



ArizMATYC NEWS

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President's Message

The ArizMATYC fall conference was held on October 7 at Pima Community College in beautiful Tucson, Arizona. The conference was a huge success with presentations and innovative teaching techniques being shared amongst the many colleges represented at the conference. I would like to extend many thanks to Pima Community College West Campus for doing such a great job with the conference. The spring, 2006 ArizMATYC conference will be a joint conference with the Southwest Section of the MAA and will take place at the University of Arizona on April 7th and 8th. At the April conference, representatives from AMATYC will be presenting an informative session, as well as a workshop, on the AMATYC, NSF-funded, MAC³ (Math Across the Community College Curriculum) project. If you are interested in implementing this project at your college, please feel free to bring faculty members from other disciplines to the workshop.

From November 10th through the 12th, I had the opportunity to attend the AMATYC national conference in San Diego, CA. The conference was not only the largest ever (over 1400 attendees), but one that I found particularly enlightening. The keynote speakers were great (especially the mathematics of juggling), my sessions and workshops were very well done, and the sessions that I went to as affiliate president were very informative. I also had the opportunity to meet with the other affiliate presidents from the southwest region and dialogue about the upcoming Southwest Regional AMATYC conference in San Antonio in 2007.

The two workshops that I attended were excellent. One was on Mayan mathematics, which was particularly interesting to me since I am currently working on developing an Ethno-mathematics course which would concentrate on the mathematics of Central and South America. The other workshop showed how brain research can demonstrate the importance of how our students study mathematics as well as how we, as instructors, teach our classes. Functional MRI can now show how thoughts are formed in the brain and we can see what influences how these thoughts are either retained or forgotten. A good first-day lecture to encourage students to do their homework!

I look forward to seeing everyone at the University of Arizona in April. Hope you all enjoyed the Holidays! Take care!

Dan Russow

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2005–2006 AMATYC Student Math League
Round 1 Results

This fall, five Arizona teams reported scores for Round 1. These teams, listed by rank in the Southwest Region, are:

T2	Pima CC
8	Mesa CC
9	Paradise Valley CC
11	Phoenix College
15	South Mountain CC

No perfect scores on the Round 1 exam were reported nationally, but two students made scores of 37.5 (19 correct answers, 1 incorrect answer). The top Arizona students, listed by rank in the Southwest Region, are:

2	Joo Hee Song	Pima CC
T5	Kiet Hong Nguyen	Pima CC
T9	Dan Foley	Pima CC
T12	Paul Hale	Mesa CC
T16	Seth Gilchrist	Pima CC

There is still time to participate in Round 2; the window for that exam is February 17–March 11, 2006. For rules of the contest and more information, see the AMATYC website (www.amatyc.org) or contact the Student Math League national moderator, Chuck Wessell (WessellC@durhamtech.edu).

Congratulations to all of this fall's Student Math League participants!



We need your news for the newsletter! Mail articles to Sue Jensen at Pima Community College
8181 E. Irvington Rd.
Tucson, AZ 85709-4000

Or e-mail to
sjensen@pima.edu

MATHS² at Pima Community College

In January 2005, the Pima College East Campus Math Department began MATHS², or *Mathematics Assistance (or Assistants) To Help Students Succeed*. Its purpose is to provide students with timely feedback and individualized assistance, and its goals are to increase student retention, reduce math anxiety, and promote student success.

An instructor teaching five math classes of 35 students each often finds it difficult, if not impossible, to grade and return 175 homework papers every other day. It is apparent that students respond positively to consistent, considered, individual feedback on their submitted work, and studies have shown that retention rates improve when students receive such feedback on a timely basis. This is especially important for students who enroll in developmental math classes; these students are more at risk and have fewer skills than those who come to college better prepared for college-level work, and they require more time and attention from their instructors.

Instructors at the East Campus have struggled to find a balance between their workload and their students' need for immediate feedback. Some instructors assign homework and grade every problem, some grade two or three representative problems; others assign but do not collect homework, put written solutions on reserve in the library or post them online, or give "homework quizzes" to check understanding. MATHS² is an attempt to find an alternative to these practices that positively affects retention.

