TexMATYC News

Texas Mathematical Association of Two -Year Colleges
Affiliate to the American Mathematical Association of Two-Year Colleges

Late Spring 2005 www.texmatyc.org

Inside this issue:

Innovative Teaching Ideas

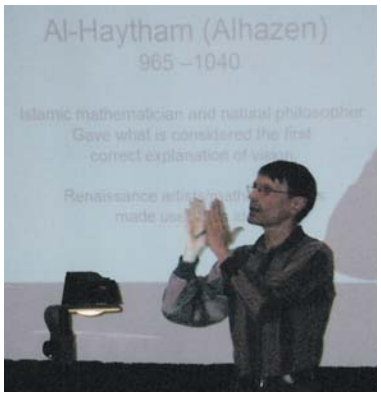
See pages 5 and 6 for tips from Sally Haas, Irie Glajar, and Bill Pletsch

TCCTA/TexMATYC Conference—a Success!

This year's TexMATYC conference, held in conjunction with the TCCTA convention in Austin on Feb. 18 and 19, was one of the best ever. The variety and quality of the presentations resulted in well-attended sessions and good reviews of the presenters. Handouts for many of the presentations are available at the TexMATYC website, http://www.texmatyc.org, courtesy of the presenters.

Molly O'Neill, Daytona Beach CC, started off by showing us her group activities for Calculus students that offer a choice of solution methods. Susan Hull, University of Texas at Austin, discussed issues related to high school, community college, and university mathematics courses. Susan is the Mathematics Director at the Dana Center, and described the resources and network opportunities that can be helpful to faculty in transitional courses such as college algebra, high school algebra II, precalculus, calculus, and statistics.

The Friday afternoon breakout sessions were filled with sessions from beginning algebra, art history, statistics, calculus, and more. Chip Galloway (right), Collin County CC, examined how mathematics has had an enormous impact on art history, especially during the Renaissance. Chip was the recipient of the first TexMATYC Teaching Excellence Award back in 2002, and his enthusiasm for teaching was clearly demonstrated during his presentation.



Ron Larson, Penn State U at Erie, confirmed our suspicions that graphing calculators don't always tell the truth in his engaging talk on "Lies My Graphing Calculator Told Me". Ron uses these examples to stress the importance of mathematical reasoning when analyzing graphs.

Steve Krevisky (left), Middlesex CC, continued his tradition of regaling the audience with some sports history and statistics. This year, he chose to expound on the trails and tribulations of the University of Texas Longhorn football team. Steve is a walking sports encyclopedia, and uses sports statistics data to engage his students in mathematics. Irie Glajar, Austin CC, captivated the audience with unorthodox alternatives on teaching mathematics. See page 5 for more on his presentation.

Angela Lawrenz, Blinn College, explained how she uses clickers in her Beginning Algebra class. Clickers are "classroom response systems" that allow students to use a cell-phone-sized transmitter to enter answers to questions you pose during class. A classroom receiver connected to your computer tabulates all answers and displays them graphically in class.

(Continued on page 3)

President's Message Linda Zientek, Blinn College

The TexMATYC Board would like to welcome everyone. We are very pleased the membership continues to grow. While we continue to investigate ways to serve our members, we continue to welcome and encourage ideas to help TexMATYC fulfill the goal of improving mathematics and mathematics education.

The 2005 TCCTA/TexMATYC conference was a success. In addition to the regular sessions, the pre-conference workshop on Geometry was well received. The board hopes to continue pre-conference workshops in the future. The first online professional development workshop will be offered this spring. ***Don Allen***, mathematics professor at Texas A&M University is providing this service for us. The board is investigating grant opportunities to continue this in the future. The hope is to offer an online topic each fall and spring semester. Once again, we would like to thank Don for assisting us in this endeavor.

Shirley Thompson of North Lake College was the recipient of the TexMATYC Teaching Excellence Award. Shirley has led faculty development workshops on motivating students and helping teachers feel comfortable using group techniques with their students. Her colleagues describe her interaction with students as one of respect and one in which the students know Shirley cares about them. Congratulations to Shirley for receiving the Teaching Excellence Award.

Linda

Shirley Thompson (right), North Lake College, receiving the TexMATYC Teaching Excellence Award from Linda Zientek, TexMATYC President.

Past-President Natile Woodrow was awarded a plaque in recognition of her contributions to TexMATYC.

