Friday, April 9

Start	End	SL 116	SL 108	SL 109	SL 110	CM 473
8:00	9:00	Registration (8am - 2pm).		Continental Breakfast provided by Pearson Education		
9:00	9:45	Welcome and Campus Reports				
9:45	10:45	**Keynote Address** **Betty Mayfield** Women and Mathematics in the Time of Euler				
11:00	11:20		**Jo Steig** Math Placement and Review Through ALEKS	**Frank Attanucci** Two Mensuration Formulas for Surfaces Generated by Regular N-Gons	**Kenneth Hurley** Which Components Are Needed If You Were To Certify An Online Math Class?	
11:30	11:50					
12:00	1:00	**ATF**	Lunch	Lunch	Lunch	Lunch
1:00	1:20		**MAA Business Meeting**	**Christopher Benton** - Best Practices in Education - 2000 Years Ago!	**Lawrence Lesser** Equity in Mathematics Education: Resources, Recommendations, and Research	**Pearson Education** **Michelle Christian** Learn about the "New" Trigsted model of MyMathLab eTexts and resources from Pearson Education
1:30	1:50			**Olga Yiparaki -** Tales of Reliability Modeling from Industry		
2:00	2:20		**ArizMATYC Business Meeting**	**Helmut Knaust -** Teaching a Discrete Wavelet Transformations Course		**Ted Coe** GEOGEBRA in the Classroom
2:30	2:50			**Forrest Kaatz -** New Results for 2D Tilings: Wiener index & Statistical Mechanics of Graphs		
3:00	3:30	Break	Break	Break	Break	Break
3:30	3:50		**Anne Dudley** **Laura Watkins** Linear Algebra Projects and Activities	**Wiley Publishers** **Trisha Gilbertson** Get Your Weekends Back: Managing Your Course with WileyPLUS	**Marilyn Carlson** **April Strom** Pathways to Calculus: A New Roadmap for Teaching Precalculus	**Donna Gaudet, Paula Temple** Handjiving and Livescribing - Using Structures and Technology to Facilitate Learning in Hybrid Dev Ed Math Classes
4:00	4:20					
4:30	4:50		**Amy Volpe** **Denise Nunley** Number and Operation Sense: A New Course in the Curriculum Pipeline	**Christopher Benton -** Free Software Tools for Single and Multivariable Calculus		
5:00	5:20					

SATURDAY, April 10

Start	End	SL 116	SL 107	SL 109	SL 110	CM 473
8:00	9:00	Registration (8am - 2pm).		Continental Breakfast provided by Rational Reasoning		
9:00	9:20		**Murray Siegel** Using a Regression Project to Demonstrate the Importance of Algebraic Functions		**Darel Hardy** Some Average Calculus Problems	
9:30	9:50					
10:00	10:20			**XYZ Textbooks** **Pat McKeague** MathTV: More than just a Website	**Robert J. Wisner** Combining Greek Ladders	**Roberto Ribas** YouTube Video for Instruction
10:30	10:50					
11:00	11:20		**Azucena Zamora -** Cognitive Constructs in the Reasoning of First Year Linear Algebra Students	**David Dudley -** The Law of Cosines and the Ambiguous Case	**Alvin Swimmer** Finite (Galois) Field Tables Yield Finite Projective Planes	
11:30	11:50			**Gabriela Schwabb** - Supplemental Instruction for Precalculus Course		

KKeynote Address

Dr. Betty Mayfield

Women and Mathematics in the Time of Euler

We will examine some female contemporaries of Leonhard Euler (1707 - 1783) -- some famous, some not so famous. We will also look at mathematics that was written both by and for women in the time of Euler.

Invited Address

Pat McKeague

Islam Math and Culture Across the Curriculum

Enter the city of Baghdad in the year 760 and begin an interestin journey
that includes Euclid and Fibonacci, allows us to reinforce some o the
concepts in developmental algebra, and paints a picture of divers cultures
cooperating to advance mathematics throughout the world.