Faculty members found instructional aides for their classes by advertising in calculus courses and through faculty recommendations. Aides for Elementary and Intermediate Algebra courses were allotted 5 hours per week, and for College Algebra and above, 7 hours per week. About 1/3 of the hours were to be used to grade homework papers and 2/3 of the hours for tutoring. Aides kept regular tutoring hours in the Math Center where they were available to students from their respective instructor's classes; it was their responsibility to answer questions about the homework they had graded and to be available for other help. Some of the aides were experienced tutors, others were not. All were chosen for their proven ability to do mathematics, and for their apparent ability to verbalize and explain mathematics to others.

The aides were paid \$6.50 per hour. Since each instructor averaged about 18 hours of assistance per week during that semester, the projected cost for the spring was about \$13,000 (including fringe). However, the total cost for spring semester was considerably less than this amount, about \$8,000, as not everyone used all of their encumbered hours. Funding for MATHS² was obtained through a grant from the Provost's office.

At the end of the first semester of MATHS² experience, students were surveyed about how their homework was graded and also about their interactions with the instructional aide for their class. Aides were also surveyed about their impressions and any suggestions they had for improvement of the program. When data were analyzed in May, the presence and availability of an instructional aide has seemed to have made the most difference in retention in Elementary Algebra classes (students with low math ability and little self-confidence) and in Math for Business (a specialized course with a computerized textbook). Math for Business is a non-traditional two-semester course with a College Algebra prerequisite, and is required for admittance to the Eller College of Business at the University of Arizona.

The MATHS² program continued in Fall 2005 and now begins its third semester, but at a lower level of funding than previously. Our hope is that in the future we can report improved grades as well as improved retention.

A longer paper about the details of this program, including retention statistics, is available from Sue Jensen (sjensen@pima.edu).

ArizMATYC Business Meeting
Pima Community College, West Campus
October 7, 2005

Meeting convened at 3:10 pm

Corrections and Approval of Minutes from last meeting: Date of 10/7/05 meeting had changed; motion to approve, 2nd, unanimous approval.

Reports

1. **Treasurer:** In last 6 months made \$100, \$190 in memberships for spring meeting. Need to send \$110.10 to hospitality room for San Diego meeting; Wrote check for \$61 to Anne Dudley for jump drives. Fall checks: \$500 to winners for Math League contest, \$1260 to delegates, \$112 for website. Need to keep \$3000 in account to avoid a \$16 fee. Could we move the account? There are problems with this. We are spending more than we're earning – Maybe the \$5 membership fee needs to be raised. Someone will look at banks for not-for-profit business accounts with no fee.
2. **Newsletter:** Need for newsletter articles. Anyone who has something interesting and informative to say about mathematics and teaching is welcome to send an article for the newsletter. Delegates need to write articles.
3. **Webmaster:** Post job openings on the ArizMATYC and AMATYC websites. Can only post on the AMATYC website if an institutional member. Need to tell new people to get on the list-serve. Isn't Anne supposed to let Shay know if there are new members? Possibly. Some people don't want to be on the list-serve. Need to become ArizMATYC members to be on the list-serve. Warn those who will be taken off the list-serve because they are not members. Send a blanket message about this to everyone. Need more streamlined version of managing members—have everyone on one database. This is an item for Kate, Shay, and Anne to talk about. When do members have to renew? This could be incorporated into the database.

New Business

1. **Discussion of Southwest Regional AMATYC Conference:** Will take place on June 16 & 17, 2007 in San Antonio, TX. Proposal submitted to AMATYC before the deadline. ArizMATYC is in charge of Exhibitors and Sponsorship. Talk to AMATYC exhibitor chair. Get a committee together starting spring. Exhibitors don't have to be just books—things like Native American jewelry, etc. Those who are going to the San Diego conference talk to exhibitors there to make contacts. Look at NCTM exhibitors—Fall, 2006 here. Conference theme: “Remember Pi Alamo-ed” Jenni saw Pi-Alamode t-shirts in catalog—will find the catalog. Maybe tweak theme a bit. We will be sharing profits from the SW Regional conference.
2. **Delegates:** Have changed a bit from last meeting—Quincy is gone. Dan Russow (affiliate president), Shay Cardell (affiliate president-elect), Howard Speier (delegate), and Carol Edwards (delegate). If a delegate's college will pay your registration, then ArizMATYC doesn't pay.
3. **Approval of reimbursement of AMATYC registration fees from ArizMATYC funds for above delegates:** Motion to approve funding for delegates, 2nd, Approval. Anne will write reimbursement checks at delegate assembly in San Diego.

