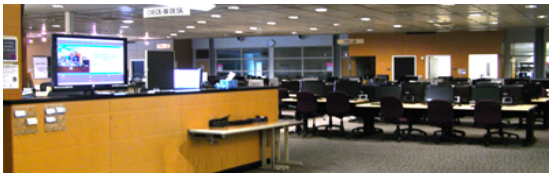
ArizMATYC
Arizona Mathematical Association of Two Year Colleges

Spring 2014 Joint MAA-ArizMATYC Conference

The Spring MAA-ArizMATYC Joint conference is scheduled for Friday, April 4 (9AM – 4PM) and Saturday April 5 (9AM 12PM), at Paradise Valley Community College in Building Q. Tentative times: 9:00 am – 4:00 pm. Breakout sessions will be in nearby classrooms. There will be a banquet Friday night.



Registration

Online registration is now available. Payment is made via Paypal via the link that appears after registering.

Presenters

MAA and ArizMATYC invites you to submit a proposal to speak at the Spring Conference. Presentations should be no more than 50 minutes with an additional 10 minutes for questions and feedback. Remember to scroll back to the top of the form after clicking submit. If you feel the form is not working correctly, please submit your talk's title and abstract to surgent@asu.edu.

Schedule

This schedule may be found here. It will be updated as talks are scheduled.

Vendors

Several vendors will be available at the conference. Vendors should contact Stephen Nicoloff (stephen.nicoloff@paradisevalley.edu) for more information about vendor tables.

MAA will have a table displaying the books they offer on their website. For the joint spring section meeting, the online discount is **SWSP2014** and it provides a 35% discount off book purchases at the MAA Store. This code is valid from **Sunday, March 30 – Saturday, April 12, 2014**. It cannot be combined with any other offers or discounts. (If purchasing online, customers will have to pay shipping.)

Housing

A special rate has been set aside for the MAA-AMATYC guests at the Holiday Inn Express at 4575 East Irma Lane in North Phoenix, near the Loop-101 Freeway and Tatum Blvd. Please call 480-473-3400 and mention the

AMATYC rate. This will ensure that you get the special conference rate. The rate as quoted is $129 per night. Those who booked at the earlier $149 rate will also get the $129 rate. Even if you encounter trouble and have to book at the $149 rate (as some have reported), we'll make sure it's all at $129/night.

Questions?

Contact Scott Surgent (surgent@asu.edu). For questions about this website, contact webmaster@arizmatyc.org .

Previous ArizMATYC Meetings

ArizMATYC
Arizona Mathematical Association of Two Year Colleges

General Registration Form

Registration

Thank you for registering for the Spring 2014 ArizMATYC - MAA Conference!
Please fill out the following information to complete your registration.
* Required

Name *

College/University/Institution *
If you are a publisher representative, please state which publisher here.

Phone *
Include area code

Email address *
Please type carefully

Address *
Street, City, State, Zip Code

Participate Associations *
Check all that apply
- [ ] MAA member
- [ ] ArizMATYC member
- [ ] AMATYC member
- [ ] Faculty member for college or university
- [ ] Retired faculty member for college or university
- [ ] High school teacher
- [ ] Undergraduate student
- [ ] Graduate student
- [ ] Post graduate student
- [ ] Business, industry, government
- [ ] Other:

Is this your first ArizMATYC / MAA Conference?
- ( ) Yes
- ( ) No

If you have any special needs that require assistance to participate in this conference, please specify below.
We will do our best to accommodate your needs, but cannot make any guarantees for requests received after October 1
- [ ] Vegetarian or special diet
- [ ] Wheelchair accessible desk/table
- [ ] Other:

General Registration Payment: $25.00 Friday Banquet:$20.00

Scroll back to the top after clicking Submit.

ArizMATYC
Arizona Mathematical Association of Two Year Colleges

Call for Proposals

Presenter Application Form

Proposals must be submitted by Friday, March 1, 2014.

* Required

Presenter name *

College/Institution *

Phone *

Include area code.