Contributed Talks (In alphabetical order of presenter's last name)

Frank Attanucci, Scottsdale Community College

Two Mensuration Formulas for Surfaces Generated by Regular N-Gons

Imagine raising a regular N-gon from the plane $z = 0$ to the plane $z = H$ (thus generating the sides of a prism). In this paper we derive two mensuration formulas for the surface generated by a regular N-gon—one for the lateral area of the surface, the other for the volume enclosed by the surface (and, if needed, two planes). The novelty is this: because we allow the circumradius of the N-gon to vary as it rises, many familiar surfaces (e.g., prisms, pyramids, frustums) are mere specific members of a more general class of surfaces. Therefore, our area and volume formulas will apply to them as well. We then show that if you allow N to increase without bound, these new formulas converge to the familiar formulas for the area of a surface of revolution and the volume of the solid of revolution.

Christopher Benton, Scottsdale Community College

Best Practices in Education - 2000 Years Ago!

What was education like a millennia or two ago, and what problems did teachers face? In order to answer this question, several examples of advice for both students

and teachers are drawn from ancient rabbinic literature. Approximately 1500-2000 years ago, teaching was a primary function of many rabbis, and the Talmud and other historical sources contain many examples of the problems they faced as educators as well as the solutions they formulated. Surprisingly, we'll see that not much has changed over time either in the problems encountered or in the resolutions devised. This particular talk pertains to educational practices in general, and the material for it was culled from an article published in "The Maqom Journal for Studies in Rabbinic Literature." The presentation style will be a brief, easy to follow slide show illustrating guidelines for both educators and their pupils. In particular, you might enjoy hearing how these early pundits would have responded to George Bernard Shaw's derogatory dictum, "Those who can, do. Those who can't, teach."

Christopher Benton, Scottsdale Community College

Free Software Tools for Single and Multivariable Calculus

Using a very user-friendly program called LiveMath, the presenter has created a variety of tools that may be used to explore several aspects of both single variable and multivariable calculus. The files created consist of various types of graphers and calculators as well as a variety of different types of constructions. All the files may be downloaded for free from the author's website, modified in a variety of ways, and executed via the free LiveMath Viewer. Through the use of these programs, a variety of abstract concepts in calculus can be made much more concrete.

Marilyn Carlson, Arizona State University
April Strom, Scottsdale Community College

Pathways to Calculus: A New Roadmap for Teaching Precalculus

Research has shown that students entering calculus have impoverished understandings of proportionality, rate of change, and function. Yet, these ideas must be well-developed in students' thinking for success in calculus. This presentation will describe a project to infuse research on student learning of these concepts into precalculus-level curriculum and instruction.

Ted Coe, Scottsdale Community College

GEOGEBRA in the Classroom

A few months ago I came across a free mathematical program called Geogebra. Since that time it has become an integral classroom tool. Geogebra, an open-source, multi-platform program, simultaneously links together graphical, numerical and algebraic representations in an interactive and dynamic way. During this presentation I will introduce Geogebra, describe its use as a demonstration tool, and guide participants to create their own interactive webpages.

Anne Dudley and Laura Watkins, Glendale Community College

Linear Algebra Projects and Activities

Participants will experience quick activities and projects that engage students in

many of the standard Linear Algebra topics. These activities and projects are designed to help students deepen their understanding of Linear Algebra. Bring a calculator that does matrices.

David Dudley, Scottsdale Community College

The Law of Cosines and the Ambiguous Case

Have you been frustrated with students not finding that second triangle in the ambiguous case? Let the Law of Cosines come to the rescue. We will investigate the history of using the Law of Sines instead of the Law of Cosines and discuss how Solving Triangles can be simplified.

