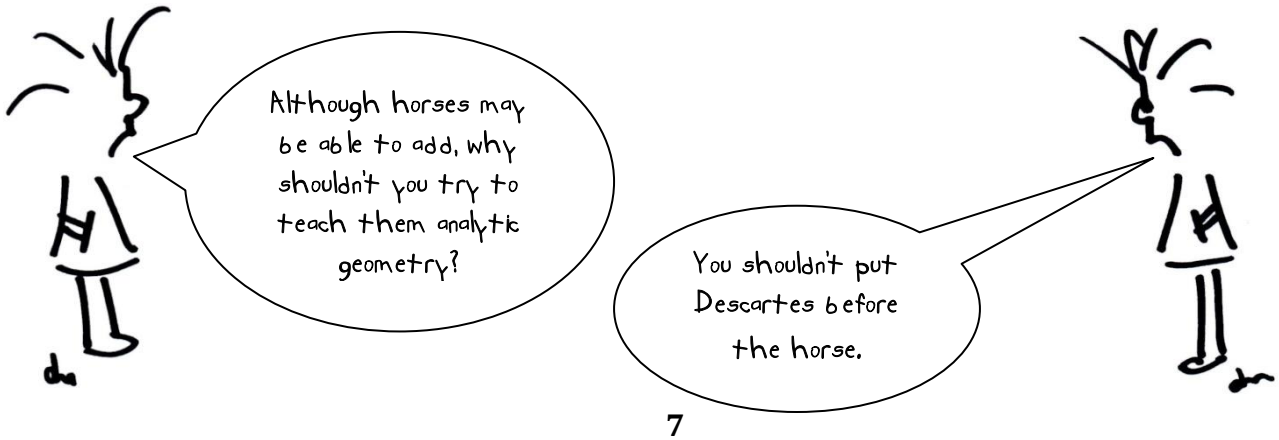


Session	III	IV
Room	Friday 1:15 – 2:15 PM	Friday 2:45 – 3:45 PM
Red Delicious West	*Math Reform: The View from SFCC* Beverly Vredevelt	*The CASIO ClassPad – Designed to Help All Students* Diane Whitfield
Gala 1	*Enhancing Understanding: Our Shared Goal* Ruth Whitmore	*Carnegie Foundation's Statway and Quantway Pathways* Jane Muhich, Rebecca Hartzler, Andrea Levy, James Gray, John Kellermeier, Dori McGuire Guy, David Straayer
Gala 2	*The Problem with Problem Solving* Benjamin Aschenbrenner	*Support Veterans in Mathematics* Helen Burn
Gala 3	*CMATH – An Alternative Route through Developmental Math* Min Kim, Jackie Gorman	*Fitting Median Points and Median Lines to Data* Yves Nievergelt
Gala 4	*Making Mathematics Come Alive Via Its Historical Problems* Jerry Johnson	*Rethinking Precollege Math Task Library* Janet Ray, David Lippman, Debra Olson, Rebecca Burke
Golden Delicious East	*Online Math Instruction – Surprisingly Praised by ITAM Student* Linda Pi Schmidt	*Student Thinking about Proof Construction and Validation* Emily Cilli–Turner

Conference participants are encouraged to join one of the special events planned for Friday afternoon. Those athletically inclined (or who just want to have some good laughs) are welcome to travel to Wenatchee Valley College for a friendly game of basketball, hosted in WVC's Smith Gym. Wine enthusiasts (or the wine curious) can travel to Chateau Faire Le Pont Winery for a winery tour and tasting (there may be an additional tasting fee). People wanting to participate in these activities should gather in the Red Lobby at 4:00 pm to carpool to the sites. Both venues are a short drive from the convention center. We appreciate anyone volunteering to drive.



