

WASHINGTON STATE
TWO-YEAR COLLEGE
MATHEMATICS CONFERENCE

CHELAN, WA



Conference Schedule

Thursday

Time	Event	Location
4:00-5:00	Meeting of department heads	Ask at registration
4:30-7:25pm	Registration	Floor 1 Foyer
7:30-8:30pm	Keynote Speaker: Dusty Wilson	Ballroom
8:30-9:30pm	Registration	Floor 1 Foyer
8:00-10:00pm	Social/ Unhosted bar	Floor 1 Foyer

Friday

Time	Event	Location
7:30-9:00am	Breakfast	Ballroom
7:15-9:15	Registration	Floor 1 Foyer
8:00-9:00	WAMATYC business meeting	Stehakin A
9:20-10:20am	Session I	
10:40-11:40am	Session II	
11:45-1:20pm	Lunch	Ballroom
1:20-2:20pm	Session III	
2:40-3:40pm	Session IV	
5:00-6:00pm	Dinner & Awards	Ballroom
6:00-7:15pm	Keynote Speaker: Dr. Frank Morgan	Ballroom
7:50-8:20pm	Shuttle from Campbell's to dock	Lobby
8:30-10:30pm	Lady of the Lake Cruise (shuttle back to resort at 10:30pm)	

Saturday

Time	Event	Location
7:30-8:45am	Breakfast	Ballroom
9:00-10:00am	Session I	
10:15-11:15am	Session II	
11:00-12:00pm	Box lunches available for pickup	Floor 1 Foyer
11:30am	Checkout and Departure*	

*We recommend you explore one of the local area hikes before returning home.

General Information

Friday night Lady of the Lake cruise:

Conference attendees who elected to participate in the cruise received tickets for the cruise with their registration packet. Please be sure to bring those tickets with you! Shuttle service from Campbell's to the dock will run between 7:50 pm and 8:20 pm. The boat leaves the dock at approximately 8:30 pm and will return at approximately 10:30pm. Shuttle service back to the resort will begin when the boat returns to the dock. Food service is generously provided by Cengage Learning and McGraw-Hill Education. Beverage service is generously provided by Pearson Education.

Math Quiz:

A series of problems have been curated by BC faculty. Solution sheets should be turned in to the registration desk by lunch on Friday. The winner will be announced and receive their prize at dinner Friday evening.

Awards:

(During Friday dinner)

Last year, this conference introduced a series of awards recognizing exceptional work and contribution by our colleagues. This year, awards have been taken on by WAMATYC.

AMATYC Student Math League winner(s) and the winner(s) of the Math Quiz will also be acknowledged at this time.

Exhibitors:

An exposition on educational support and resources will be ongoing in the East/West rooms. Exhibitors include: Pearson, Cengage, McGraw-Hill, Macmillan Education, Hawkes, XYZ Textbooks, WAMAP, and Texas Instruments. Drop by and check out the diverse ways these services can help you and your students.

Note: There will be a coffee break in the exhibition space on Friday, graciously provided by Macmillan.

Thursday Keynote

Where Does Math Come From?

Dusty Wilson

Abstract:

What is mathematics-- and is it discovered or invented? The Humanist, Platonist, and Foundationalist each provide answers. But are the options within the philosophy of mathematics so limited? This talk will provide a historical/philosophical overview, introduce an inclusive framework, and perhaps connect it to our critical work as community college educators.



About the speaker:

Dusty Wilson attended South Puget Sound CC as a Running Start student prior to completing a BA in liberal arts at The Evergreen State College. Not having settled on a major, he pursued an MS in Mathematics at Western Washington University to determine his interest in mathematics. While there he fell in love with teaching. Now Dusty is in his fourteenth year teaching at Highline College in Seattle where he was the youngest fulltime hire in College history. He has taught through most of the community college curriculum from arithmetic through linear algebra. He loves working with students and the opportunity to make a difference in their lives.

His interests took a turn when he stumbled upon the philosophy of mathematics. Is math discovered or invented? He had to know and was granted a sabbatical to explore these questions. Unfortunately, that research merely stimulated more questions. This talk is the first time Dusty has dared to share his own ideas.

In addition to mathematics, Dusty enjoys reading, remodeling, students, and boomerangs. Dusty and his beautiful and talented wife Charlene homeschool their three children.

Friday Keynote

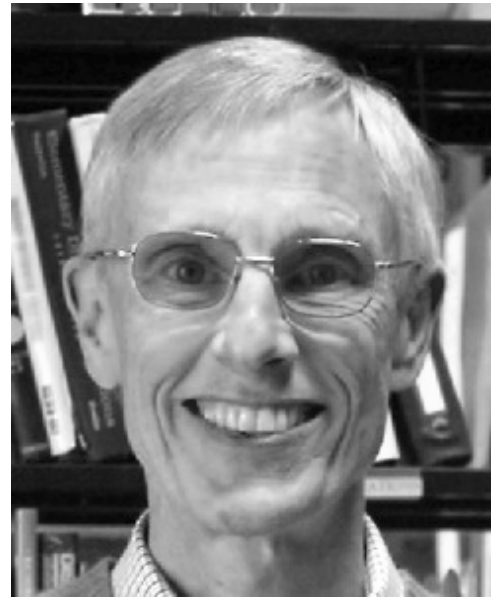
Co-sponsored by WAMATYC

Soap Bubbles in Euclidean Space with Density

Dr. Frank Morgan

Abstract:

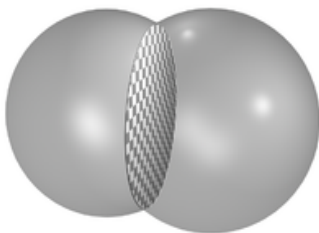
A round soap bubble provides the least-perimeter way to enclose a given volume of air, as was proved by Schwarz in 1884. Since its appearance in Perelman's proof of the Poincaré Conjecture, there has been a surge of interest in putting a density on space. How does that affect the shape of bubbles? And what about double and triple bubbles? The show will include a little guessing contest with demonstrations, explanations, and prizes.