continued

4. **AMATYC Initiative:** Permission for AMATYC to add ArizMATYC website and contact information for new AMATYC members from Arizona. Do we want to do this? People directed to web page.
5. **Top Finishers in Student Math League Competition:** Winners listed in newsletter. We will send a form letter and check. We want to keep doing this.
6. **Campus Representatives:** Do we have them for all campuses? Not yet. Kate will send out an email to try to get more. Campus reps on new database.
7. **Future Meeting Schedule:** University of Arizona, April 7 & 8, 2006. Get contact for rooms, schedule, etc. Business meeting on Friday. Kate will contact John Hagood. Central Arizona College: October 6, 2006
8. **Campus support for hosting ArizMATYC conference:** It would be a good idea to have conference planning information prepared for planners. What to have on registration forms. Honorariums for keynote speaker. Put together an outline for planning. This has already been drafted, needs to be found and refined. Kate will look for it. Ideas for keynotes—speakers bureau—backups, No keynote is o.k., if it doesn't work. Just put the information together and organize it later. Maybe have a conference committee. AMATYC website has “planning a great conference” link. Have this for us on ArizMATYC website.
9. **Directory:** Didn't get response to emails, going to get a contact person to get these updated.
10. **Historian:** Mary Sibayan can do it next year. Ray Battee has a lot of past history compiled. David Dudley will email Ray to get the past stuff; David Dudley is the current historian

Good of the Order: Many thanks to Mary Sibayan for organizing a great conference!

Meeting adjourned at 3:55pm.

Jenni Jameson, Secretary



REPORT ON THE 2005 AMATYC ANNUAL CONFERENCE

by

Carol A. Edwards, Arizona Delegate
Chandler-Gilbert Community College

More than 1400 (a record number) mathematics educators attended the 31st AMATYC Annual Conference in San Diego, California, November 10-13, 2005, at the Town and Country Resort and Convention Center. The setting was beautiful, and the quality of the program excellent. The sprawling grounds gave all attendees many opportunities to exercise as we went from session to session and to and from our rooms and the convention center. (And some also walked across the bridge to the Fashion Center, one of San Diego's finest shopping centers.) The conference also provided opportunities for networking with colleagues from other institutions as well as our own campuses. Attendees could relax and enjoy refreshments in the hospitality room and check e-mail messages in the computer lounge.

Featured Speakers

The four featured speakers made fascinating presentations.

- Ronald Graham entertained us with "The Mathematics of Juggling," discussing juggling patterns and then demonstrating many of them.
- Millie Johnson's talk, "Using Mathematics to Understand What Bees Are Buzzing About," described how bees are aiding in homeland security by detecting explosives.
- Keith Devlin examined some of the innate mathematical abilities found in the animal kingdom in his presentation, "Calculating Animals."

John Martin examined the cycloid's beautiful properties and their roles in many historic quarrels between eminent mathematicians in "The Cycloid: Helen of Geometry."

Sessions

There were many choices of regular sessions and workshops addressing assessment, connections, developmental mathematics, mathematics for general education, history of mathematics, instructional strategies, mathematics at the pre-calculus level and beyond, research-based, student support, statistics, teacher preparation and teaching with technology.

There were a number of themed sessions (each a group of short presentations focused on a common theme) addressing a diverse range of topics, such as, issues for department chairs, strategies to help at-risk students, mathematics on the Web, statistics, support for new faculty, teacher preparation, mathematics placement and assessment. There were also a number of commercial sessions.

Teaching Excellence Award

Alan Jacobs of Scottsdale Community College received one of the prestigious Teaching Excellence awards. These awards are given in odd-numbered years to only a handful of community college mathematics educators.

Beyond Crossroads

Forums and a number of sessions were focused on *Beyond Crossroads*, which outlines the implementation of *Crossroads*, the AMATYC standards document. A number of Arizona educators served in various capacities in the production of *Beyond Crossroads*. Digital products to accompany this document are being developed. David Graser of Yavapai College is one of the leaders of the digital products group.