Session	V	VI
Room	Saturday 9:00 – 10:00 AM	Saturday 10:30 – 11:30 AM
Red Delicious West	*Using Effort-worthy Tasks to Deepen Student Understanding* Debra Olson	*Improving Outcomes and Engagement with Enhanced WebAssign* Eric Ziegler
Gala 1	*Intro to WAMAP.org Free Online Homework* David Lippman	*'Core to College': The Significance of the Math Core State Standards for Higher Education* Bill Moore
Gala 2	*Redesigning the Design: The Role of Technology, Teaching, and Critical Thinking in the Redesigned Math Program* Sandee House	*Always Innovating with Pearson Workshop* Jessica Montanes
Gala 3	*Group–worthy Tasks for Developmental Math* Megan Luce, Rebecca Burke	*Dev Ed Math: What Is It Good for?* Peter Wildman
Gala 4	*Statistics Course Discussion* Sharon Camner, Melonie Rasmussen	*Fingers and Toes, Knots and Strings, Dots and Lines, and Cacao Beans* John Kellermeier
Golden Delicious East		*Conference Planning Tips* Anne Hafer



Session Abstracts

In alphabetical order by first listed presenter's last name

Benjamin Aschenbrenner (North Seattle Community College)

The Problem with Problem Solving

Math instructors will probably be familiar with the antipathy students show towards "word problems." How can we better scaffold instruction and tasks so that students get meaningful problems solving experience during their (brief) time with us? I don't have any answers, but plenty of questions and some thoughts about how to begin helping students with problem solving. After presenting I would like to hear your thoughts about teaching problem solving in math class.

Helen Burn (Highline Community College)

A Twofer: Precollege Redesigns at Edmonds and Highline

Learn about two very different precollege redesign efforts in a single session! Edmonds has restructured their precollege courses using the emporium model. Highline has shortened and refocused their precollege curriculum for most students, but the curriculum remains classroom based with significant online support. Participants will be provided with course learning objectives, information about instructional practices, and evaluation results for both models. There will be ample time for participant questions.

Helen Burn (Highline Community College)

Support Veterans in Mathematics

This session focuses on supporting military veterans in the community college mathematics context. The presentation includes information on specific programs, such as the Vets Math Boot Camp at Highline Community College, and specific strategies for engaging and supporting veterans across the mathematics curriculum.

Sharon Camner (Pierce College – Fort Steilacoom)

Statistics Course Discussion

Open discussion of good practices in Statistics (Math& 146) courses, e.g.: a) What texts and course–management–systems are in use? Is anybody using an open or low–cost course/text (e.g., OLI, OCL)? b) Do you offer it hybrid or online? How does that work? c) What technology do you require or allow? (e.g., Excel, calculator, minitab, StatCrunch) d) What are your course outcomes (e.g., what hypothesis tests are required?) e) How can we improve the course?

Emily Cilli–Turner (University of Illinois at Chicago)

Student Thinking about Proof Construction and Validation

Most teachers will agree that students have difficulties understanding how to construct proofs, as well as determining what constitutes a valid proof. This presentation will give an overview of the current research being done on student thinking regarding proof construction and the function of proof in mathematics. I will also discuss research around some innovative classroom techniques to aid our students in proof construction and validation.

Robert Gould (University of California, Los Angeles)

Educating Citizen Statisticians

What do we want out students to learn in an introductory statistics course? We live today in a world where data are ubiquitous and anyone with an internet connection can analyze data. I argue that there is a core curriculum needed by all students and that the purpose of this core is to teach them to be Citizen Statisticians.

Anne Hafer (Tacoma Community College)

Conference Planning Tips

If you are hosting the math conference in the next couple of years, this session is for you. TCC will pass on the conference planning materials from this conference as well as conferences dating back to 2007. We will share what we've learned about how to have the planning and execution of the conference go as smoothly as possible.

Sandee House (Georgia Perimeter College)

Redesigning the Design: The Role of Technology, Teaching, and Critical Thinking in the Redesigned Math Program

Course Redesign has been around for over 10 years, and colleges and universities around the country are increasingly embracing the idea. The presenter will share a brief history of the 10–year movement toward the "emporium" and "modularization" models, and discuss data from several successfully redesigned programs. After 10 years, however, it is now time to reexamine the proper role of technology, teaching, and critical thinking in these programs, and to ensure that the important questions about why and how to redesign are answered.

Jerry Johnson (Western Washington University)

Making Mathematics Come Alive Via Its Historical Problems

Exploring "olde" mathematics problems can both motivate and enhance learning today's mathematics, while also building cultural understanding, making historical connections, and improving skills in a fun (and often humorous) context. The session will model possible uses of historical problems, do some mathematics, and provide access to a wealth of free resources (originally requested by someone at this conference two years ago)!