Email address *

Please type carefully.

Address *

Street, City, State, Zip Code

Brief Resume of Presenter *

Presentation Information

Please plan for a 50-minute presentation with 10 minutes for questions and evaluation feedback.

Title of Presentation *

Brief Abstract (100 words or less) *

Choose the strand of your presentation. *

Check all that apply.

- [ ] History of Mathematics
- [ ] Developmental Education
- [ ] Technology in Teaching
- [ ] Pure and Applied Mathematics
- [ ] Mathematics Education Research
- [ ] Undergraduate Mathematics
- [ ] Programs for Pre-service and In-service Teachers
- [ ] Research Completed by Students (Undergraduate or Graduate)

Scroll to the top after submitting.

DIRECTORY

A ADMINISTRATION BUILDING
Conference Room: A122
Deans' Offices
Development & Community Relations Office
Information Technology Services
Institutional Effectiveness Office
President's Office
Vice Presidents' Offices

C PHYSICAL PLANT
Deliveries

CPA CENTER FOR THE PERFORMING ARTS
Classrooms: CPA113 — CPA149
Lobby Art Gallery
Rehearsal Rooms & Green Room
Theatre

D CERAMICS LAB

E LEARNING RESOURCES COMPLEX
Buxton Southwest Art Collection
Center for Distance Learning
Computer Commons
Learning Support Center
Library - Jo & Warren Buxton Library
IT / Media HelpDesk

F FITNESS CENTER
Classrooms
HEALTH & EXERCISE SCIENCE DIVISION
Faculty Offices

G G BUILDING
Classrooms G136 — G138
Conference Room: G126
SCIENCE DIVISION
Laboratories: G139 & G147
Nursing Department
Faculty Offices

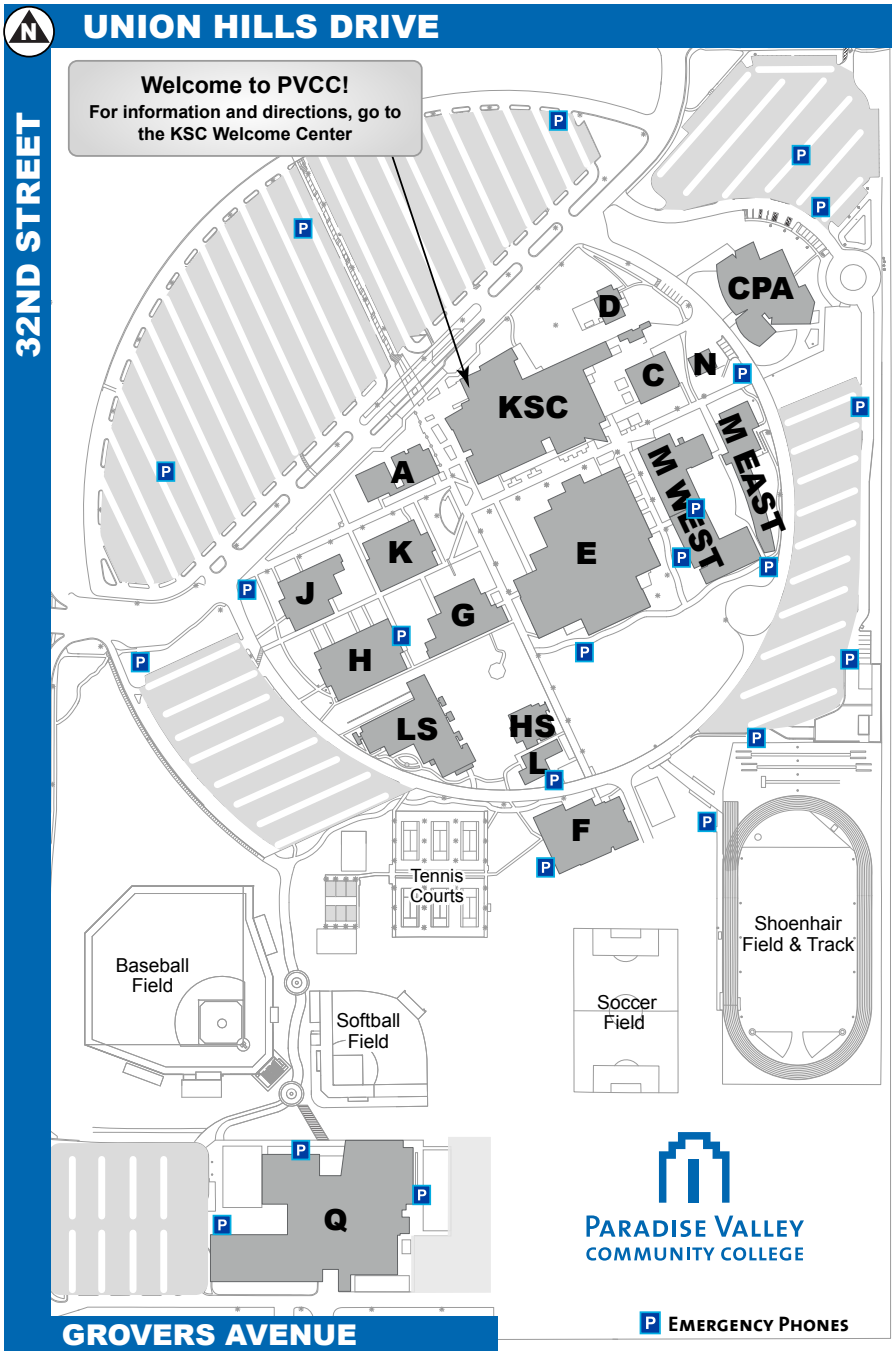
H SCIENCE LABS
Classroom / Labs: H101 — H104
Laboratories: H107, H113, H127 — H129

