

Fall 2012 -- Issue 1

The Department of Mathematics Newsletter



## In this issue:

- Wayment Steps Down as Chair, Retires
- Nathaniel Dean Brings Experience and Leadership to Math Department as Chair
- Sorto Receives Large Grant to Study English Language Learners
- Summer Honors Math Camp Inspires Junior High and High Schoolers
- Undergraduate and Graduate Awards Showcase Accomplishments

## Connect

*The Official Newsletter of the  
Department of Mathematics  
Texas State University - San Marcos*

**Nathaniel Dean**, Chair

**Susan Morey**, Assistant Chair  
**Douglas Ray**, Editor in Chief

### Contributors:

Andrew Hsiao  
M. Alejandra Sorto

### Cover:

Drs. Alexander White and Zhonghong Jiang with doctoral students at Spring 2012 awards ceremony.



*The rising STAR of Texas*

A member of The Texas State University System



# Meet the New Chair!

## Nathaniel Dean

- Ph.D. from Vanderbilt University (1987)
- Prior experience at Texas Southern University, Rice University, and Bell Labs
- Research expertise: Graph Theory
- President of National Association of Mathematicians



Connect with the Math Department!

Find us on Facebook

## Where are they now? Jill Cochran, Texas State Math Ph.D. graduate

Jill Cochran is an assistant professor now at Berry College in Rome, GA. She teaches various math courses for elementary, middle school and high school pre-service teachers as well as some courses in geometry and graph theory for math majors. In addition to her teaching responsibilities, Jill has worked on a grant for in-service teachers for the past two summers helping them prepare through content workshops for the change to the Common Core State Standards. Additionally, Jill has been kept busy with her own and undergraduate student research projects. Most recently, she presented a follow-up study to her dissertation at ICME in South Korea, where she ran into Dr. Alex White.

# Sorto receives large grant to research ELL math instruction

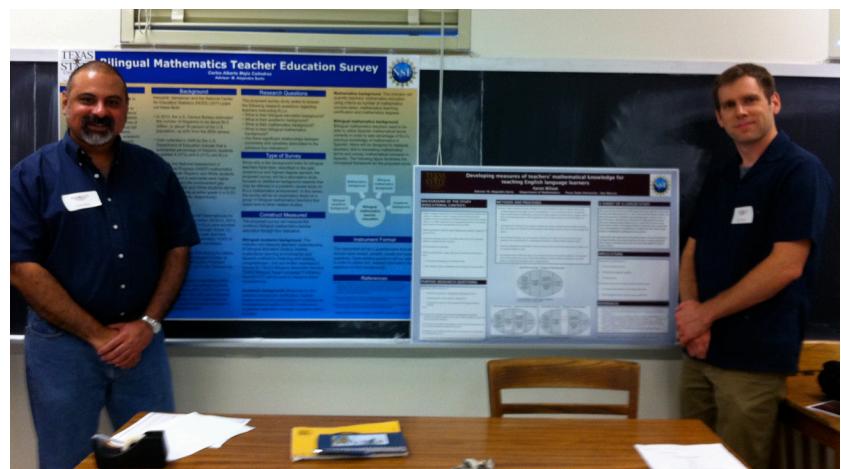
Associate Professor M. Alejandra Sorto was awarded \$679,000 by the National Science Foundation (NSF) to carry out a five-year CAREER research project. CAREER is the NSF's most prestigious award in support of junior faculty who exemplify the role of teacher-scholars through outstanding research, excellent education and the integration of education and research within the context of the mission of her or her university.

Sorto's CAREER project is entitled "Mathematics Instruction for English Language Learners." The main research goal of this project is to empirically estimate whether and which classroom factors contribute to mathematics gains of English Language Learners in Texas schools. The emphasis is on mathematical knowledge for teaching (MKT), knowledge of students as English Language Learners, academic language proficiency in English and Spanish, and the mathematical quality of instruction (MQI) in Grade 8 classrooms. The main educational goal is to develop professional development for in-service teachers of ELL that are research-based and focus on the mathematics needed to teach ELL efficiently.