Alice Kaseberg (Lane Community College)

Ten Strategies for New (and Old) Instructors: Algebra to Calculus

Setting the course tone from day one, defining passion not money as success in a career, modeling problem solving, and asking students for self–appraisal are four instructor strategies. The presentation includes specific examples to carry out ten strategies and time for you to share a favorite example or strategy with a small group.

John Kellermeier (Tacoma Community College)

Fingers and Toes, Knots and Strings, Dots and Lines, and Cacao Beans

This workshop will present some examples of the ways in which the indigenous peoples of the Americas counted, wrote and recorded numbers long before the arrival of Europeans. Participants will learn some counting words and how to create a spreadsheet with knots and strings. They will also experience arithmetic as done by the Mayan people over 2000 years ago.

Min Kim, Jackie Gorman (Tacoma Community College)

CMATH – An Alternative route through Developmental Math

TCC is currently offering students an alternate suite of developmental classes that meet the traditional developmental classes learning objectives. We will explain the structure of our CMATH classes and show the outcomes from our first quarter's offerings.

David Lippman, Melonie Rasmussen (Pierce College – Fort Steilacoom), Dale Hoffman (Bellevue College), Tyler Wallace (Big Bend Community College)

Open Course Library Project: FREE/inexpensive text

This presentation discusses the algebra, pre–calculus, and calculus courses that are part of the OCL Project. Each course has been peer reviewed and classroom tested and is in use at several WA community colleges. These materials can be used in place of traditional, expensive textbooks. They are free on the web in editable and PDF formats, and are available printed for less than $20. Additional supporting materials like online homework are also available.

David Lippman (Pierce College – Fort Steilacoom)

Intro to WAMAP.org Free Online Homework

Tired of how online homework systems are causing publisher lock–in? Come discover WAMAP.org, a publisher–independent, free, open source online course management and assessment platform, providing immediate feedback on algorithmically generated questions with numerical or algebraic expression answers, posting of course materials, full gradebook, and more. A variety of content tied to commercial and open textbooks is available, created by your colleagues. This session is intended for WAMAP newbies.

Megan Luce, Rebecca Burke (Cascadia Community College)

Group–worthy Tasks for Developmental Math

Presenters will share their experience of working in a faculty inquiry group focused on designing and facilitating group–worthy tasks for Elementary and Intermediate Algebra. This work is part of a curricular alignment project with a local school district and involved both high school and community college math faculty. Workshop attendees will be given some example tasks and also learn how to access the rest of the items developed by the faculty cohort.

Abby McBride (Hawkes Learning Systems)

Mastering Math, Not the System

You know the scenario: Students seem to be doing well on homework, yet are performing poorly on exams. With Hawkes, students cannot "cheat the system" to get through assignments. Instead, they are held accountable for mastering the material without relying on learning aids. Discover how Hawkes motivates students to succeed and be entered in a raffle to win a $100 Amazon gift card!

Jessica Montanes (Pearson Education)

Always Innovating with Pearson Workshop

Interested in learning more about Pearson's partnership with Knewton Adaptive Learning? Want to learn how to utilize interactive figures in your classroom? Curious about using MyMathLab to better address your course needs? Then join us to gain a deeper understanding of Pearson products!

Bill Moore (Washington State Board for Community & Technical Colleges)

'Core to College': The Significance of the Math Core State Standards for Higher Education

This session will provide 1) an overview of Washington state's involvement in a new 10–state project focused on exploring how higher education systems might address and utilize the national Common Core State Standards for college– and career–readiness in math and the new assessments being developed around those standards, and 2) an opportunity for math faculty to participate in and provide input on the work of the project.

Jane Muhich, Rebecca Hartzler (Carnegie Foundation), Andrea Levy, Dori McGuire Guy (Seattle Central Community College), James Gray, John Kellermeier, David Straayer (Tacoma Community College)

Carnegie Foundation's Statway and Quantway Pathway

The Carnegie Foundation for the Advancement of Teaching and AMATYC have created new developmental math pathways through college-level math for non-STEM majors: Statway (a statistics pathway) and Quantway (a quantitative literacy pathway). Both pathways focus on the math that the students see in everyday life, active student learning, and reducing the number of exit points where students leave math.