HS HEALTH SCIENCES BUILDING
Allied Health Skills Classrooms / Labs

J J BUILDING
Art Studio: J141 (Outside Entry)
Classrooms: J136 — J140
Conference Room: J126
BUSINESS / INFORMATION TECHNOLOGY
Faculty Offices

K K BUILDING
Classrooms: K103 — K104, K108 — K117
Honors Office: K101 — K102

KSC KRANITZ STUDENT CENTER
Lower Level
WELCOME CENTER
Academic Advising
Admissions, Registration & Records
Financial Aid
New Student & Information center
Payments
Vice President of Student Affairs
Bookstore
Cafeteria - Puma Den Café
Career Services & Job Placement
Copy Center
COUNSELING DIVISION
Disability Services
Patayan Community Center: KSC1000
Conference Room: Agave Room: KSC1122
Public Safety Office
Student Development / Early Outreach
Student Life Center



Upper Level
Assessment / Testing Center
Human Resources Office
Conference Rooms:
O'odham Room: KSC2007
Hohokam Room: KSC2605
Marketing / Public Information Office
Northern Arizona University Offices
Puma Press
Veterans' Services

L L BUILDING
Classrooms: L101 — L102
EMT Skills Lab
Athletics Department
EMT & Fire Science Departments
Facilities Services Department
Faculty Offices

LS LIFE SCIENCES BUILDING
Classrooms: LS109, LS201 — LS206
Conference Room: LS217
Faculty Offices
Laboratories: LS101 — LS108

M M BUILDING - East Wing
BEHAVIORAL SCIENCES DIVISION
COMMUNICATIONS & HUMANITIES DIVISION
FINE & PERFORMING ARTS DIVISION
SOCIAL SCIENCES DIVISION
Studio Theater
Conference Rooms: M197, M297
Faculty Offices

M M BUILDING - West Wing
Art Studio: M142
Classrooms: M101 — M134 (Lower Level)
Classrooms: M201 — M234 (Upper Level)

N MUSIC BUILDING
Classrooms: N101 — N103

Q Q BUILDING
Classrooms: Q130, Q151—152, Q201—209, Q262, Q301—305, Q401—405
Center for Teaching & Learning
MATHEMATICS DIVISION
Math Center and Testing
Conference Rooms: Q120, Q125, Q171
Faculty Offices