About the speaker:

Frank Morgan is the Atwell Professor of Mathematics at Williams College specializing in geometric measure theory and minimal surfaces.

He co-authored a proof of the truly beautiful Double Bubble conjecture: that the minimum-surface-area enclosure of two given volumes is solved by three spherical patches meeting at 120-degree angles at a common circle.



Frank Morgan went to MIT and Princeton. He received an inaugural MAA national award for distinguished teaching. He is a past vice-President and fellow of the AMS, past vice-President of the MAA, founded the SMALL REU, and is an avid dancer.

As a special note of interest to his relevancy with community college mathematics, he recently spent a sabbatical working and teaching at Berkshire Community College as a Visiting Professor.

"I went because I had gradually come to feel that community colleges are where education meets the future, with the full diversity of students of all ages, backgrounds, interests, histories, part time and full time, soon to comprise a majority of all American college students."

Friday Session Overview

Time	Stehekin A	Stehekin B	River Room	Park North	Park South
9:20	Jay Lehmann Teaching a Pre-Statistics Course: propelling Non-Stem Students Forward	David Lippman An Intro to WAMAP	Frank Lee Geometry in Engineering	Pete Kaslik Math in a Vibrant and Sustainable Society, by Pete Kaslik. An open resource text for Math 107 - Math in Society	Dr. William T. Webber Investigating the 4th Dimension with a 3D Printer
10:20					
10:40	Garrett Gregor/ Kris Kissel/ Andria Villines Math& 147: The need for a second course in statistics	Dick Aufmann Public-Key Cryptography	Jeff Shaver, Ph.D. An Introduction to the New Mathways Project	Brian Lukoff Using Learning Catalytics to integrate formative assessment and timely practice into the mathematics classroom	Elizabeth Demong/ Heidi Songstad Universal Design for Learning
11:40					
Lunch					
1:20	Sara Swangard ALEKS: The leader in adaptive learning; the leader in student success	Sharon Camner/ Rajesh Lal Intermediate Algebra Pathways from Pilot to Full Implementation: Process and Results	Megan Luce/ Bill Moore Reviewing the Washington Bridge to College Math Transition Course	Pete Kaslik Foundations in Statistical Reasoning, by Pete Kaslik - a new open resource introductory statistics textbook	Crystal Holtzheimer/ Taylor Holtzheimer The Importance of Narrative in a Math Course
2:20					
2:40	Jennifer Moore Mastery Learning: Success in Subsequent Courses	Sharon Camner/ Rajesh Lal Hands-on exploration of "Intermediate Algebra in Context" course in WAMAP	Murali M Krishna Assorted fun problems for students	Bill Moore/ Rebecca Hartzler Math Pathways in Washington Community & Technical Colleges: Recommendations from a System Task Force on Math Acceleration and Student Success	Pam Reising/ Kris Kissel The Success Rates for Customized Entrance Exams for Placement
3:00					
3:20	Laura Schueller/ Julianne Connell Sachs Precollege Math at WWCC: What has really changed?		Jesse Mickelson 'Let me take a Mathie.'		Eric Ziegler Enhanced WebAssign
3:40					

Session I abstracts: Friday 9:20-10:20am

Stehekin A

Jay Lehman-- Teaching a Pre-Statistics Course: Propelling Non-STEM Students Forward

Many colleges are propelling non-STEM students through math programs by creating a path-to-stats course, which can be taken in place of elementary and intermediate algebra. Often at least six units, the course actually allows time for rigorous treatment of linear and exponential functions. Innovative, intensive work with density histograms (sorely lacking in statistics courses) lays the foundation for the key topics probability and normal curves, which are addressed in the course. Challenging data-centered exercises and interpretation of statistical concepts can greatly enhance students' understanding and eventual success in an introductory statistics course.

Stehekin B:

David Lippman-- An Intro to WAMAP

WAMAP is a free online homework system, featuring content built by your colleagues around the state and around the country. This session will introduce what WAMAP is, show several examples of how it's being used, and discuss the basics of how to get started.

River Room:

Frank Lee-- Geometry in Engineering

Engineering Graphics and Engineering Statics are common starter courses in engineering. A variety of topics from the courses will be shared and associated to their mathematical foundations. Come prepared to engage in some active applications.

Park North:

Pete Kaslik-- Math in a Vibrant and Sustainable Society, by Pete Kaslik.

An open resource text for Math 107 - Math in Society

This is a theme-based book that challenges students to understand our current society using quantitative methods and apply these methods for designing the future. It does not contain the large collection of topics found in traditional books used for this class. Instead, there are 3 major topics and one chapter for experiential and open-ended theoretical activities. The three topics are systems dynamic modeling (using free modeling software), statistics, and personal finances.