Yves Nievergelt (Eastern Washington University)

Fitting Median Points and Median Lines to Data

By definition, median lines minimize the average distance to data. A theorem shows that every median line passes through at least two data points. So it suffices to test all lines through at least two data points and pick the ones with the smallest average distance to the data: simpler than least squares. Weighted medians, other algorithms, and applications may also be included. See also the March 2012 Monthly.

Debra Olson (Spokane Falls Community College)

Using Effort-worthy Tasks to Deepen Student Understanding

Preliminary results of this two-year project have been exciting and encouraging. Participants will work with tasks from developmental courses and experience the course structure as students do. Course design principles, student work, and videos will be shared.

Megan Powell (Lyon College)

Mathematical Models of the Activated Immune System

HIV is a virus currently affecting approximately 33.3 million people worldwide. Since its discovery in the early 1980s, researchers have strived to find treatment that helps the immune system eradicate the virus from the human body. A great number of advances have been made in helping HIV infected individuals from advancing to AIDS, but no cure has yet been found. Researchers have found that the immune system is in a chronic state of activation during HIV infection and believe this could be a major contributor to the decline of immune system cell populations. Using analysis of systems of Ordinary Differential Equations, this talk will serve to better understand the dynamics of the activated immune system during HIV infection. Both current and possible future therapies are considered.

Shannon Pressley, Corrine Holmes (Tacoma Community College)

The Evolution of TCC's Math Center

This presentation is about how TCC's "Math Learning Center" has changed over the years to better meet the needs of math students. The presenters will share how and why TCC converted the Math Lab into the Math Advising Resource Center (MARC) in 2006, the different roles the MARC has fulfilled over time, and future plans. Time will also be allotted for a discussion about what other schools' learning centers are doing to support math learning.

Janet Ray (Seattle Central Community College), David Lippman, Debra Olson (Spokane Falls Community College), and Rebecca Burke (Cascadia Community College)

Rethinking Precollege Math Task Library

Rethinking Precollege Math (RPM) is developing an on–line Task Library for Washington State math faculty. The goal is to compile a searchable set of innovative explorations that promote deeper conceptual learning, and/or provide contextualized understanding of developmental math topics. In this session you will explore items currently in the library, learn how to sign up for library access, and find out how to submit your own tasks for inclusion.

Linda Pi Schmidt (Central Washington University)

Online Math Instruction – Surprisingly Praised by ITAM Student

We will share the model of this progressive class that led a non–traditional student with math anxiety to not only succeed in a Finite Mathematics class, but to praise it's structure to her ITAM director and recommend to other students who may be at risk. If you are looking for ways to improve your online classes, maybe you can pick up an idea or two here.

Charles Stevens (Skagit Valley College)

Using Interactive Figures in the Classroom

Using Interactive Figures in the classroom can greatly enhance student understanding, as well as producing nice looking graphs that are dynamic without getting multicolored finger tips from white board pens. Chuck has used interactive figures designed with Mathematica for several years and will explore several figures ranging from Algebra through Differential Equations. We'll look at what works, what doesn't work; the good, bad, and the ugly.

Hector Valenzuela (Lake Washington Institute of Technology)

Five Step Process to Develop Contextualized Material

Please join me for a 60 minute presentation on a Five Step Process to Develop Contextualized Material. This discussion and presentation is based off of the Gates IBEST Math work developed by Hector Valenzuela at Lake Washington Institute of Technology. The emphasis of the presentation and discussion is on developing applied material for engaging today's students.

Beverly Vredevelt, Jim Brady(Spokane Falls Community College)

Math Reform: The View from SFCC

With support from Title III, SBCTC, The Gates Foundation, RAMP, The Washington Center, and other initiatives, SFCC has made significant changes to our developmental curriculum and placement process. In addition, SFCC has had long–standing and ongoing involvement in state initiatives such as the Transition Math Project, development of the MPT–G, and Math in the DTA. Please join Beverly Vredevelt, Mathematics Chair, and Jim Brady, Dean of Computing, Math and Science, to hear our reflections on where we have been and share a discussion or where we are heading.