Spring 2014

Joint MAA-ArizMATYC Conference

April 4 & 5 2014

Schedule of Events

Friday, April 4, 2014

9:00-9:45	Registration, Breakfast
9:45-10:00	Welcome and Introductions
10:00-10:50	Keynote Address, Room Q-120 Dr Jennifer Quinn, University of Washington, Tacoma **Topic:** Mathematics to DIE For: The Battle Between Counting and Matching **Abstract:** Positive sums count. Alternating sums match. So which is easier to consider mathematically? This talk is one part performance art and three parts combinatorics. The audience will judge a combinatorial competition between the competing techniques. Be prepared to explore a variety of positive and alternating sums involving binomial coefficients, Fibonacci numbers, and other beautiful combinatorial quantities. How are the terms in each sum concretely interpreted? What is being counted? What is being matched? Do alternating sums always give simpler results? You decide. **Biography:** Dr. Quinn taught in and chaired the mathematics department at Occidental College before moving to UW Tacoma where she has just completed serving as Associate Director of Interdisciplinary Arts and Sciences. She has held many positions of national leadership in mathematics including as Executive Director for the Association for Women in Mathematics, co-editor of *Math Horizons,* and, currently, Second Vice President of the Mathematical Association of America (MAA). She received one of MAAs 2007 Haimo Awards for Distinguished College or University Teaching, the MAAs 2006 Beckenbach Book award for *Proofs That Really Count: The Art of Combinatorial Proof*, co-authored with Arthur Benjamin. As a combinatorial scholar, Jenny thinks that beautiful proofs are as much art as science. Simplicity, elegance, and transparency should be the driving principles. She strives to bring this same ethic to her professional service and administrative work.

Friday, April 4, 2014 (continued)

11:00-11:50	Presentations
11:00-11:50	Articulation Task Force Meeting, Room Q-120 (Jason Bright, GCC)
12:00-1:00	Lunch & College Reports
1:00-1:50	Presentations
2:00-2:50	Presentations
3:00-4:00	AMATYC Business Meeting, Room Q-120 (Laura Watkins, GCC)
3:00-5:30	Open Time Informal meeting: Catch-22 on the Northeast Corner of Union Hills and 32nd Street.
5:30-	Dinner: Location Speakers: Anne Dudley & Laura Watkins Glendale Community College **Topic:** Building a Better Linear Algebra Experience **Abstract:** Linear Algebra is one of our favorite courses to teach, but sometimes its abstractness challenges our students. Over the years we have developed many activities and projects to help move Linear Algebra from abstract to concrete. Participants will experience activities and projects that engage students in many of the standard Linear Algebra topics. These activities and projects help student deepen their understanding of Linear Algebra. **Biography:** Dr. Laura Watkins and Anne Dudley teach mathematics at Glendale Community College in Phoenix, Arizona. They enjoy students in classes from Beginning Algebra through Calculus, DE and Linear Algebra. Laura earned a PhD, MS and a BS in mathematics from Utah State University. Anne earned an MA and a BS in mathematics from Arizona State University and an AA from Phoenix College. Laura is active in AMATYC (as a Project ACCCESS Fellow and now the Project ACCCESS Director). Laura is also the ArizMATYC President. Anne has been active in AMATYC for many years and was the Conference Chair for AMATYC 2002 in Phoenix and is the ArizMATYC Treasurer. She has been the MAA SW Section Chair and served on the MAA Committee on Sections. They have given numerous talks at local, regional and national meetings.