From the Desk of Mary Robinson
AMATYC Southwest Regional Vice-President

Hello to all TexMATYC members! It was good to meet and visit with many of you at the TCCTA/TexMATYC conference in Austin this past February. Austin is a beautiful city, and I thoroughly enjoyed my visit there. The conference sessions were excellent including a wide variety of topics presented by top notch presenters. Congratulations to Shirley Thompson for receiving the TexMATYC Teaching Excellence Award for 2005. It is always exciting to see our best teachers acknowledged for their hard work and dedication to students.

It is also exciting to watch TexMATYC growing into a strong AMATYC affiliate. Nearly doubling its membership over the past year is no small accomplishment. But the reason for that growth is even more exciting than the membership increase itself. TexMATYC's executive board has a vision for the organization which includes increasing the benefits and services to its members. Part of this is being done by increasing involvement of TexMATYC members in the organization. An example of this is the establishment of the committee of campus representatives, which currently includes most of the two-year colleges in Texas and will soon have all of them in the group. What a great service to the organization this is, keeping everyone informed of what is going on in TexMATYC and AMATYC and representing TexMATYC across the state on a regular basis. Another example of new services provided by TexMATYC is the series of Online Professional Development Workshops conducted by Don Allen. Your Executive Board has worked very hard to make these workshops available to TexMATYC members, and they have been very well received with the membership taking full advantage of the opportunity. It is exciting to watch TexMATYC grow and actively pursue the charge of providing Texas two-year college mathematics teachers with tools they need to help them in their jobs.

I want to thank all of you for the support you have shown me in my work for AMATYC with your organization, and I look forward to seeing you all next year in Houston at the 2006 TCCTA/TexMATYC conference.

TCCTA/TexMATYC Conference (Continued from page 1)

Results can be recorded for grading, attendance, or simply used as a discussion point. Returning from last year, John Edgell, Texas State University, discussed the role of edges in determining fundamental geometrical attributes. His use of geometric models helped participants discover fundamental properties determined by edges.

Rounding off Friday's series were Bill Pletsch, Albuquerque Technical Vocational Institute, speaking on the New Mexico Math Reform Project, and Ben Brink, Wharton County JC, who hosted a panel of calculus instructors who highlighted common features and differences in calculus instruction in Texas.

On Saturday, 2003 TexMATYC Teaching Excellence Award winner, Paula Wilhite of Northeast Texas CC, demonstrated the use of Maple to capture and motivate students' interest in mathematics. Her topic "Math in Color!" is based on a fascinating fact that some people see numbers in color! For those of us living in a "dull" black-and-white numerical world, this was quite an eye-opener. The final talk for the conference was from Bruce Lowe, Texas A&M – College Station, who showed use a mathematical model that prices call options. (A call option is a security that gives the holder the right to purchase a fixed number of shares of a stock at a fixed price for a given period of time.) Who knows, perhaps we will all follow Bruce's model and have successful second careers in the stock market!

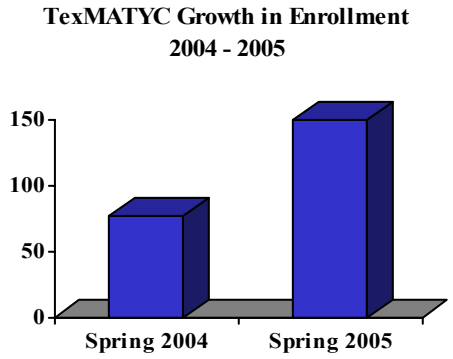
Join us at next year's TCCTA/ TexMATYC conference
Westin Galleria Houston
February 24-25, 2006

Deadline for proposals is October 1, 2005
(visit the TexMATYC website to submit a proposal)

Membership *Doubles* this Year!

Paula Wilhite, Vice President

TexMATYC continues to grow dramatically! TexMAYTC treasurer, Habib Far, from Montgomery College, reports that our membership has *doubled* since April of 2004. The 153 members represent 55 different colleges and institutions. Collin County Community College leads enrollment with 12 members, followed closely by 10 members from Northeast Texas Community College.



This increase in enrollment is a result of the collaborative efforts of the 34 campus representatives to distribute information on their local campus. They assist in implementing new initiatives such as the conference workshop and online professional development by facilitating communication with individual members.

We applaud you for your success! And, we thank all of you for your support and commitment to math education.

In the next year, TexMATYC plans to further expand membership by offering additional professional development for math educators, both full-time and part-time, across the state. If you are interested in becoming a campus representative, please contact Paula Wilhite at pwilhite@ntcc.edu.

To see a current listing of members and campus representatives, go to the TexMATYC website. Applications to join or renew memberships are available at http://www.texmatyc.org/memform.pdf.