Tyler Wallace (Big Bend Community College)

The Emporium Model: Increasing student success in Pre-College Math Courses

Big Bend CC identifies students who are at risk of not completing their math requirement. These students take a three quarter algebra sequence. This year the courses were redesigned using the emporium model (with WAMAP). The first quarter saw a 100% success rate. The second quarter saw an 86% success rate. This presentation will cover what we changed, philosophy behind the changes, and plans for future expansion to the rest of the pre–college math curriculum.

Diane Whitfield (CASIO America)

The CASIO ClassPad – Designed to Help All Students

Why are students excited about the ClassPad? Attend and see why! Learn basic features of the ClassPad as you try examples from pilot classes ranging from algebra to calculus. Learn different styles of teaching with focus on mathematics, using technology. One participant will win a ClassPad handheld!!

Ruth Whitmore (WH Freeman & Co)

Enhancing Understanding: Our Shared Goal

Dynamic Figures bring the concepts of the Calculus to life. Ruth Whitmore, an experienced instructor of mathematics, will present our new *Dynamic Figures* that are contained within our new edition of Rogawski Calculus 2/E. These 250 figures better illustrate the more important concepts in the learning process of the Calculus. She will also highlight *Learning Curve* our new adaptive and formative learning tool for Statistics or Liberal Arts Mathematics, It can be found within most of our StatsPortals or MathPortals (for liberal arts math texts) or as a separate tool. *Learning Curve* encourages learning through questioning. Its development was guided by cognitive learning research. Data from pilot sites have shown marked improvement in student learning, as well as a large proportion of students who voluntarily work through *Learning Curve*, if not assigned. Students like it! Instructors like it! Come join us for a presentation/workshop to learn more

Charles Wikman (Everett Community College)

How Can We Make Our Exams More Reliable?

This presentation has suggestions for the improving tests using reliability statistics. These statistics are collected when tests are machine–scored by testing software packages. They can also be collected by you and put into a program I have available for your use.

Peter Wildman (Spokane Falls Community College)

Dev Ed Math: what is it good for?

How well can your students use their math knowledge in future courses? SFCC has redesigned their developmental math program with this goal in mind. The presenters will discuss what this means for a developmental curriculum and also present a number of activities that focus on skills needed in future courses

Eric Ziegler (Cengage Learning)

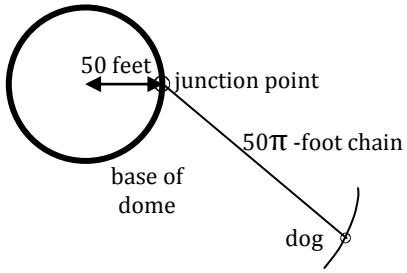
Improving outcomes and engagement with Enhanced WebAssign

Cengage Learning partners with WebAssign to deliver a robust online learning environment for students from developmental math to calculus. Learn about the latest developments in Enhanced WebAssign and the best practices used to drive engagement and positive student outcomes in a variety of classroom delivery models. Charlie Naffziger from Central Oregon CC, a long time user of various instructional technologies will share his experiences with Enhanced WebAssign.

Conference Contest

The contest consists of the four problems on this page ***and*** identifying the mathematicians pictured on the next page. Contest answer sheets may be picked up at the registration desk. Completed answer sheets must be handed in to the registration desk by 7PM Friday. Winners will be announced at the Saturday morning breakfast.

1. Tacoma Community College's new Mathematics Education building is in the shape of a dome, resting on a circular foundation 50 feet in radius. Once upon a time, Math Department Chair Meredith LaFlesh, not wanting to be disturbed by any pesky administrators, purchased a guard dog to be chained outside the building. One end of the chain was attached to the dog's collar, and the other end was attached to a fixed point at the base of the dome. If the chain's length was 50π feet, over how much total area (in square feet) could the dog roam, not counting the area inside the building?