Southwest Region Meeting

The Southwest Regional Conference will be held in San Antonio, Texas, June 16-17, 2007.

Delegate Assembly

Strategic Planning:

All members are encouraged to participate in strategic planning by offering input on strategies that could further AMATYC's mission and help achieve AMATYC's Strategic Priorities. Suggestions may be made to any Board member or through www.sp.matyc.org (matyc is not a misspelling).

Motions:

- The Delegate Assembly endorsed the philosophy and spirit of the document *Beyond Crossroads*. The document is in final editing stages and will be launched at the 2006 AMATYC Annual Conference in Cincinnati.
- The Delegate Assembly passed a resolution to adopt the draft position statement, Guidelines for Dual Enrollment in Mathematics.

The Delegate Assembly passed a resolution that annual regular AMATYC membership dues be set every two years by applying the Consumer Price Index—Urban Consumers (CPI-U) for the last two years to the current dues and rounding up to the nearest whole dollar. This adjusted rate is set at the Fall Board Meeting in odd-numbered years with the increase taking place on July 1 of the following even-numbered year. In the event that there is a need for an increase other than the calculated rate, the new rate must be brought to the Delegate Assembly for approval. (Presented for action by Tom Adamson of Phoenix, AMATYC treasurer.)

2012 Conference Site:

The Board is considering cities in the Atlantic region, possibly Atlanta, District of Columbia or Orlando. The U.S. is divided into three regions for conference purposes.

Mathematics Across the Community College Curriculum:

The MAC³ project has been funded by NSF for four years. This national dissemination project encourages faculty of all disciplines to integrate mathematics and quantitative reasoning into their courses. Major components include summer and winter institutes. More information may be found at www.mac3.amatyc.org or from the project directors at mac3@amatyc.org.

Exhibits

Up-to-date publications and other educational wares were exhibited by companies. A number of the companies were major sponsors of the conference.

Personal Notes

There is increasing interest in mathematics for the biological sciences, including biotechnology. Mike Martin of Johnson County Community College in Kansas presented an excellent session, "Biomathematics at the Two-Year College: Range, Depth, and Direction."

Kelly Jackson and Erin Wingeroth of Camden County College presented an informative workshop on Mathematics in Sign Language.

Polling students using clicker technology is a new trend to obtain instant feedback on class comprehension and active learning.

REPORT ON THE 2005 AMATYC ANNUAL CONFERENCE

by

Howard Speier, Arizona Delegate
Chandler-Gilbert Community College

Hi all,

AMATYC 2005 was definitely 'Catching the Wave' in San Diego. The opening keynote address by Dr. Ronald Graham epitomized the excellence of mathematics through his juggling act, which kept us on our toes. During this time our own Alan Jacobs from Scottsdale CC received the Teaching Excellence Award. This award is only presented every other year to five or six teachers in the nation.

The Saturday morning speaker was Dr. Millie Johnson. Her buzzing talk was on the Defense Department's use of honeybees in detecting land mines (no joke). Designing this fascinating approach of placing unique antennas on the bellies of the bees was extremely brilliant. Her dynamic talk had us exploding, since the bees detected landmines without detonating them.

Beyond Crosswords Standards (draft) were approved by all. If you do not have your own copy, go to the amatyc.org website and download it. The document is extremely fulfilling and dynamic. Also, a position paper on dual enrollment was approved after much discussion and many rewrites (through forums).

I found the sum of the parts to be so much greater than the whole (conference). The networking, sessions, workshops, feature speakers, socialization, magic, experience, growth, and forums represented the excellence of the teaching and learning of mathematics. Fantastic discussions on technology, delivery systems, pedagogical approaches, mentoring, and curriculum, show that we are on the right track in mathematics education. The future is bright because of our dynamic and changing organization. See you in Cincinnati, November 2-5, 2006.



YOU Can Help to Strengthen ArizMATYC

Are all of your colleagues ArizMATYC members? If not, encourage them to join now. Ask them to send their name, college, contact information and \$5 to

Anne Dudley, ArizMATYC Treasurer
Glendale Community College
6000 West Olive Avenue
Glendale, AZ 85302

Questions about ArizMATYC? Call Anne at 623-845-3389

ArizMATYC Meeting at Pima Community College on 10/7/05

Campus Reports

Arizona Western: Personnel changes: two people left; Interdisciplinary courses with biology and math; trip to Grand Teton National Park with students.