Saturday, April 5, 2014

9:00-9:45	Breakfast
10:00-10:50	Presentations
11:00-11:50	Presentations
11:00-11:50	MAA Business Meeting (Scott Surgent, ASU)

Presentation Schedule, Friday, April 4, 2014

	Room 205	Room 207	Room 208	Room 209
11:00-11:50	Dolores Urbieta, SMCC **Cooperative Learning and Student Success**	April Strom, SCC **Let's AMP it up!: A discussion on PD with middle school mathematics teachers**	Lisa Moller, Pearson Education Learning Technology Specialist **See the *NEW* personalized "adaptive" student learning in MyMathLab**	Mark Ashbrook, ASU -Tempe **Accumulation and Rate: A Radical Redesign of Calculus I**
1:00-1:50	Jorge Guarin, Tohono O'odham CC **iMath: A new solution for an old problem in developmental math?**	Dan Russow, AWC **Creating Mathematical Models Of Real World Phenomena Using Motion Detectors**	Katie Louchart, Shanna Manny, Robert Daugherty, Mary Fule, NAU **Peak Performance, NAU's Summer Mathematics Bridge Program**	Annie Selden, NMSU John Selden, NMSU **Are Students Better at Validation After an Inquire-based Transtition-to-Proof Course?**
2:00-2:50	Katie Louchart, Robert Daugherty, Mary Fule, NAU **NAU Mathematics Placement**	Eric Kostelich, John Nagy (ASU) & Roberto Ribas (SCC) **The MCTP program at ASU and SCC**	Jason Bright, MCCCD **Maricopa Math Modules For College Readiness**	Matthew Michaelson, GCC **A Mathematical Solution to the Motorway Problem**

Presentation Schedule, Saturday, April 5, 2014

	Room 205	Room 207	Room 208	Room 209
10:00-10:50	Murray H. Siegel, ASU-Polytechnic, & Sharon B. Siegel, CAC **Subtractive Black Holes - from 3rd Grade to Research Mathematics**	Jay Abramson & Guy Mullins, ASU-Tempe **An update of hybrid and online course delivery**	Brian Beaudrie, NAU **Solving the Cubic**	
11:00-11:50	Shafiu Jibrin, NAU **An Alternating Projection Algorithm for Semidefinite Programming and Second-order Cone Programming**	Eli Blake, Northland Pioneer College **Writing Math using MS Word 2010**		*MAA Business Meeting*

Full Abstracts

• Jay Abramson & Guy Mullins, Arizona State University-Tempe

An update of hybrid and online course delivery

Abstract: Recently the School of Mathematical and Statistical Sciences at Arizona State University was charged with the delivery of large enrollment online Business Calculus I and II and Calculus for Engineers I, II, and III for both hybrid and online courses. The hybrid model developed is now at the end of its second year. This model has since been expanded for development of the online course, which is beginning its 2nd year of offerings. Two internal grants provided for a unique aspect to the courses. Student were hired to assist in video taping, editing and maintaining supplemental support in the form of the face book page. The result is a user friendly self contained course. As enrollments continue to rise, we find the retention in the courses mimic the traditional approach, yet student approval ratings for these new deliveries continues to be on the rise.

• Mark Ashbrook, Arizona State University-Tempe

Accumulation and Rate: A Radical Redesign of Calculus I

Abstract: Calculus is a subject of several interdependent ideas: quantity, variation and covariation, function, accumulation and rate of change. To help students discover and understand these ideas in a coherent way, ASU Professor Dr. Pat Thompson has recently created a distinct and innovative curriculum for Calculus I, which is now being offered each semester on the Tempe campus. This seminar will give an overview of the course: the rationale, the major phases including building accumulation functions from rate of change functions and vice versa, the centrality of the Fundamental Theorem of Calculus throughout all phases, and the use of technology, namely graphing animations, as an indispensable tool for building student understanding.

• Brian Beaudrie, Northern Arizona University

Solving the Cubic

Abstract: In the early 16th century many mathematicians in Italy and elsewhere were in a race to discover a general solution to cubic equations. Also at this time, it was common in the Italian peninsula for high-stakes contests in mathematical abilities to be held, where winning meant steady income and employment, and losing meant disgrace. Come learn about the intrigue, deceit, and personalities and mathematical prowess of the individuals involved in this era of incredible mathematics.