2. To cut down on the cost of the math conference, members of the Tacoma CC math faculty volunteered to help in the kitchens at the Wenatchee Convention Center. Chef Trung, head chef for catering, had to get some crates of potatoes peeled. All 6 of the math faculty members could peel potatoes at the same speed, which of course was slower than Chef Trung's own peeling speed. If Chef Trung had been joined by all 6 instructors, they could have finished the job together in 50 minutes. It would have taken Chef Trung a whole 2 hours if he had worked alone. As it turned out, only 3 of the faculty members showed up to help in the kitchen (sound familiar?). How long did it take Chef Trung and the 3 faculty members to get the task completed by working together?

3. Suppose that the song "The 12 Days of Christmas" were expanded to 50 days. Then the total number of gifts given would be $1 + (1 + 2) + (1 + 2 + 3) + \bullet\bullet\bullet + (1 + 2 + 3 + \bullet\bullet\bullet + 50)$. Compute this number efficiently.

4. Efficiently compute the number,

$$\sqrt[2]{\frac{1}{50}} \times \sqrt[4]{\frac{1}{50^2}} \times \sqrt[8]{\frac{1}{50^3}} \times \sqrt[16]{\frac{1}{50^4}} \times \bullet\bullet\bullet$$

Who Are They?

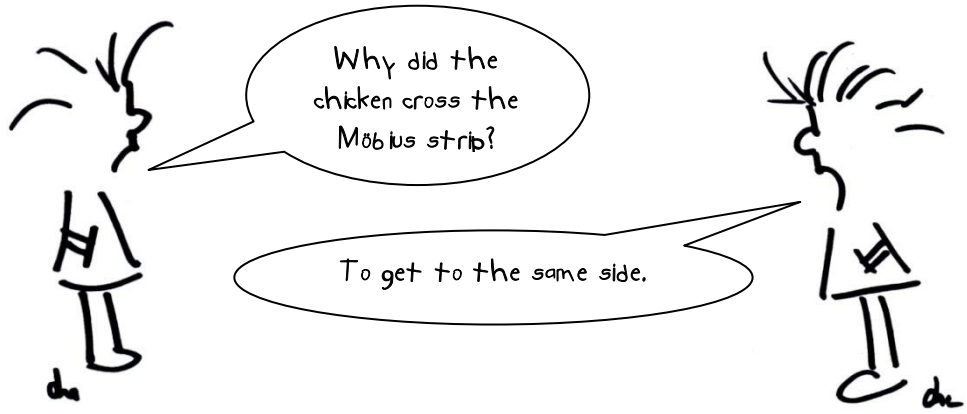
How many of these mathematicians can you identify?

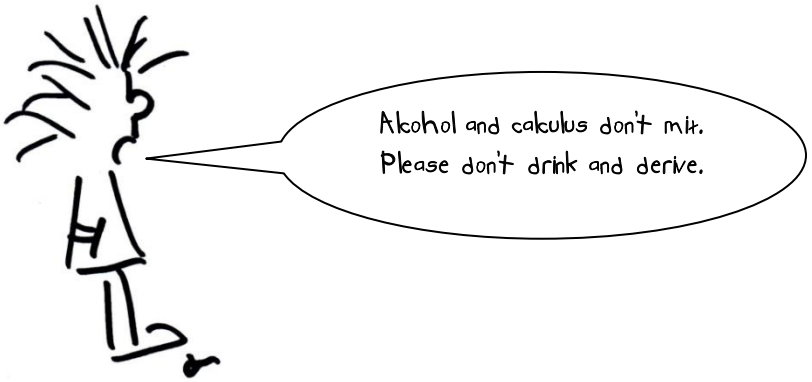
WAMATYC Conference History

The first Washington State Community Colleges Mathematics Conference and Retreat was held in 1969. The organizers were Phil Heft, Jim Reif, 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 passed 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 Columbia 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 and Tacoma CC	Lake Chelan
1992	Yakima CC	Yakima
1993	Highline CC	Wenatchee
1994	South Seattle CC	Silverdale
1995	Skagit Valley and Whatcom CC	Wenatchee
1996	Spokane Falls CC and 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 and ORMATYC	Skamania Lodge
2002	Clark CC	Yakima
2003	Spokane CC and North Idaho CC	Wenatchee
2004	Pierce CC	Yakima
2005	Highline CC	Ocean Shores
2006	Olympic College and ORMATYC	Skamania Lodge
2007	Wenatchee Valley CC and Big Bend CC	Wenatchee
2008	North Seattle CC	Lake Chelan
2009	Columbia Basin College	Pasco
2010	Yakima Community College	Yakima
2011	Green River CC and ORMATYC	Skamania Lodge
2012	Tacoma Community College	Wenatchee
2013	Whatcom Community College	Semiahmoo Resort in Blaine WA May 2-4
2014	Shoreline CC and Everett CC	
2015	?	
2016	Clark College and ORMATYC	