Donna Gaudet and Paula Temple, Scottsdale Community College

Handjiving and Livescribing - Using Structures and Technology to Facilitate Learning in Hybrid Dev Ed Math Classes

Interested in Hybrid courses but not sure how to organize them? Wondering how to consistently engage your hybrid or online students and provide a structure that gives them a high probability of success in your class? Curious as to how to motivate students and truly require them to take responsibility for their own learning? Then this session is for you. Paula Temple and Donna Gaudet, math instructors at SCC, will discuss the system they have designed for hybrid courses and demonstrate use of an exceptionally useful technology...the Livescribe Pulse Smartpen.

Darel Hardy, Colorado State University

Some Average Calculus Problems

This talk is about helping students to use independent solutions to validate their own mathematical thinking. What is the average distance between two numbers chosen in the unit interval? A quick thought experiment indicates that 1/2 is too large and 1/4 is too small, so 1.3 is a reasonable guess. Use random numbers to get another estimate. Use Calculus to get an exact answer. A calculus answer that is compatible with other estimates provides a high level of confidence that that answer is actually correct. Several "average" problems are included in this talk, accompanied with pictures, simulations, and calculus solutions.

Kenneth Hurley, Central Arizona College

Which Components Are Needed If You Were To Certify An Online Math Class?

This roundtable session will seek participants input as to what makes an online class worthy of credit. What technical support is needed? How do you justify that the course is a quality course? How do you compare online participation to seat time? What ways can be used to ascertain the person taking the course is taking the tests? Other issues as time permits!

Forrest Kaatz, UAT, CGCC, MCC

New Results for 2D Tilings: Wiener index & Statistical Mechanics of Graphs

We present new calculations for 2D tessellations including the topographical

Wiener Index and statistical mechanics of graphs. We model ideal tilings, tilings from porous arrays, and random 2D graphs. The topological Wiener index is compared to the topographical index and we find for the porous array tilings that they are expanding in size as they progress outward. The adjacency matrix for the 2D graphs provides a means of calculating the Wiener Index and various statistical quantities such as entropy, free energy, partition function, and Helmholtz energy of the graphs.

Walter A. Kehowski, Glendale Community College

Naturality of the Duodecimal System

As π is to the circle and e is to the hyperbola, 12 is to integers. The duodecimal system or base 12 will be shown to be the most natural base for Mathematics as well as for everyday life. Speculations on cognitive development will be briefly discussed.

Helmut Knaust, University of Texas at El Paso

Teaching a Discrete Wavelet Transformations Course

The presentation will give an overview of a discrete wavelet transformations course with applications to image processing and image compression. The course is directed at senior level undergraduate and beginning graduate students. I will describe the course content, reflect on my experiences with the course, and present some student final projects.

Lawrence M. Lesser, University of Texas at El Paso

Equity in Mathematics Education: Resources, Recommendations, and Research

A founding Editor of *Teaching for Excellence and Equity in Mathematics* gives an overview of current work, resources, and perspectives in equity, followed by practical focus on classroom-tested examples and strategies that appear to be helpful and motivating not only for historically underserved groups (e.g. English language learners, women, and minorities), but also for others. Because equity claims require understanding of mathematics/statistics, equity can actually be a powerful vehicle to teach certain concepts in our courses. In any case, teachers should realize that students' prior notions of 'fairness' can impact or interfere with how certain math/stat concepts are encountered.

Roberto Ribas, Scottsdale Community College

YouTube Video for Instruction

How and why you can make YouTube videos, cheap, easily and quickly as part of your face to face/hybrid/online courses, starting today. Learn the easy way to record video directly from your computer screen, with narration for free. Show complex math, and graphing calculator work, sketches and graphs simply and efficiently. See how to organize your videos into playlists. Advantages YouTube videos provide for returning students, veterans and others. Pedagogical and presentation points to keep in mind during video production and how to make your videos an ‘active

learning' experience for your students.