Park South:

Dr. William T Webber-- Investigating the 4th Dimension with a 3D Printer

The advent of 3D printing allows us to, literally, get our hands on visual concepts that used to be relegated to hand waving or computer graphics. In this presentation we will use 3D printed models to introduce the notion of regular and uniform polyhedral in the 4th dimension.

Session II abstracts: Friday 10:40-11:40am

Stehekin A

Garrett Gregor, Kris Kissel, Andrea Villines-- Math& 147: The need for a second course in statistics

Most students who take statistics at a community college take Math& 146 and many of those students are nursing students who only need one course in statistics to satisfy the quantitative requirement for a BSN degree. However, this course may not be sufficient for students going into the social and natural sciences. Join us for a discussion about if there is a need for a Math& 147, and what the content of such a course should be.

Stehekin B:

Dick Aufmann -- Public-Key Cryptography

In this session, we will discuss how prime numbers, the history of math, inverse functions, and technology come together to allow secure communications be sent and received over the Internet.

River Room:

Jeff Shaver, Ph.D. -- An Introduction to the New Mathways Project

This session is designed to introduce mathematics faculty to the overall project and guiding principles, then narrow the focus to the mathematics courses within the project and delve deeper into the instructional model. The Dana Center's New Mathways courses focus on developing self-directed learners who think critically and persevere and include student and instructor support structures to facilitate growth in reading and writing skills. *Participants will experience a lesson and see initial results from implementation (including instructor and student voices).*

Park North:

Brian Lukoff-- Using Learning Catalytics to integrate formative assessment and timely practice into the mathematics classroom

In this talk, I will describe how I have used Learning Catalytics -- a platform that I developed with Eric Mazur and Gary King at Harvard (and that was acquired by Pearson in 2013) -- to implement formative assessment and timely practice in my teaching. Although I will demonstrate how the technology can facilitate the implementation of these techniques, the focus will be on the pedagogy: why it is important to integrate sustained and repeated practice into the classroom, how to do it in a way that will engage students, and how to use formative assessment techniques to learn about students' misconceptions and use that data to adapt what happens in the classroom in real time.

Park South:

Elizabeth Demong and Heidi Songstad -- Universal Design for Learning

Universal Design for Learning (UDL) is dynamic approach to curriculum and course design which ensures that the maximum number of student learning styles are engaged by course content and materials. Inspired by the Universal Design philosophy pioneered in the field of architecture, UDL is rooted in neuroscience, educational theory and cognitive psychology. This workshop will focus on the basic principles of UDL and demonstrate how representing course materials in more than one way, giving students multiple ways to express knowledge and providing multiple means for student engagement with course concepts will improve student performance and better guarantee that significant and lasting learning has taken place.

Session III abstracts: Friday 1:20-2:20pm

Stehekin A

Sara Swangard – ALEKS: The Leader in Adaptive Learning, the Leader in Student Success.

Are your students prepared for your course? Do they learn at different paces? Is there inconsistency between homework and test scores? ALEKS successfully addresses these core challenges and many more. ALEKS is an online, mastery-based program that delivers individualized learning tailored to students' unique strengths and weaknesses. With decades of scientific research behind its creation, ALEKS is the leader in adaptive learning technology. www.aleks.com

Stehekin B:

Sharon Camner and Rajesh Lal -- Intermediate Algebra Pathways from Pilot to Full Implementation: Process and Results

At Pierce College we redesigned our developmental math program, changing the course structure/sequence, content, and pedagogy-providing STEM and non-STEM Intermediate Algebra pathways to college level math. Hear about: how we went from a pilot section to multiple sections taught by multiple instructors; training of full-time and part-time instructors; continuous improvement of curricular and assessment materials; how we overcame challenges during full implementation; assessment and evaluation of the redesign.

River Room:

Megan Luce and Bill Moore -- Reviewing the Washington *Bridge to College Math* Transition Course

After being piloted in 2014-2015, the *Bridge to College Math* transition course for seniors in high school will be broadly implemented across the state in 2015-2016. Join us for a discussion of the implications of this course on higher education, as well as potential ways to utilize the curriculum in your own college readiness programs. Participants will learn how to access the materials of the course, as well as see sample lessons and assessments.

Park North:

Pete Kaslik -- Foundations in Statistical Reasoning, by Pete Kaslik - a new open resource introductory statistics textbook

This open resource statistics book differs in many ways from traditional texts. The statistical thought process is introduced in the first two chapters, including sampling distributions, hypotheses, errors, and p-values. These concepts are then available for use in other chapters at an appropriate level until formal hypothesis testing is discussed in chapter 6. The presentation of probability is also significantly different from traditional books in that the probability rules are introduced in a way that develops inferential theory.

Park South:

Crystal Holtzheimer and Taylor Holtzheimer-- The Importance of Narrative in a Math Course

To many students, a math class is a collection of disparate procedures and algorithms, and they struggle to synthesize and make connections between material that mathematicians take for granted. In this session, we will explore one method of narrative storytelling in a math classroom, to help students situate what they're learning in a larger context, and to make meaning of those concepts for themselves.