The idea for the project came after Dr. Sorto learned from Pam Guettner, Director of Curriculum and Instruction for San Marcos CISD, that there is an interesting phenomenon happening in South Texas school districts with respect to mathematics achievement of English Language Learners--they performed better than students in Central Texas despite the large percentage of socioeconomically disadvantaged students. She knew that there are many factors outside the school that could explain this phenomenon, but she wanted to know if there were any factors related to the knowledge and preparation of the teachers that also explains what is happening. Sorto's previous experience had been explaining this type of phenomenon between countries in Latin America and Africa. She saw an opportunity to apply the same methodology and design to explain the differences between districts. The project was also written around the time when Texas State earned the title of Hispanic Service Institution (HSI), so the goals of the project are well aligned with the university's mission.

It is hoped that this project will not only expand our knowledge of a student population we know very little about, but by understanding learning processes better in a range of contexts it will also make it easier to address the pressing challenges of educating all children in the fast-growing population of Latino students in the United States. Additionally, the study will shed light on how best to produce qualified teachers in mathematics who work in bilingual contexts. Finally, the local collaboration of school districts and university educators will expand our reach into new areas of research for the education of mathematic teachers of ELL. This educational experience will create a foundation for the improvement of mathematics teacher education for ELL the way other studies have impacted other aspects of teacher education in mathematics.

Two doctoral students, Aaron Wilson and Carlos Mejia Colindres are being supported by the grant. They are both writing dissertations related to the project.



# Wayment Steps Down as Chair, Retires

*When Dr. Wayment announced that he was stepping down as chair, we asked him to write a reflection of his thoughts and feelings over his tenure at Texas State University.*

As I think about the past 26 years and all of the changes, and reflect upon all of the achievements of the department faculty, I am truly amazed and I congratulate them for their outstanding accomplishments.

In 1986 the Math Department split into two departments: Computer Science and Mathematics. Both departments have experienced impressive growth and development. My comments will focus on the Mathematics Department.

The faculty has grown from 39 to 61. Of course there have been many retirements along the way, adding to the number of new hires. As we grew, the faculty decided to build toward a research strength in Discrete Mathematics (Graph Theory). We suc-

ceeded to the level that we now have a very strong group (36 research publications by the departmental faculty last year) and we are now turning our attention toward developing strength in the broader, more inclusive, area of applied mathematics. We have also developed a very strong presence in Developmental Mathematics, becoming a leader in the state and nation: we have received National Association of Developmental Education certification and with financial support from the state (Coordinating Board), we have created a center within the department which, among other activities, provides professional development for the Texas Higher Education Coordinating Board programs and provides professional development and program evaluation to other institutions.

There have been several prestigious appointments and elections of our faculty to state and national positions: President of National Association of Mathematicians, President of Texas