Campus News

Blinn College

Sadly for us, but good for her, our division chair **Mary Ellen Davenport** is retiring this year. We will all miss her. Our new division chair will be **Ron Hammond**.

Northeast Texas Community College

Northeast Texas Community College welcomes **Dr. Herbert Riedel** as Vice President of Instruction and Student Development. Dr. Riedel has previously served as the Arts and Sciences Division Chair at Tri-County Technical College in Pendleton, South Carolina. More recently, he has been the Deputy Director of the Nanocience and Technology Center at the University of Central Florida. He earned a Ph.D. in pure mathematics from University of Waterloo in Ontario, Canada. Dr. Riedel is a member of AMATYC and a new member of TexMATYC.

Laredo Community College

The Mathematics Department at Laredo Community College is gearing up for its Mathematics Awareness Month activities. **Mr. Antonio Carranza** and **Mr. Christy Babu** chair the committee. Area high schools and colleges have been invited to participate in a Math Bowl offering contests in two categories, college algebra and calculus. Area middle school students are invited to participate in a poster contest focusing on the national MAA theme, Mathematics and the Cosmos. The mathematics competition will be held on Monday, April 25, at 4:30 p.m. in De La Garza Building, Room 101, on the LCC main campus. Posters are due in the Mathematics Department Office by noon on Friday, April 22.

An awards ceremony and party will be hosted at the same location on Tuesday, April 26, at 5 p.m. **Dr. John J. Winfrey**, Professor of Astronomy at the Texas A & M International University, will be the featured speaker and **Mayor Betty Flores** will be on hand to present a proclamation from the City of Laredo. The event is open to the public.

Send campus news to the Newsletter Editor for inclusion in the Fall newsletter.

Calculator Chaos in the Classroom

Sally Haas, Angelina College
shaas@angelina.edu

Our College Algebra course requires graphing calculators in addition to the textbook. The syllabus states that the TI-83/84 models of the graphing calculator will be demonstrated in the classroom and encourages each student to secure one of these models for their personal use in and out of the classroom. By the end of the first week of the course, nearly every student has a graphing calculator.

This is great, however, some of my students can only get their hands on an earlier model of the TI graphing calculator (TI-82, TI-85, or TI-86). Still others will bring a different brand of calculator to the classroom. This can cause a lot of chaos in the classroom during lectures or discussions utilizing the graphing calculator.

In order to limit the chaos, I have students form groups in each class by the type of graphing calculator that they are using. This way if a keystroke on the TI-83/84 is different, each group can be directed in the appropriate keystroke for their model of calculator. If a student is having difficulty finding the keys to be used, then a member of his/her group can help out quickly. Students that have no group usually sit near the front of the classroom so I can reach them quickly.

I have found that this "arrangement" of my students allows for a less chaotic classroom. As the semester progresses, students within a group become more efficient with their graphing calculators and less dependent on each other.

The Half Quadratic Formula

courtesy of Irie Glajar, irieg@austincc.edu
Austin Community College

We all know about the quadratic formula, but have you heard of the "half quadratic formula"? Huh? Do you mean we only use half of the formula? These were my thoughts when I first heard Irie Glajar, Austin Community College, speak at the TCCTA/TexMATYC conference in February. His presentation on "Unorthodox Alternatives on Teaching Mathematics" offered alternatives to the teaching of topics such as operations with signed numbers, quadratic formula, inequalities, word problems, radicals, exponents, and derivatives. Fascinated by the abstract, I attended Irie's talk and came away with several teaching tips that I intend to incorporate into my classes.

Let's return to the half quadratic formula (HQF). When the coefficients of middle term of quadratic equation are even, the HQF gives us a short-cut to the solution without having to remove a common factor from the fractional answer at the end. For example, if the equation is $3x^2 + 6x - 5 = 0$, instead of using the quadratic formula with a = 3, b = 6, and c = –5, first define d as half the coefficient of the middle term. In this case, d = 3. Then, use the HQF, which is

$$\frac{-d \pm \sqrt{d^2 - ac}}{a}$$

Go through the calculations the usual way with the quadratic formula, and then solve the equation using the half quadratic formula. I think you will agree that the HQF is quicker and students are less prone to make errors in the simplification of the solution.

A Counting Problem using some Math Reform Techniques

Bill Pletsch, bpletsch@tvi.edu
Albuquerque Technical Vocational Institute

The purpose of this article is to show that what we teach and tell our students is not just a bunch of hooey.

I have enjoyed puttering with a counting problem for some time. It has many different formulations, each with its advantages and disadvantages. This problem, equivalently, counts double cosets, or it counts reaction mechanisms, or it counts contingency tables. The quickest way to get a reader to the problem is the colored balls into distinct buckets formulation.