Session IV abstracts: Friday 2:40-3:40pm

Stehekin A

2:40 Jennifer Moore-- *Mastery Learning: Success in Subsequent Courses*

As education is continually evolving, learn how technology can aid in shortening students' path to credit-bearing courses. Hawkes Learning uses a mastery-based approach to ensure that each student develops a solid foundation and deep understanding of the curriculum to be successful not only in their current course, but also subsequent courses. Join us to learn how Hawkes Learning is adapting to the needs of students across the country with a new tablet-friendly, comprehensive learning platform and course management system. All attendees will be entered to win a **\$50 Amazon gift card!**

3:20 Laura Schueller and Julianne Connell Sachs -- *Precollege Math at WWCC: What has really changed?*

We are in the second year of a full-scale precollege mathematics redesign. Students enroll in two modules per quarter and must pass a common departmental paper and pencil exam to advance. In this talk we will highlight the program's strengths and weaknesses in terms of implementation and student learning.

Stehekin B:

Sharon Camner and Rajesh Lal -- *Hands-on exploration of "Intermediate Algebra in Context" course in WAMAP*

Bring your laptop or tablet to copy and explore our open resource materials for "Intermediate Algebra in Context". Our materials are based on Quantway but have substantial alterations and additions. The course includes student learning materials, homework, and instructor resources. Experience the course from the perspectives of both student and instructor by going through a lesson cycle.

River Room:

2:40 Murali M Krishna-- *Assorted fun problems for students*

I will present the following 3 problems from 3 different areas of mathematics along with their proofs. The idea will be for the attendees to try these problems on their own on the first day, and I will then present the proofs on the second day. I should be able to just show them the proofs without saying much for the most part because the proofs are quite straightforward once you see them.

a. **Trigonometry:** Let ABC be any triangle and let O be an internal point such that
 $\angle ABO = \angle BCO = \angle CAO = \omega$
Then prove that $\cot(\omega) = \cot(A) + \cot(B) + \cot(C)$
A beautiful proof takes less than 10 lines.

When I first saw this problem, I had no idea where to start!

(Example: $a = 30, b = 8$) is an example. $m = 2^2$ in this case.

b. **Number Theory**

Let a and b be any non-negative integers.

If $(1 + ab) \mid (a^2 + b^2)$, show that

$$m = \frac{a^2 + b^2}{1 + ab} \text{ is an integer.}$$

c. **Calculus**

Evaluate $\int \frac{1}{1+x^4} dx$: Delightfully frustrating! Some very clever but simple Algebra leads to the answer in a few lines

3:20 Jesse Mickelson --University of Alaska- Kodiak College

A short talk about my experience in posting math lessons, memes, and other information online via Twitter and Facebook

Park North:

Bill Moore and Rebecca Hartzler-- Math Pathways in Washington Community & Technical Colleges: Recommendations from a System Task Force on Math Acceleration and Student Success

Over the past year a statewide taskforce met several times to develop recommendations to address math-related barriers to student success in terms of degree completion, and in particular the role of development math programs in supporting student achievement and degree attainment. We will report on the final recommendations of the task force and what the implications of these recommendations are for teaching developmental math in Washington State.

Park South:

2:40 Pam Reising & Kris Kissel -- The Success Rates for Customized Entrance Exams for Placement

GRCC has implemented an alternative placement system using WAMAP. We have 7 exams that are offered through our campus testing center. We have data to show the success of this placement method compared to placement via COMPASS and high school transcripts

3:20 Eric Ziegler – Enhanced WebAssign

Learn how Enhanced WebAssign can support your class goals by engaging students and giving you the tools to evaluate student understanding through the new Class Insights.

Notes

Saturday Session Overview

	Stehekin A	Stehekin B	River Room	Park North	Park South
9:00	Frank Morgan Tilings from Williams College to Berkshire Community College	Rosalie Tepper Math Tutoring Center Round Table	Aaron Warnock Learning Catalytics - Students Engaging in the Classroom	Gail Nord The Prisoner's Paradox	Christopher Quarles A Research Approach to Student Learning & Student Success
10:00					
10:15	Bellevue College Tips for Next Year's Hosts	Taylor Holtzheimer/ Crystal Holtzheimer Unicorns Ate My Soup: A Fun Introduction to Hypothesis Testing	Yves Nievergelt Mathematical Modeling with Calculus and Examples from Chemistry	David Lippman Building a 3D Coffee Cup	Pete Wildman/ Liz Hylton AMATYC opportunities for Washington Mathematics Instructors
10:35					
10:55		Brad McCoy "As Seen on TV."		David Lippman Computing modular exponentiation	
11:15					

Abstracts follow on the next page.

Our gratitude to all of our session speakers: we appreciate your time and your willingness to share ideas and information.

Have an idea for a session that you think would be fun or useful (or maybe even both!)? Please consider signing up for a talk at next year's conference.

Session I abstracts: Saturday 9:00-10:00am

Stehekin A

Frank Morgan – Tilings from Williams College to Berkshire Community College

A discussion of optimal mathematical tilings and spending part of my sabbatical from Williams College teaching developmental math at Berkshire Community College (see <http://sites.williams.edu/Morgan>).

Stehekin B:

Rosalie Tepper – Math Tutoring Center Round Table

Many of our colleges have some form of math tutoring center. This will be an opportunity to bring questions about things you're considering for your college's math tutoring center, to help answer the questions of others, or just to listen in on the exchange of ideas. I am currently interested in learning about different models for the orientation and training of tutors, and I'd love to share my practices to help answer the questions of other participants.