Central Arizona: New division chair, Jeff Thies; three new faculty; didn't get bond they were going for; hybrid classes/online classes/late start classes.

Chandler-Gilbert: two new faculty; growing tremendously; requiring students to get 60% on final to pass; partners with ASU East.

Cochise: New department chair, one new faculty; next fall will hire one new full time person on Douglas campus; Calculus I online and hybrid classes; looking at Hawkes Learning System; pilots for pre-algebra and intermediate algebra, five hours per week with math, learning styles, brainwaves, positive feedback; summer math academy for 9th graders—great success—had 50 kids last summer—they also did ceramics, CIS, PE.

Coconino: New faculty in Page; offering Differential Equations for the first time in 10 years; accepted a telescope from Lowell Observatory; record enrollment; hope to hire new faculty next year; expanded 4th St. campus—66 seat classroom—dance studio—kitchen for culinary classes.

Diné: Experimented with arithmetic and beginning algebra combined into one class with 6 hours every week—two courses in one semester; hired new faculty; given up on arithmetic textbook; feel that students have problems with reading that is effecting math

Eastern Arizona: Teaching position unfilled—still looking for spring; engineering and math working together—going out to the high schools and ask them to keep more students in math classes; working with Phelps Dodge; engineering fair every semester; feel need to recruit math students in junior high or sooner; classes all full; didn't think software was helpful; good tutoring program

Estrella Mountain: One new faculty; growing a lot; new nursing director.

Gateway: Had a faculty member leave; hired two new faculty; focusing on assessment; growing a lot; tutoring center open until 9 pm and on Saturday.

Glendale: Two new faculty, lost one faculty; 3rd try at finding a president; hemmed in by size of campus; scheduling is difficult due to the number of rooms; special course for the nursing department for the NET test; assessment in full gear

Mesa: Main campus—status quo; growth at Red Mountain campus—new bond passed; 40 full-time faculty; preparing for new Business Math II class.

NAU: Roy St. Laurent in last year as department chair; China program brought 16 faculty from China—they are learning to teach in English so they can go back to China and teach in English; 15th year NSF research experiment undergraduate program; AMUC undergraduate conference—October 28-30—on web page—undergraduates talk about their research.

Northland Pioneer: Looking at academic schedule—went to 16 week term; have two summer sessions, or have 6 or 8 week sessions? Changing Intermediate Algebra to Algebra I and Algebra II; Intermediate Algebra tailored for summer as one course; changed placement scores—made more strict; multi-course labs—calculus/statistics/etc.—students can take tests on computers—more time with students; big enrollment with high school program; tried internet based course—didn't like it; expanded video 2 system; president fired by board-faculty association had problems with him—old president coming back for interim.

continued

- Phoenix:** One new faculty, need two new faculty for spring; new technology in classrooms; technical writing/learning communities class in spring; math and science center—tutoring/panels/presentations/clubs; largest FTSE for math.
- Pima:** West Campus switched computer systems—now using MyMathLab; new openings; West Campus experiencing retirements without replacement; two new faculty at NW campus with one more next year; stopped using Academic Systems.
- Rio Salado:** Using MyMathLab for all courses.
- Scottsdale:** Developmental program being revamped; adjunct meeting every two weeks; three new faculty; 10th anniversary of high school math day/competitions; one new faculty next fall.
- South Mountain:** Whole new faculty in math—three sabbaticals; three-week math camp in summer for review before placement test—Math 298; VPAA retired; VPBA had stroke; summer program with Roosevelt School District with middle school teachers.
- UA:** Richard Thompson retired; provost appointed a committee to look into the mission of math at university; increase the awareness of the university to math issues.
- Yavapai:** Fired president after the VPs resigned; have new president; changed Beginning/Intermediate/College Algebra books; paid high school teachers and adjuncts to learn where the college is going; feel that the adjuncts are ignoring word problems in Beginning and Intermediate Algebra; using software: WinStats and WinPlot is free; students using MathType to support projects; creating a teaching excellence center.

No campus reports received from ASU, Embry-Riddle, Grand Canyon, Mohave, Paradise Valley, Tohono O’odham