• Eli Blake, Northland Pioneer College

Writing Math using MS Word 2010

Abstract: "Many mathematics instructors buy specialized equations editors to write mathematical equations and formulas into their tests and handouts. Since most students have MS Word 2010 or 2013 at home, it makes sense to use the equations editor to write documents that they can download at home. Unlike past versions of word, Microsoft starting with MS 2010 put a very good equations editor into the system, and learning to use it effectively can expand what you can do as a teacher."

• Jason Bright, Maricopa Community College District

Maricopa Math Modules For College Readiness

Abstract: The Maricopa Community Colleges are in a process of completely redesigning the developmental level math trajectory. A talk was given in the fall related to the module approach and how it is contrasted with other modular structures. This talk is an update on the work that continues, the modifications that have been made, logistics, development, testing etc. Roughly the first half of the talk will be the overview/update followed by questions and answers for the remainder.

• Jorge Guarin, Tohono O'odham Community College

iMath: A new solution for an old problem in developmental math?

Abstract: After almost three semesters using iPads in my more advanced mathematics classes at TOCC, I have seen how our students have changed. From an initial fear of using technology to a complete mastering math concepts, that without the IPads they would not be able to reach. Developmental math courses also need this experience. I strongly believe IPads could help and solve the problem of lack of learning math with understanding in developmental math courses that the country is experimenting at large. Basic operations concepts are fundamental in mathematics. They could be easily developed, presented, and visualized to students by using iPads' apps. IPads would transform the classroom into a living learning experience where mathematics is constructed and not told anymore. Students will be active participants in their learning experience. Fingers and iPads will be replacing pencils and papers. The possibility of implementing developmental math classes with the iPads will provide students a solution of the learning and understanding of math concepts never developed before. This approach would help them and provide the math community with a new way to teach math: By using iPads. IPads have the irresistible attraction of providing the user, "fingers-on", capabilities never experimented in any math class before.

• Shafiu Jibrin, Northern Arizona University

An Alternating Projection Algorithm for Semidefinite Programming and Second-order Cone Programming

Abstract: We present an alternating projection algorithm for semidefinite programming and second-order cone having a system of linear matrix inequality constraints. It is based on the 2007 work of Rami et al on semidefinite feasibility problem for a single linear matrix inequality constraint . We exploit problem structure and use eigenvalue shift instead of eigenvalue replacement in the spectral decomposition of the iterates as originally proposed in the Rami et al paper. We also give an implementation of the algorithm for the special case of second-order cone constraints. Finally, we give results of numerical experiments to test the effectiveness of the algorithm and compare it with the SDPT3 algorithm

• Eric Kostelich, John Nagy (Arizona State University) & Roberto Ribas (Scottsdale Community College)

The MCTP program at Arizona State University and SCC

Abstract: This talk describes a collaborative project between Arizona State University and the Maricopa Community College District that is funded by the National Science Foundation. The program seeks to identify mathematically talented MCCCD students and include them in a summer enrichment program at Scottsdale Community College. Details of the program and summer activities will be described

• Katie Louchart, Shanna Manny, Robert Daugherty, Mary Fule, Northern Arizona University

Peak Performance, NAU's Summer Mathematics Bridge Program

Abstract: Peak Performance is a non-resident, peer mentoring, summer bridge program at NAU using MyMathLab. We will discuss the program's history and its general design. We will provide information about student outcomes and potential for future growth and changes.

• Katie Louchart, Robert Daugherty, Mary Fule, Northern Arizona University

NAU Mathematics Placement

Abstract: We will provide updated information about NAU's mathematics placement, including the implementation of proctored testing, and the effects of the changes on student success.

Matthew Michaelson, Glendale Community College

A Mathematical Solution to the Motorway Problem

Abstract: Suppose that there are four cities located at the corners of a square with sides of length 1. A network of motorways is to connect all

four cities in the shortest distance possible. What configuration of motorways will yield the minimum total distance? This presentation will offer a calculus-based solution to this optimization problem.