The simplest statement of the problem and simplest case is the following. We have three types of marbles: n blue marbles, n green marbles and n red marbles and we have three distinct buckets. How many ways are there to put n marbles in each bucket?

Example: Suppose n = 2. We can pose the problem as a 3-tuple, where order is not important within a 'tuple'. Thus (bb, gr, gr) is the same as (bb, gr, rg): both say that there are two blue marbles in the first bucket, and a green and a red marble in the second and third buckets. Using 1 for blue, 2 for green, and 3 for red, here are all the possibilities:

11,22,33	11,23,23	11,33,22	12,12,33	12,13,23	12,23,13	12,33,12
13,12,23	13,13,22	13,22,13	13,23,12	22,11,33	22,13,13	22,33,11
23,11,23	23,12,13	23,13,12	23,23,11	33,11,22	33,12,11	33,22,11

The numeric representation is easier to keep track of because, now, an order has been imposed. The smallest six-digit number is upper most left and the biggest is lower right. After a fair amount of pain and anguish (both for me and the software), the computer algebra system MACSYMA was induced to spit out this data:

n	1	2	3	4	5	6	7
# of Possibilities	6	21	55	120	231	406	666

Huh? What can we make of that? In one of those rare moments of epiphany, I thought, "I shall practice what I preach. I will try what I tell my students to do, successive subtractions."

n	1	2	3	4	5	6	7
#	6	21	55	120	231	406	666
First	21-6 = 15	34	65	111	175	260	
Second	19	31	46	64	85		
Third	12	15	18	21			
Fourth	3	3	3				

Aha! It's a fourth degree polynomial, easy to find with a little matrix theory. The polynomial is $p(x) = 1/8\ x^4 + 3/4\ x^3 + 15/8\ x^2 + 9/4\ x + 1$. $p(30) = 123{,}256$. Of course, this is not a proof, although I do have one.

Professional Development Short Courses

"Using the Web in Mathematics"

- **May 23 - 26, 2005 * San Jacinto College Central Campus * Pasadena, Texas**
- **August 1 – 4, 2005 * Salt Lake Community College * Salt Lake City, Utah**

Take Time to Technogize the Course of your Choice!

Technogize is ICTCM's term for using technology to energize, emphasize or even dramatize your teaching. Join us for the 2005 ICTCM short course series where you can work on improving the course of your choice. Each of the courses in the ICTCM series will provide information, hands-on experience with tools, expertise and most important TIME to help you integrate technology into your teaching whether it is face-to-face or online. Bring course information – text, handouts, exercise sets, tests, etc - from whatever course you want to technogize. Let ICTCM help you get ready for the fall semester.

- **Registration deadline for the Texas course is May 9, 2005**
- **Registration deadline for the RI course is July 25, 2005**
- **Course registration fee $375**
- **3 semester-hours of Mathematics Graduate Credit is available for an additional charge**
- **For more information, contact Joanne Foster, 207-676-8688, joanne.foster@pearsoned.com**

COURSE DESCRIPTIONS

COURSE 1: Teaching with Technology Part I – Getting Started – (Offered in Texas Only)

The emphasis for this course is learning to use inexpensive, readily available technology to enhance your teaching. Do you want to learn how to create interactive worksheets in Excel? Have you been looking for the opportunity to put your lectures on PowerPoint but want sound and animation to go with it? Are you looking for an easy way to create hand-outs and tests with great looking graphs and problems? Would you like to explore the new possibilities available with the TI 84+ calculator? This is the course for you! Bring your textbook, hand-outs, or whatever course documents you have and let this course help prepare you for the coming school year.

COURSE 2: Teaching with Technology Part II – Create more than just handouts and tests – (Offered in Texas and Utah)

This course takes technology to the next level whether it is for teaching in the traditional class or online. Are you interested in learning how to create electronic videos to use in your class or to capture your own lectures? Would you like to add animation to your presentations to emphasize concepts? Is it possible to use digital cameras to enhance student understanding? Have you wanted a video of how to use the TI calculator that can be put on your web site? This course can help you do it! Bring any existing documentation for a course you want to 'technogize' and get ready for a time of creation!

COURSE 3: Teaching with Technology Part III – How does the teaching change? – (Offered in Utah Only)

Now that I know the technology how do I really teach with it? Examine the "why", "when", "what" and "how" to incorporate new technologies into the classroom. Consider which technologies are for student use, which are for teacher presentations, which – when –how technologies are for both students and faculty. Discover how such things as clicker questions, electronic videos, CAS, TI Navigator, interactive Excel, or talking PowerPoint can impact teaching. Presentations on pedagogy, teaching/learning styles, and alternative assessments are included. Whether you are taking technology into the traditional classroom or teaching online courses, this course is for you!