River Room:

Aaron Warnock -- Learning Catalytics - Students Engaging in the Classroom

Come try out Learning Catalytics - a new classroom response system that allows students to respond to questions using any web-enabled device such as smartphones, tablets, or laptops. Learning Catalytics accepts free response, mathematical expressions, and even drawn or graphical submissions, which goes well beyond the multiple-choice limitations of traditional classroom response systems. Teachers will love how the system can automatically group students based on their dissimilar answers for discussion and resubmission. Aggregate student responses can be anonymously displayed on the board for even further discussion. This is a great way to engage every student in answering classroom questions (rather than calling on them one at a time). In addition to its mathematical strengths, Learning Catalytics is powerful beyond the classroom and can be used to facilitate group submission of assignments in a hybrid or online setting. Bring your electronic devices to participate or look on with a friend!

Park North:

Gail Nord – The Prisoner's Paradox

On the television show, Let's Make A Deal, the announcer, Monty Hall, asks a contestant to pick one of three curtains/screens. A new car is hidden behind one the curtains. Monty Hall opens one of the two remaining screens, showing it does not have the car. He asks the contestant if he/she wishes to change his/her initial selection to the other screen. We will see if the contestant increases his/her odds by doing so. This game (Shell Game), the Prisoner's Paradox, and other paradoxes of conditional probability will be explored.

Park South:

Christopher Quarles – A Research Approach to Student Learning & Student Success

What does it really mean to be prepared for college-level math? Should students have fewer developmental classes, or more time to learn the material? This is a hands-on examination of research from a 3 year study on learning in developmental math. With your colleagues, you will analyze the results, examine how learning in math relates to student success, and discuss the ramifications for your own colleges.

Session II abstracts: Saturday 10:15-11:15am

Stehekin A

Bellevue College – Tips for next year’s conference organizers

Stehekin B:

10:15 Taylor Holtzheimer/Crystal Holtzheimer -- Unicorns Ate My Soup: A Fun Introduction to Hypothesis Testing

This short session describes an engaging game to introduce statistics students to the process of hypothesis testing. Come join us to play "Unicorns Ate My Soup."

10:55 Brad McCoy – “As Seen on TV”

Examples of Precalculus and Calculus problems that have recently appeared on television or in film will be shared.

River Room:

Yves Nievergelt -- Mathematical Modeling with Calculus and Examples from Chemistry

More than merely showing a finished model, this presentation focuses on activities, reasoning, and thought processes that may lead from data to mathematical models:

“There is no general method, unfortunately, for finding the order of a reaction. Usually a trial-and-error procedure is used based upon intelligent guesses. These guesses come from the stoichiometry of the reaction or from assumptions concerning its mechanism. The assumed expression is integrated when possible to give a relation between concentration and time. This relation is tested with the experimental data by numerical or graphical methods. The procedure is repeated until the assumed rate expression closely reproduces the data.”

Frost, Pearson, *Kinetics and Mechanisms*, 1961.

Extensive notes will be made available, as well as amplifications of last year’s notes.

Park North:

10:15 David Lippman -- Building a 3d coffee cup

This session will recreate a fun class exploration from Calc 3, wherein we will collectively construct a coffee cup using 3D functions and parametric surfaces.

10:55 David Lippman -- Computing modular exponentiation

Calculating exponentiation over a modulus ($b^c \text{ mod } m$) is an essential part of public-key cryptography. Two computational approaches will be discussed for determining the result when it cannot be calculated directly due to the limits of computer arithmetic.

Park South:

Pete Wildman/Liz Hylton -- AMATYC opportunities for Washington Mathematics

Instructors

The American Mathematical Association of Two Year Colleges provides numerous professional development instructors of mathematics. Come and learn professional development projects such as Project ACCESS, Webinars, AMATYC conferences, AMATYC awards and AMATYC publications. We will also discuss AMATYC role in helping instructors and their departments deal with some of the critical issues of mathematics education today

List of 2015 Attendees

Bellevue College

Dana Updegrove
Dale Hoffman
Peggy M.
Tatiana Mihaylova
Lynne Sage
Usha Raman
Frank Lee
Mathi Radhakrishnan
Susan Gronlund
Galina Kashinskaya
Jen Townsend
Larry Susanka
Tony Akhlaghi
Cynthia Northrup
Rini Chakrabarti
Jennifer Laveglia
Mausumi Maulik
Saras Kodungudi
Debby Casson
Tim Kearney
Malini Ajwani
Ricardo Chavez
Scott Northrup
Bart Guyton
Sunmi Ku
Marilyn Anderson
Andria Villines
Caroline Shook
Rose Pugh
Tom Pugh
Ryan Bauer
Elizabeth Demong
Heidi Songstad

Big Bend CC

Margaret Lane
Barb Whitney
Stephen Lane
Sonia Farag
Tyler Wallace
Sarah Adams
Allie Seim
Salah M. Abed

Cascadia College

Megan Luce
Steve Yramategui
Nano Tellez
Cindy Bea

Centralia College

Dan Taylor
Patricia Meierdiercks
Preston Kiekel
Chris Carlson

Clark College

Mark Elliott
Dennis Watson
Sally Keely
Kate Cook
Paul Casillas
Sarah Luther
Garrett Gregor
Gary Glenney

Chris Milner
Murali Krishna

Clatsop CC

Liz Hylton

Clover Park

Technical College
Tula Mollas
LaVerta Schmeling
Loreta Sandoval

College of San Mateo

Jay Lehmann

Columbia Basin CC

Greg Piepmeyer
Nick Gardner
Amanda Makepeace
Jacob Anderson
Melissa Hasham
Tracie Russell
Rebecca Luttrell
Gary Olson
Nick Criddle
Meg Bartrand
Ryan Orr
Jenny Hughes
Limin Zhang
Alexandria Anderson
John Spence