• Lisa Moller, Pearson Education Learning Technology Specialist

See the *NEW* personalized "adaptive" student learning in MyMathLab

Abstract: No two students are identical — they learn and forget at different rates, come from different educational backgrounds, and have different intellectual capabilities, attention spans, and modes of learning. As a result, designing a real-time recommendation engine that is sensitive to the characteristics of each student is an immensely complex task. MyMathLab's personalized ***Knewton's*** adaptive study plan addresses this challenge head-on, using educational path planning technologies and advanced models of student ability. These technologies and models ensure that every student progresses through the course material in a way that maximizes his or her learning

• Dan Russow, Arizona Western College

Creating Mathematical Models Of Real World Phenomena Using Motion Detectors

Abstract: This workshop will demonstrate how I use motion detectors in my classes to model the quadratic position function, sine and cosine curves, and damped harmonic motion. These activities give students experience with data collection, creating mathematical models using the regression tools on the TI-84, applying function transformations and more. Not only can the mathematical models explain the real-world phenomena, but the real-world phenomena can be used to analyze its corresponding mathematical model.

• Annie Selden, New Mexico State University

• John Selden, New Mexico State University

Are Students Better at Validation After an Inquire-based Transition-to-Proof Course?

Abstract: We present the results of a study of the observed proof validation abilities and behaviors of sixteen undergraduates after taking an inquiry-based transition-to-proof course. Students were interviewed individually towards the end of the course using the same protocol that we had used earlier at the beginning of a similar course (Selden and Selden, 2003). Results include a description of the students' observed validation behaviors, a description of their proffered evaluative comments, and the, perhaps counterintuitive, suggestion that taking an inquiry-based transition-to-proof course does not seem to enhance validation abilities. We also discuss distinctions between proof

validation, proof comprehension, proof construction and proof evaluation and the need for research on their interrelations

• Murray H. Siegel, Arizona State University -Polytechnic
Sharon B. Siegel, Central Arizona College
Subtractive Black Holes - from 3rd Grade to Research Mathematics
Abstract: If the "subtractive process" is completed for any three-digit number where all three digits are not the same, the process will terminate with 495. For four-digit numbers the termination is 6174. S. Kaprekar discovered these "black holes" in 1950. For any n-digit number, where $n > 4$, there appears to be no single black hole. For example, for five-digit numbers, there are three different "black loops". This raises some interesting questions for mathematical research. Third grade students can explore the three- and four-digit black holes while researchers can investigate this phenomenon for large numbers and for numbers in alternate bases.

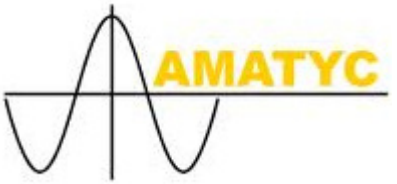
• April Strom, Scottsdale Community College
Let's AMP it up!: A discussion on PD with middle school mathematics teachers
Abstract: The AMP project is an NSF-funded professional development and research project focused on middle school mathematics teachers. However, we are also impacting pre-service teacher courses through enhancing the curriculum and infusing field experiences in the MAT 156/157 curriculum. The project also produces research about the characteristics and mechanisms of a sustainable professional development program, as well as contributes to the body of knowledge for understanding teachers' and students' mathematical thinking and beliefs. This presentation will focus on sharing an overview of the project and the findings from the first 2 years of implementation.

• Dolores Urbieta, South Mountain Community College
Cooperative Learning and Student Success
Abstract: This is a presentation of one instructor's experiences with Cooperative Learning (as developed by Johnson, Johnson and Holubec) in the fall semester of 2013. Strategies were implemented in two foundational mathematics courses with enough success to encourage further development.

Acknowledgements

Pearson Education for hosting the Friday breakfast

Cengage Learning for hosting the Friday lunch



Organizers: Stephen Nicoloff, Paradise Valley Community College; Anne Dudley, Glendale Community College; Scott Surgent, Arizona State University. Thanks also to David Graser, Yavapai College, for handling the Website. Brochure printed courtesy of the School of Mathematics and Statistical Sciences, ASU.