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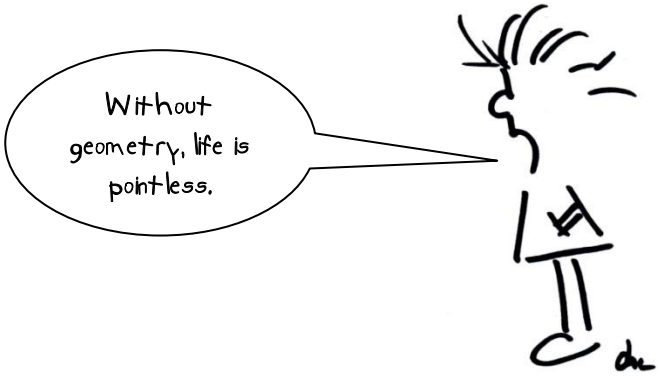

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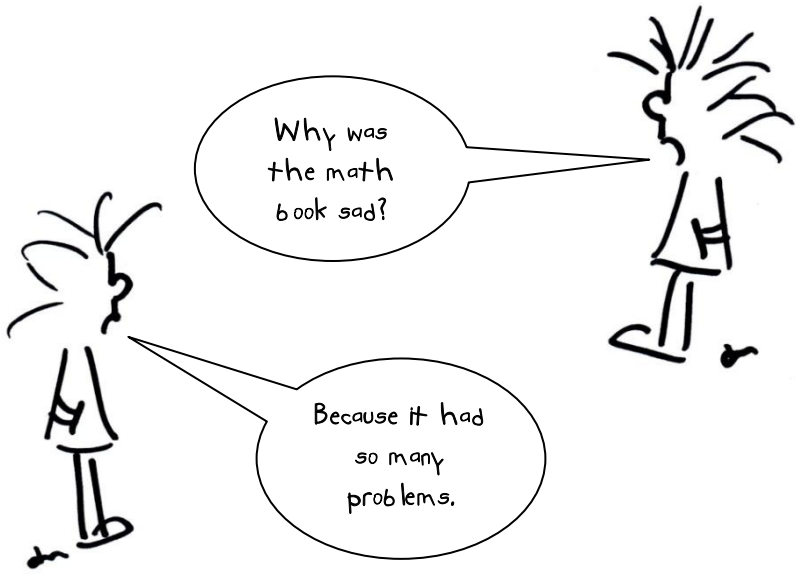

Acknowledgments

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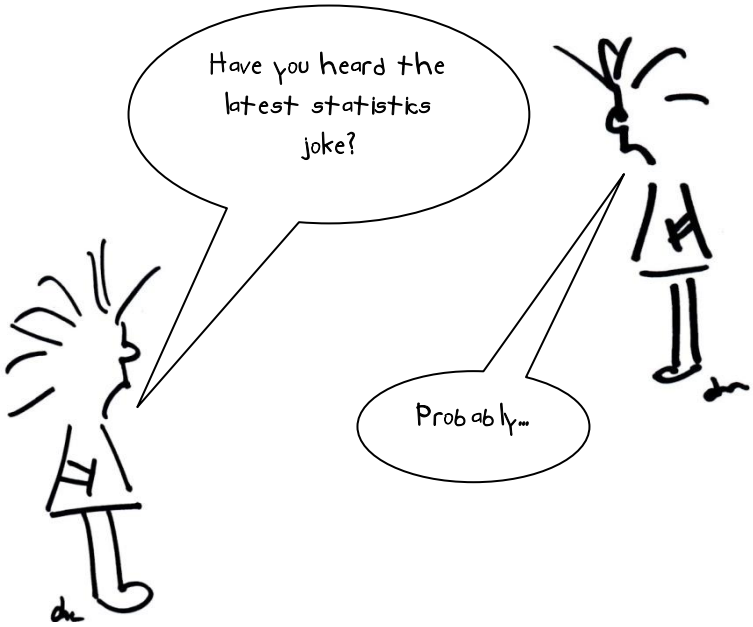