Eastern Washington University

Yves Nievergelt

Edmonds CC

Gabrielle McIntosh
Jadwiga Weyant
Nancy Marx
Pat Averbek
Terry Goldstick
Jeff Eldridge
Tiffany Ledford

Everett CC

Heidi Weiss-Green
Mike Story
Terri Bell
Chris Quarles
Alys Hugo
Hoang Nguyen
Allie Dykes

Fred Hutchinson Cancer Research Center

Laura Matrajt

Gonzaga University

Gail Nord

Green River College

Pam Reising
Andy Brasile
Clair Payne
Allison Beckwith
Kris Kissel
Sarah Massengill
Donnie Hallstone
Lara Michaels
Adriana Mendoza
Mike Kenyon

Highline College

Nguyen Nguyen
Dusty Wilson
Austin Roberts
Shane Kibler
Aaron Warnock
Richard Plagge
Terry Meerdink
Barbara Hunter
Erik Scott

Kodiak College UAA

Jesse Mickelson

Lake Washington

Institute Of Technology
Vidhya Venkatraman
Dr. Narayani
Choudhury
Sue Kuestner

Lewis Clark State College

Laura Bracken
Ed Miller
Suzanne Rousseau

North Seattle College

Sam Wilson
Michael Gaul
Ralph Jenne
Pam Lippert
Catherine Conway
Edgar Jasso
Michael Vincent
Eileen Murphy

Olympic College

Jason Heinze
Elizabeth O'Neil
Barbara Farr
Mary Ann Kelso
Mike Dodge
Elisabeth Briggs
Joe White

Peninsula College

Bunnie Hesington
Andrea Motyka
Michele Scouten

Pierce College

Larry Wiseman
Tom Phelps
Chad Bemis
Sharon Camner
David Lippman
Pete Kaslik
Michele Wallace
Stewart Jaffe
Melonie
Rasmussen
Rajesh Lal

Shoreline CC

Rebecca Cosner
Lorna Larsen
Przemyslaw Wyzgowski
Steve Bogart
Nancy Goodisman
Sasha Malinsky
Rosalie Tepper
Nirmala Savage
Juliet Lovejoy
Shannon Flynn

Skagit Valley College

Joventina Schaffner
Abel Gage
Brian Heinze
Dusti Morales
Kathy Larson

South Puget Sound CC

Cesar Villasana
Maia Langenberg

South Seattle College

Jian Zou

Spokane CC

Susan Dimick
Josh Krone
Joy Bjerke
Nicole Duvernay

Spokane Falls

Greg Cripe
Kialynn Glubrecht
Evan Huri
Christopher Cary
Jennifer Huri
Beverly Vredevelt
Debbie Olson
Jessica Hoppe
Sabrina Robinson
Gus Harras
Pete Wildman
Barbara Harras

Tacoma CC

Brock Leach
Carol Avery
Allison Leon
Guerrero
Val MorganKrick
Sellie Clark
Dr. Christopher Willett
Min Kim
Jon Armel

University of Texas at Austin

Jeff Shaver

University of Washington

Tacoma
Olga Shatunova

Walla Walla CC

Laura Schueller
Julianne Connell
Sachs
John Hough

Wenatchee Valley College

Garrick Booth

Western Washington University

Tony Marzetta
Hanna Landrus
Marena Shear
Taylor Holtzheimer
Derek Wheel
Brad McCoy
Ben Johnson
Victoria Connor Ryan
Katie Brian Whetter
Vaughn Ellis
Chelsey Erway

Whatcom CC

Yumi Watanabe
Will Webber
Leslie Glen
Nathan Hall
Jody DeWilde
Crystal Holtzheimer
Wendi Davis

Yakima Valley CC

Carolyn McCallum
Matt Lewis

Conference History

(paraphrased from last year's program)

Phil Heft, Jim Relf, Larry Larson, and John Van Duff held the first Community College Math retreat in Washington at "The Lodge" in Ashford in 1969. It cost \$16.68 per person, and had 33 people in attendance, who slept in sleeping bags.

The retreat has grown into a conference involving more than 200 mathematicians from both two and four-year colleges. There are usually a few invited talks, but volunteer community members contribute the bulk of the program and content. Conference planning rotates through the 34 Washington community colleges (or rather is tossed about a bit like hot potato) along with a fund for assistance with start-up costs. The location of this conference has bounced around the Cascades, Olympic Peninsula, and Columbia Gorge.

Past conference hosts:

Bellevue College (2015, 2000, 1989, 1976)
Shoreline CC (2014, 1985, 1977)
Everett CC (2014, 1972, 1971)
Whatcom CC (2013, 1995)
Tacoma CC (2012, 1998, 1991)
Green River CC (2011, 1984, 1974, 1969)
Yakima CC (2010, 1992)
Columbia Basin College (2009)
North Seattle CC (2008, 1985)
Wenatchee Valley CC (2007)
Big Bend CC (2007, 1998)
Olympic College (2006, 1988, 1983, 1979)

Highline CC (2005, 1993, 1982, 1975, 1969)
Pierce CC (2004, 1991)
Spokane CC (2003)
North Idaho CC (2003)
Clark College (2002, 1990)
Peninsula College (2001)
Edmonds CC (1999, 1978)
Spokane Falls CC (1996, 1981, 1980, 1970)
Skagit Valley CC (1995)
South Seattle CC (1994)
Lower Columbia CC (1987)
Ft. Steilacoom CCs (1969)

Future hosts:

Clark College & ORMATYC (2016): details about location unknown

Highline Community College (2017): The Great Wolf Lodge in Grand Mounds, WA

Feedback

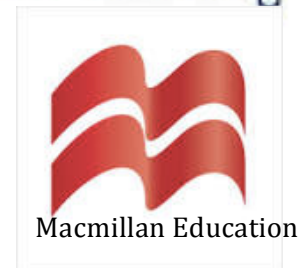
Please consider providing feedback. We will be forwarding responses to the future hosts. A link is available at <http://goo.gl/forms/O9iIRZFDJH>, or on the conference website.