Gabriela Schwab, El Paso Community College

Supplemental Instruction for Precalculus Course

The Mathematics Departments of El Paso Community College (EPCC) and University of Texas at El Paso (UTEP) have a long tradition of close cooperation. We will report on a new EPCC-UTEP joined initiative, supported by the Department of Education, to integrate mandatory Supplemental Instruction (SI) sessions for EPCC's Precalculus courses. The instructional mode was changed from the traditional lecture to a new format of lecture with an additional hour of regularly peer-facilitated sessions called SI labs. Graduate students from the Department of Mathematical Sciences at UTEP are serving as SI leaders for this Supplemental Instruction component at EPCC.

Murray Siegel, ASU Polytechnic

Using a Regression Project to Demonstrate the Importance of Algebraic Functions

Application is the best teacher. Students in a college algebra, pre-calculus or calculus class are required to complete a project in which they determine which of a number of algebraic functions (linear, quadratic, cubic, exponential, logarithmic or piecewise defined) provides the best model for a set of data drawn from a topic which interests the student. Each type of function is applied using a "trial and error" method until the optimal model is found for each function. Then the best overall model is chosen and justified. Finally the student must explain why the particular model chosen makes sense.

Jo Steig, Mesa Community College

Math Placement and Review through ALEKS

MCCCD has historically administered exams for initial placement into math courses; however, low student retention rates indicate that these tests are not effective in predicting successful completion. Many of the issues that lead to a low completion rate are the very characteristics that define community college students. After two years of exploring alternatives, MCCCD selected ALEKS as its math placement tool. The first portion of the session will address ALEKS and its selection. The second portion will allow for questions about implementation at the colleges and new course developments based on information gathered by ALEKS.

Alvin Swimmer, Arizona State University

Finite (Galois) Field Tables Yield Finite Projective Planes

In a projective plane of order N, there are exactly N + 1 points on every line, N + 1 lines on every point, $N^2 + N + 1$ points and $N^2 + N + 1$ lines. Using a method due to Wesson, one can write down 2N + 1 lines completely and parts of the remaining N(N - 1) lines. To complete the construction, one can use the addition and multiplication tables of the Galois Field of order N (which are easy to construct) in a novel way that guarantees the projective plane axioms are automatically satisfied.

Amy Volpe and Denise Nunley, Glendale Community College

Number and Operation Sense: A New Course in the Curriculum Pipeline

A new course will be inaugurated in the Maricopa Community College District in the fall of 2010 entitled "Number and Operation Sense". Learn about the competencies, objectives, intended student population and logistical issues we face in getting this course started.

Robert Wisner, New Mexico State University

Combining Greek Ladders

This continues the Greek Ladder talk given at our Section meeting last year in Silver City, but no knowledge of Greek Ladders is presumed here. The focus will be on what can happen when the rungs of Greek Ladders are intertwined.

Olga Yiparaki, IBM Systems and Technology

Tales of Reliability Modeling from Industry

This talk gives an overview of some mathematical modeling questions that come up in architecting data storage systems. One of the critical attributes is high data reliability, so that the risk of data loss is very low. Typically, disk storage systems use some redundancy scheme (RAID) to protect data even if one or more hard drives die unexpectedly. We will give a brief overview of all the necessary terminology and discuss modeling problems that arise naturally, discuss some of the challenges, and share tales of what can go wrong with incomplete information. This talk will be of interest to mathematicians as well as mathematics educators who teach probability.

Azucena Zamora, University of Texas at El Paso

On the Use of Cognitive Constructs in the Reasoning of First Year Linear Algebra Students

Recently, authors treat metonymy and metaphor as cognitive structures used to structure our thinking rather than just encoding information. Presmeg and Zandieh (1997;1998,2006) state that the individual's reasoning of abstract mathematical concepts can be influenced by metaphors and metonymies. This influence can represent an advantage for learners in reasoning and forming meanings; however, it can also cause incomplete or inaccurate understanding. Our presentation will include a brief introduction of metonymy and metaphor as cognitive constructs and their identification will be provided. An analysis of the answers to linear independence questions of three linear algebra students is conducted by looking at their use of cognitive structures in their reasoning.