COURSE 4: Teaching Teachers - It is Not Elementary! – (Offered in Texas Only)

If you are you teaching the preservice teachers' course and are interested in new ideas for helping your students understand the mathematical concepts this is the workshop for you. This course will provide interactive discussions and presentations on activities, assessments and teaching methods that encourage student participation and learning. You will experience first hand how technology can be used to enhance your course - and given time to create your own course materials. Join this community of learners to expand and enhance your teaching.

COURSE 5: All Things Beautiful - Music, Art & Math - (Offered in Utah Only)

This course looks at the mathematics involved with art, music and poetry. Are you the person teaching the math for liberal arts course or are you just interested in looking at the beauty of mathematics? Here is your chance to explore the world of tessellations, golden ratios, fractals, frequencies, waves, Fibonacci, perspective, etc. Discover the connections between mathematics and music, poetry and art.

** International Conference on Technology in Collegiate Mathematics**

Mark your Calendar

March 16 - 19, 2006 * Orlando, Florida

WWW.ICTCM.ORG * WWW.ICTCM.ORG * WWW.ICTCM.ORG

TexMATYC Executive Board

Check us out at www.texmatyc.org

The 10th International Congress on Mathematical Education (ICME)

Steve Krevisky, Middlesex Community College, SKrevisky@mxcc.commnet.edu

ICME-10 took place in Copenhagen, Denmark in July 2004. Math educators from all over the world gathered in discussion and topic groups to share ideas, network and find out the latest in math education. Several of us were fortunate to get full or partial travel grants from NCTM, in order to attend.

I was part of the discussion group on two year colleges, and several people from the ICME in Japan in 2000 were back to contribute their ideas. The newcomers filled in nicely as well. We realize that we have a lot in common, and hope to keep the dialogue going. The transition of students from high school to college was a major topic of discussion.

The topic group on modeling saw many papers presented on a variety of topics. One central theme was how modeling should be based upon real data, and get students active on social issues.

I was fortunate to contribute papers to both groups on my favorite subject of math and sports! It was great to meet people from all over the world, get to tour Scandinavia, and be part of this conference for the 4th time. In 4 years, it will be in Monterey, Mexico, and I hope that many of us will attend – its a great experience!

For more information, visit http://www.icme-10.dk/

Dates to Remember!

CAMT Conference
July 11-13, 2005
Dallas, TX

TCCTA/TexMATYC Conference
February 24-25, 2006
Houston, TX

AMATYC Annual Conference
November 10-13, 2006
San Diego, CA

Note from the Editor

This issue is packed with innovative teaching ideas from three of your colleagues. If you have a teaching tip you would like to share, please send it in.

You will also see the inaugural column on Campus News, contributed by campus representatives. Read about happenings at colleges around the state. Thanks are due to Paula Wilhite for her hard work in putting together the campus representative network, and helping to spread the word about TexMATYC around the state.

Happy reading!

OOPS!

We goofed in the last issue and forgot to include the author of the article on Mayan and Egyptian Pyramids. Credit is due to John Edgell of Texas State University. Dr. Edgell can be reached at je02@txstate.edu

TEXAS MATHEMATICAL ASSOCIATION OF TWO-YEAR COLLEGES

MEMBERSHIP and INFORMATION SHEET

Today's Date_____

NOTE: If you are a renewing member, just fill out your name and the membership box below.

TITLE (circle one) Dr. Mr. Ms.

NAME_____ AMATYC MEMBER?_____

COLLEGE_____

COLLEGE ADDRESS_____ PHONE ( )_____

CITY_____ STATE _____ ZIP_____

HOME ADDRESS_____ PHONE ( )_____

CITY_____ STATE _____ ZIP_____

EMAIL ADDRESS_____

WHICH ADDRESS SHOULD TexMATYC MAIL GO TO? _____ COLLEGE _____ HOME

MEMBERSHIP: New_____ Renewing_____

Dues: $5.00 per year x _____ years = $_____

Paid by: _____ check (# _____) _____ cash

Please return this form to:

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Montgomery College
3200 College Park Dr.
Conroe, TX, 77384
(936) 273-7093
Habib.Y.Far@nhmccd.edu

Please keep this receipt for your records.

Date: _____ Check number _____

Total dues paid _____ For how many years? _____