Special thanks to those that have dedicated, time, plunder, money, or services to make this conference possible.

Organizations:



BC Science and Math Institute

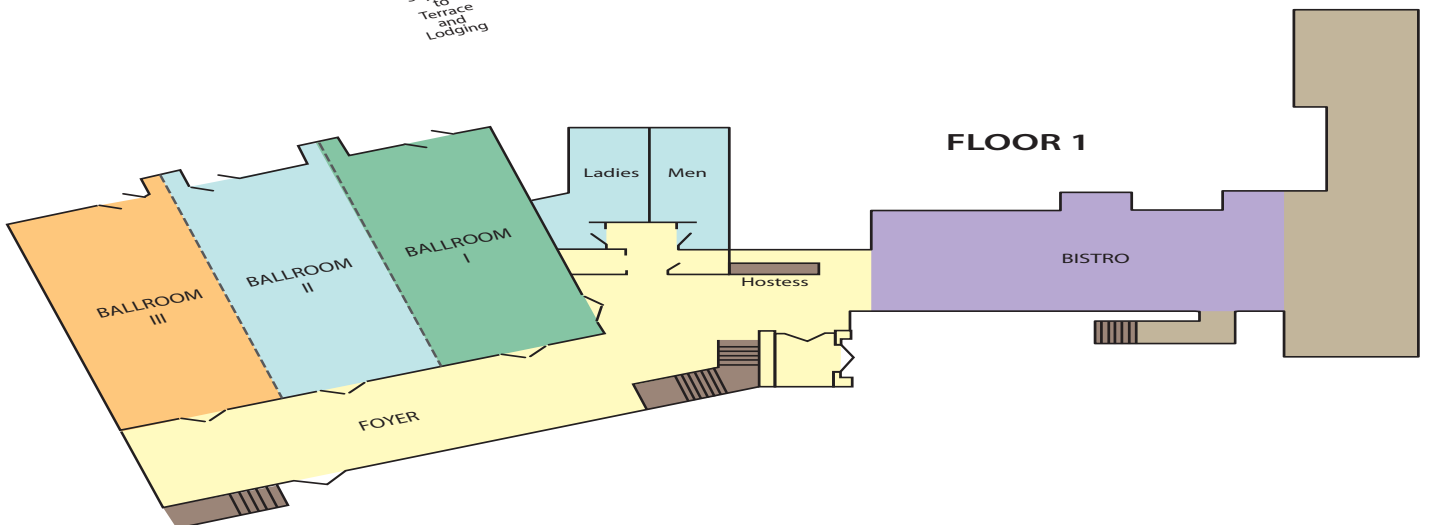
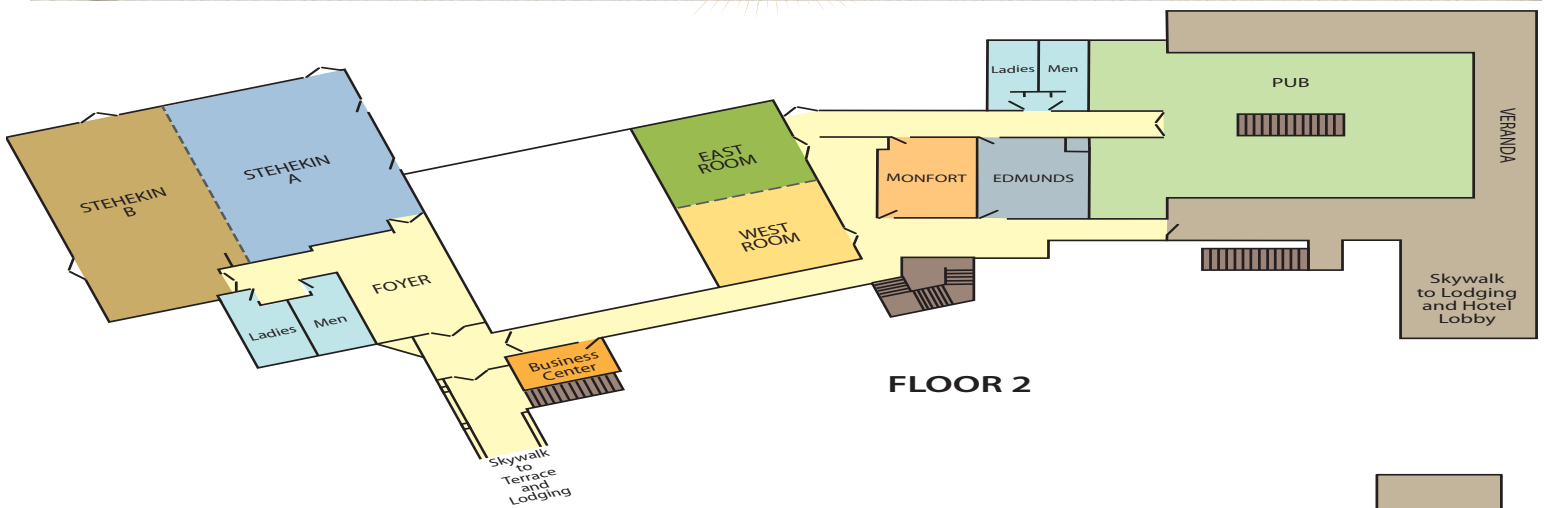
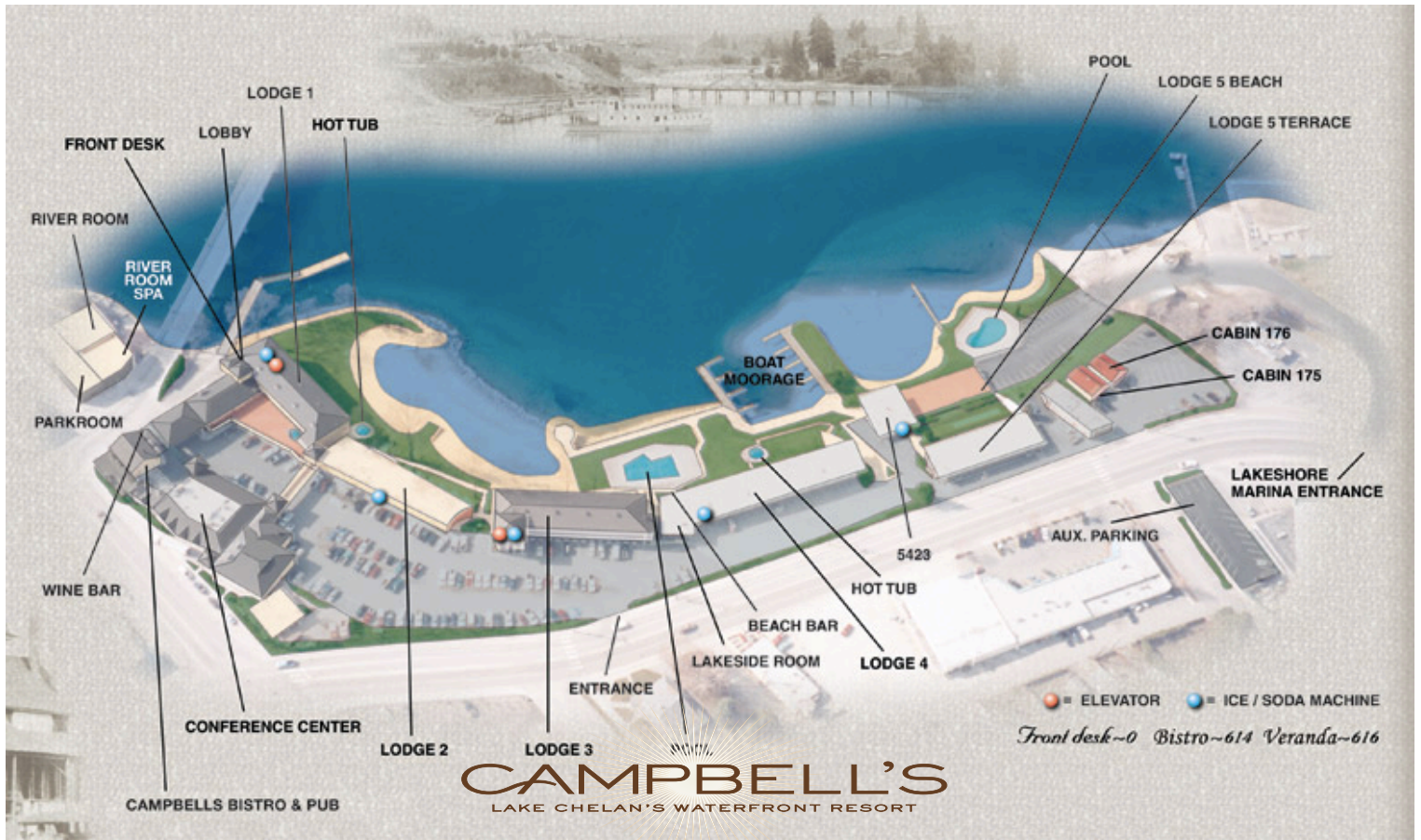


Conference Organizers

Larry Susanka
Rose Pugh
Dale Hoffman
Ryan Bauer
Jasmine Cetrone
Bart Guyton
Jennifer Laveglia
Jen Townsend
Cynthia Northrup
Heidi Songstad
Tony Akhlagati

Dana Updegrove
Sunmi Ku
Rini Chakrabarti
Debby Casson
Usha Raman
Ricardo Chavez
Malini Ajwani
Kanthimathi Radhakrishnan
Mausumi Malik
Andria Villines

Program logo designed by BC student Natalia Oblitas





For three of the six regular polytopes in four dimensional space, the stereographic projection has the geometry of a bubble cluster. Here we see a projected image of the dodecaplex or 120-cell.

This image is from John M. Sullivan's article "Generating and Rendering Four-Dimensional Polytopes"

Available at <http://www.math.uiuc.edu/~jms/Images/polyt.html>