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MAA Southwestern Section / ArizMATYC Joint Meeting
Scottsdale Community College April 9 – 10, 2010

Call for Papers

Due March 5, 2010

Speaker Name: _____

College: _____

Affiliation: ☐MAA ☐ArizMATYC ☐AMATYC ☐Other_____

I am a: ☐College Professor ☐Retired Professor
☐Graduate Student ☐Undergraduate Student ☐Other_____

Mailing Address: _____
_____
_____

Email Address: _____ Phone Number: _____

Title of Proposed Talk: _____

Additional Presenter Names: _____

Abstract (100 words or less): ***please attach***

Is this abstract intended for any of the following special sessions? Please ✓.

- ☐ History of Mathematics
- ☐ Developmental Education
- ☐ Mathematics Education Research
- ☐ Pure and Applied Mathematics
- ☐ Technology
- ☐ Programs for Preservice and Inservice Teachers
- ☐ Undergraduate Mathematics
- ☐ Research Completed by Students (Undergrad or Grad)

Audio visual needs: ☐ LCD Projector ☐ Overhead Projector ☐ Other_____

Talk Length Request: ☐20 minutes ☐50 minutes ☐110 minutes (workshop)

Other Requests: _____

Students Only: Faculty Member Sponsor: _____
Will you be submitting a poster to the poster session? ☐Yes ☐No
Title of Poster: _____
Note: A formal presentation is not required to present a poster. Students who give a formal presentation are welcome to present a poster on the same work.

Please return this form by March 5, 2010 to:

Jenifer Bohart
Department of Mathematics
Scottsdale Community College
9000 East Chaparral Road
Scottsdale, AZ 85256-2626.
Email: Jenifer.Bohart@sccmail.maricopa.edu Phone: 480.423.6278 Fax: 480.423.6449

MAA Southwestern Section / ArizMATYC Joint Meeting
Scottsdale Community College April 9 – 10, 2010

Vendor Registration Form

Vendor Name_____

Contact Name_____

Address _____

City_____State_____Zip Code_____

Phone _____ Fax_____

E-mail Address_____

Representative(s) who will attend:_____

Description of Material / Products / Services to be Exhibited: _____

_____

REGISTRATION FEES

☐**Program Advertisement**: $25 prior to March 13, 2010 $_____

☐**Vendor Booth**: $50 prior to March 13, 2010 $_____
Includes: Vendor booth (one table)
☐ Additional Table $50
Will need access to: ☐ Electric outlet ☐ Wireless internet

☐**Commercial Presentation:** $50 prior to March 13, 2010 $_____
Includes: 50-minute time slot for presentation
Presentation Title:_____
Audio visual needs: ☐ LCD Projector ☐ Overhead Projector
Other Equipment Requests: _____

YES, my company would like to support the MAA/ArizMATYC conference by
☐ Sponsoring snacks and/or drinks during the session breaks
☐ Sponsoring a morning coffee
☐ Sponsoring a continental breakfast
☐ Sponsoring Friday lunch
☐ Donating door prizes for the Friday evening banquet
☐ Other (please specify): _____

TOTAL MONEY INCLUDED (make check payable to ArizMATYC) $_____

Please return this form to: Jenifer Bohart, Department of Mathematics and Computer Science, Scottsdale Community College, 9000 East Chaparral Road, Scottsdale, AZ 85256-2626; Email: Jenifer.Bohart@sccmail.maricopa.edu Phone: 480.423.6278 Fax: 480.423.6449

MAA Southwestern Section / ArizMATYC Joint Meeting
Scottsdale Community College April 9 – 10, 2010

Participant Registration Form

Participant Contact Information:

Name_____

College_____

Address _____

City_____State_____Zip Code_____

Phone _____ Fax_____

E-mail Address_____

Participant Associations (check all that apply):

☐ MAA member ☐ ArizMATYC member ☐ AMATYC member

☐ Faculty member for college or university ☐ Retired faculty member for college or university

Highest degree offered by Institution: ☐ Associate ☐ Bachelors ☐ Masters ☐ Ph.D.