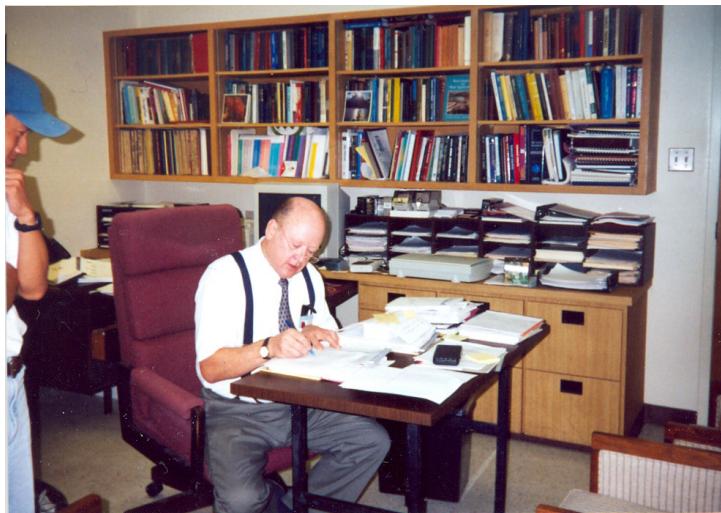


Association of Academic Administrators in the Mathematical Sciences, appointment by Governor Rick Perry to serve on a focus group for the Texas Math Initiative, and appointments by the governor to co-chair the Mathematics College Readiness Standards Vertical Team for the state. There have also been several prestigious State and National teaching awards garnered by our faculty: the U.S. Department of Education Teacher Recognition Award, the Presidential (Washington, D.C.) Award for Excellence in Science, Mathematics, and Engineering Mentoring Award, the Piper Professor Award, and four times members of our department have received the Texas Section Distinguished College or University Teaching of Mathematics Award from the Mathematics Association of America.

The department has added one bachelor degree, two new masters degrees and a PhD in Mathematics Education (we graduated our first PhD student in August 2010).

The department has financially





strengthened its research position to the point that it has around \$4,000,000 in active grants ongoing at this time. We are a leader in the College of Science and Engineering and we were a major contributor toward helping the university achieve Emerging Research status. The department faculty have hosted several state and national conferences. Along the way a group of faculty, willing to start with a shoestring budget, have developed an Honors Summer Math Camp for high school students that has achieved international prominence. They have coupled it with a summer math camp for middle school students and have created another center within the department. One measure of their success is that a team of three students won the International Sieman's Competition (splitting a \$100,000 prize). Another measure is that they have been able to obtain a \$1,250,000 matching challenge gift from the Kodosky Foundation - and they have their sights set on a \$6,000,000 endowment fund. The department has developed an additional \$884,478 in six other endowment funds to support conferences, research and student scholarships.

There have been many faculty who have served as editors, referees, and reviewers for professional journals. We even started up one of the first electronic journals (*The Electronic Journal of Differential Equations*). There have been numerous other local achievements that have enhanced the value of our department. As an example, consider the "Problem Solving Group" which consists of a group of faculty and students (undergraduate and graduate) that meet weekly to try to solve mathematical problems. They bring enthusiasm and excitement into the department and their efforts have resulted in

many cooperative solutions, submissions to journals and two publications and many hours of faculty and students enjoying mathematics together.

At times, the success of the faculty presented a challenge for the staff and secretarial support personnel. They have always been able to cheerfully meet the challenge until the resources caught up with the newly created demand. One year, a fire on the bottom floor of MCS shut down our building. Within a couple of hours we were setting up temporary quarters and moving faculty offices and the main Math Office into the Alkek Library. We didn't miss a beat. I cannot imagine a better team of support personnel than we have had in the Math Department and at the university over the years.

Yes, looking back it is a wonderful view - and looking ahead is to view with anticipation our continued growth and development. I would hope that we will soon obtain a PhD degree in Mathematics and continue to exert a strong positive influence on the enterprise of Mathematics and Mathematics Education.

## Alumni Connections

We'd like to hear from you -- our treasured alumni! We've made it easy for you to reconnect with Texas State University and the Math Department. Go to the website below to register your information. You'll be able to stay connected with the happenings here in San Marcos.

<http://www.math.txstate.edu/resources/alumni-connections.html>



# Math Department Award Winners -- Spring 2012

## Undergraduate Recognition for Academic Achievement

This award is presented to undergraduate mathematics majors who have completed at least 30 hours of college level course work at Texas State and have a Texas State grade point average of at least 3.00 but less than 3.25.

Natasha R. Bell	Elisa M. Estrada	Elena V. Kurtova	Jacqueline E. Price	Eric N. Vignaud
Lindsey M. Bienvenu	Ana G. Guerrero	Jason S. Lee	Matthew J. Priest	Cory Wegner
Jessica R. Beltran	Cassandra Guerrero	Kaytlyn E. Lueders	Keith R. Pritchard	Sion A. Williams
William G. Blackman	Kyrie M. Guzman	Mikayla C. Maloney	Kyle A. Pustejovsky	Charlotte P. Wrockloff
Kylon S. Brune	Ashley M. Hartgrove	Owen M. Mason	Hannah A. Roberts	Tiffany A. Yanagawa
William L. Caldwell	Owen M. Holt	Wilson L. Moose	Ricardo Rodriguez	Justin L. Yonker
Matthew S. DePugh	Paige R. Jochen	Chris L. Murrell	Russell G. Stevens	
Leonardo I. Escandon	Denee E. Johnson	Mitchell B. Otten	Sarah A. Straughn	

## Undergraduate Recognition for Scholarship

This award is presented to undergraduate mathematics majors who have completed at least 30 hours of college level course work at Texas State and have a Texas State grade point average of at least 3.25 but less than 3.6.