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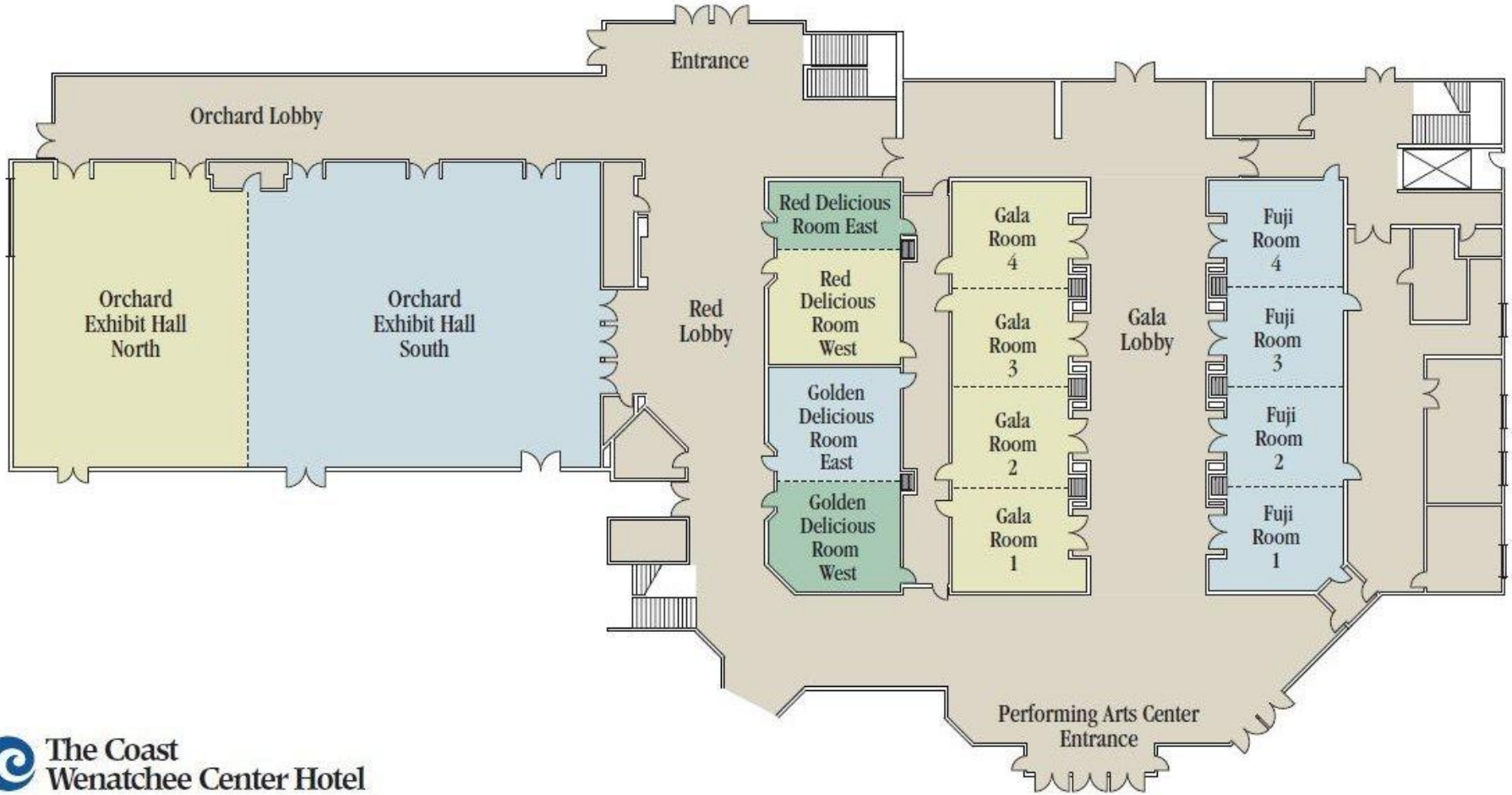

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