☐ Undergraduate Student ☐ Graduate Student ☐ Post Graduate Student

☐ High School Teacher ☐ Business, Industry, Government ☐ Other_____

Teaching Experience (if applicable):

Number of years of teaching experience: _____ years (full-time) _____ years (part-time)

REGISTRATION FEES Includes Friday Continental Breakfast

☐ **General Registration**: $20 ☐ **Student Registration**: $5 $_____

☐ **Friday Night Banquet**: $25 Note: Space is limited, so reserve early! $_____

☐Vegetarian

TOTAL AMOUNT ENCLOSED (make check payable to ArizMATYC) $_____

☐ **Special Accommodations**, please specify.

Please return this form and check to: Jenifer Bohart, Department of Mathematics,
Scottsdale Community College, 9000 East Chaparral Road, Scottsdale, AZ 85256-2626
Email: Jenifer.Bohart@sccmail.maricopa.edu Phone: 480.423.6278 Fax: 480.423.6449

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☐ MAA member ☐ ArizMATYC member ☐ AMATYC member

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Highest degree offered by Institution: ☐ Associate ☐ Bachelors ☐ Masters ☐ Ph.D.

☐ Undergraduate Student ☐ Graduate Student ☐ Post Graduate Student

☐ High School Teacher ☐ Business, Industry, Government ☐ Other_____

Teaching Experience (if applicable):

Number of years of teaching experience: _____ years (full-time) _____ years (part-time)

REGISTRATION FEES Includes: Friday Continental Breakfast, Lunch, and Snack
Saturday Continental Breakfast

☐ **General Registration**: $20 ☐ **Student Registration**: $5 $_____

TOTAL AMOUNT ENCLOSED (make check payable to ArizMATYC) $_____

Local Information

SCC Campus Map Parking is free.

Area Map

Nearby Hotels

A block of rooms have been reserved for this conference at the Homewood Suites by Hilton Phoenix/Scottsdale.

Homewood Suites by Hilton
Phoenix/Scottsdale
9880 N. Scottsdale Road
Scottsdale, Arizona 85253
(480)368-1200
Click Here

Chaparral Suites Scottsdale
5001 N. Scottsdale Rd.
Scottsdale, AZ 85250
(480) 949-1414
www.chaparralsuites.com

Days Inn Scottsdale Fashion Square
4710 N. Scottsdale Rd.
Scottsdale, AZ 85251
(480) 947-5411
Daysinnscottsdale.com

Doubletree Hotel
Paradise Valley/Scottsdale
5401 N. Scottsdale, AZ 85250
(480) 947-5400
Hilton.com

W Hotel
7277 E. Camelback Rd.
Scottsdale, AZ 85251
(480) 970-2100
Starwoodhotels.com

The Hotel Scottsdale
5101 N. Scottsdale Rd.
Scottsdale, AZ 85250
(480) 945-4392
Clarionscottsdale.com

Restaurants

SCC Student Union: Student Cafeteria

Indian Bend Road (2 miles north and just west of the Loop 101):

Sweet Tomatoes, Taco Bell, YC's Mongolian, Denny's, Arby's, Five & Diner, and much more!

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Banquet Menu

Appetizer

Honeyed BBQ pork Ribs

Soup

Cream of Butternut Squash

Salad

Traditional Caesar Salad

Entrees

Pistachio Crusted Halibut

or

Rack of Lamb

Desserts

Bread Pudding with Frozen Custard

or

Mixed Berry Strudel

Beverages

Paradise Tropical Iced Tea

Fresh Ground Regular of Decaffeinated Coffee

Vegetarian option available