Samuel P. Allred	Hayden R. Dooley	Lucy B. Koen	Charles C. Peck	Casey A. Stovall
Austin Arzaga	Amanda N. Emery	Ryan P. Laughlin	Ethan C. Pfeiffer	Andrew Suarez
Kristen N. Boggess	Aschley L. Eschenburg	Christopher Martinez	Julie A. Prugh	Adrian M. Tullock
Michelle R. Braden	Mary M. Foegelle	Robert E. Monroe	Kip E. Rittenhouse	Timothy C. Whisenant
Rebecca L. Breeding	Jessica R. Garcia	Demeraya L. Moore	Krista L. Rueby	Ryan S. Wiersma
Sarah A. Bullock	Michael D. Hicks	Monica Moss	Danielle N. Schiebelbein	Timothy Z. Young
Jorge E. Canada	Katina R. Hoag	Courtney N. Murach	Martin T. Schmidt	
Jasmine M. Crist	Elena Horn	Amber J. O'Donnell	Taylor N. Shimek	
Edward E. Cruz Medrano	Justin A. Jacobs	Tiana M. Owens	Benjamin J. St. Vigne	

## Undergraduate Recognition for Academic Excellence

This award is presented to undergraduate mathematics majors who have completed at least 30 hours of college level course work at Texas State and have a Texas State grade point average of at least 3.6.

Carlos H. Aguirre	Priscilla R. Collard	Sarah E. Johnston	Zachary T. Pingel	Maria E. Tomasso
Craig N. Barnes	Nancy N. Cortez	Joshua S. Kelly	Graciela A. Prado	Francis B. Toto
Kyle E. Bell	Joel M. Davis	Georgiana A. Kritikos	Mark A. Proctor	Laddi B. Turner
Meagan R. Benavides	Megan B. Frazier	Kaitlin B. Kunetz	Laura Provvidente	Preston E. Walker
Aubrey N. Borges	Rebecca L. Gaddy	Sean W. Mac Diarmid	Tyler L. Purcell	Krista R. Weaver
Derek A. Bush	Ryan W. Gates	Sara A. Medlin	Leah R. Ramirez	Matthew A. Whipple
Daniel L. Campos	Eric A. Harper	Rachel L. Menking	Alexander N. Rasche	Alexander J. Wright
Brandi D. Castillo	Benjamin B. Hoffman	Labeeb I. Mohammed	Jack E. Rhoades	Megan N. Zamora
Joseph D. Castleman	Jerry R. Hook	William R. Moody	Joseph W. Skelton	
Adriana Chavez-Medrano	Kathryn E. Hurley	Minh-Anh N. Nguyen	Courtney R. Stuart	

## Graduate Recognition for Academic Excellence

This award is presented to graduate mathematics majors at the Master's level who have completed at least 15 hours of 5000+ level mathematics courses at Texas State and have a Texas State grade point average of at least 3.75.

Kimberly J. Brandsma	Joann M. Holliday
Bobbi A. Brekke	Pedro J. Merced
Daniel C. Cheshire	Geoffrey F. Miller
Rosa M. De Leon	Brittany A. Webre
Anthony W. Harrison	Samuel N. Wilson

## Graduate Recognition for Academic Excellence

This award is presented to graduate mathematics majors at the Ph.D. level who have completed at least 36 hours of 7000 level mathematics courses at Texas State and have a Texas State grade point average of at least 3.75.

Joshua E. Goodson	Alana A. Rosenwasser
Robert W. Jaster	Michelle Schrauth
Ewelina Suchacka McBroom	Aimee Tenant
Rini Oktavia	Debra D. Ward

## Robert and Brita Northcutt Scholarship

This award is given to a full time Texas State student majoring in mathematics, with a Texas State GPA of at least 3.0, who has completed at least 30 hours of coursework at Texas State. Students may receive this award multiple times.

Sara A. Medlin

# Give back -- Support Mathematics Education

Contributions to our scholarship funds are always welcome. As the university and Math Department grow, more and more students rely on your generous gifts to support their education. Please consider giving support to our majors in one of these scholarship funds.

## *Established Scholarship Funds*

Department of Mathematics Discretionary Fund

Robert and Brita Northcutt Scholarship – awarded to Texas State student majoring in mathematics with Texas State GPA of at least 3.0 on at least 30 hours of coursework at Texas State.

Lynn H. Tulloch Math Scholarship – awarded to full time Texas State student majoring in mathematics and pursuing teacher certification. Preference should be given to athletes. The student should have a Texas State GPA of at least 3.0 on at least 30 hours of coursework at Texas State.

Don and Helen Cude Award – awarded to undergraduate mathematics major pursuing teacher certification who has the highest GPA among senior level students who have completed at least seven upper level mathematics courses.

R. H. Bing Award – awarded to undergraduate mathematics major not pursuing teacher certification who has the highest GPA among senior level students who have completed at least seven upper level mathematics courses.

Mathworks Fund

To contribute, mark the scholarship fund to donate to and complete the form below:

Name: \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ ZIP: \_\_\_\_\_

Country: \_\_\_\_\_ Phone: \_\_\_\_\_

Email: \_\_\_\_\_

Signature: \_\_\_\_\_

Check Number: \_\_\_\_\_ Amount: \_\_\_\_\_



Please return to  
**Donor Services**  
**JCK 480**  
**601 University Drive**  
**San Marcos, Texas 78666**

# Texas State Hosts Summer Math Camp

The 23rd annual Mathworks Honors Summer Math Camp was held on the Texas State campus, June 17 - July 28. This year's program included 60 students from across Texas and six other states, as well as two students from Indonesia!

First-year students in the program enjoyed taking Number Theory, Mathematica, and Honors Seminar. Returning students had courses in Analysis, Combinatorics, Abstract Algebra, and opportunities to conduct original research with University professors. Weekly guest speakers from academia and industry inspired the students to examine their own academic and career goals while providing additional mathematical research ideas.

Here is what first-year student Jovanny (of San Marcos) had to say about his time at the 2012 HSMC:

*"Joining HSMC was a great experience for me because while I was at Camp, I was exposed to advanced mathematics beyond my understanding. I had no idea that the mathematics that I was being taught actually existed. Before joining HSMC, I thought I knew everything. I always understood mathematics easily, so I didn't see no difficulty in it. At the same time, it was fun learning it too. So on that first day of HSMC, my perspective changed. I noticed that mathematics was far beyond just some ordinary topic you learn at school every day. HSMC is a program that extends your capability of learning and understanding, not just in mathematics. Coming here to the Honors Summer Math Camp, I have gained so much knowledge. I have now experienced a small fragment of college, and I think experiencing it now will make me ready for my career path. The Honors Summer Math Camp has been an extraordinary experience. Every year, the HSMC is changing people's lives and perspectives."*

This year's HSMC was supported in part by Silicon Labs, Rackspace, Texas Workforce Commission Summer Merit Program, Tokyo Electron, American Math Society Epsilon Fund, Google RISE, South Texas Money Management, and Mathworks alumni and parents. Thanks to the above and many others, Mathworks was able to provide 25 camp scholarships for the 2012 HSMC, giving opportunities to those who would not otherwise have access to high quality math programs!

**For more information on Mathworks, visit the website: <http://www.txstate.edu/mathworks>**



Camp counselor Michelle Pruett (L) works with second-year student Priscilla Tijerina (R) on a math proof.

Texas State University  
Department of Mathematics  
601 University Dr  
San Marcos, Texas 78666