



## MAXIMA: News and Highlights from the Department of Mathematical Sciences

The University of Texas at El Paso

<http://www.math.utep.edu>

Fall 2008

### NEW PhD PROGRAMS TAP MATH FACULTY

Math department faculty are playing key roles in the UTEP's two newest doctoral programs that were approved this summer by the Texas Higher Education Coordinating Board: Computational Sciences and Teaching, Learning, and Culture.

The PhD program in Computational Sciences (<http://academics.utep.edu/compsci>) is directed by our Dr. Leticia Velázquez and began this fall. Its first five enrollees include departmental alumni Ronaldo Cardenas (MAT, 2006), Javier Gomez (BS Applied Math, 2008) and Carlos Quintero (MS Applied Math, 2007). This 70 semester-hour interdepartmental program housed in the College of Science involves coursework in computer science, mathematics, science, and engineering. Its graduate faculty includes strong representation from the math department: Drs. Miguel Argáez, Ming-Ying Leung, Andrzej Pownuk, Granville Sewell, Najjun Sha, Pavel Šolín, Joan Staniswalis, and Leticia Velázquez.

As computing power grows, simulations can be performed on previously unthinkable scales. The program's graduates will be skilled in mathematical modeling, algorithmic design, simulation, scientific visualization, analysis of large data sets, and high-performance computing on parallel and distributed systems.

The PhD in Teaching, Learning and Culture (<http://academics.utep.edu/Default.aspx?tabid=51013>) is a 60 semester-hour program housed in the College of Education that involves coursework in literacy, bi-literacy, mathematics, science and technology education. The first group of 25 students is planned to start in the coming spring 2009 semester. Dr. Mourat Tchoshanov is one of three faculty on the TLC Doctoral Program Committee and Drs. Larry Lesser and Art Duval will be helping deliver mathematics education coursework or serving on dissertation committees in the program.

### HOME COMING!!

**JOIN US at our traditional Homecoming Coffee**

for alumni, faculty, students and department friends

on Sat., Oct. 11, 2008, 10-12 in Bell Hall 125.

The event is free and no reservation is required.

For information, contact Mrs. Lanna Tallmon

(915-747-5761, [lanna@utep.edu](mailto:lanna@utep.edu))

or visit our website at [www.math.utep.edu](http://www.math.utep.edu).

### From the Chair

This year's themes are transition and growth! We have new projects and grants (see story on page 2), a new Computational Science PhD program (see story to the left), and we have embarked on a national search for a new Department Chair.

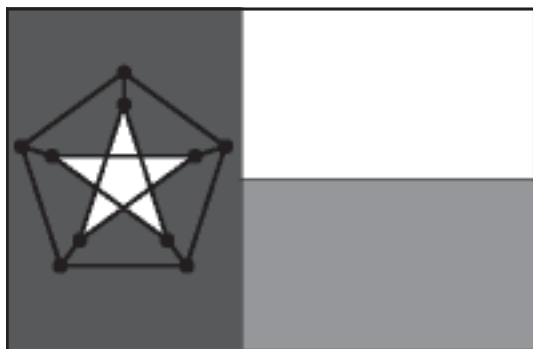
In May, after five years of fine service as chair, Dr. Helmut Knaust decided to return to being a full-time faculty member. While we will miss his service, this transition provides the department a unique opportunity for faculty expansion and program development, and the search for a permanent Chair will be a major focus of this school year. Meanwhile, I am privileged with the unique opportunity of serving as interim chair! My background is unusual, in that my formal degrees are in biology, but I have worked closely with the department in many ways, including collaborator on biomedical statistics, faculty and advisory board member for the interdisciplinary Bioinformatics MS program, chair of the Provost Special Task Force on first-year mathematics, and now College of Science Associate Dean for Research and Faculty Development. Most importantly, I have deep respect for the faculty and mission of the department and I am pleased to be a part of these exciting transitions!

I am delighted to welcome our newest Assistant Professor — statistician Dr. Amy Wagler, whose PhD is from Oklahoma State and who researches simultaneous inference and categorical data analysis. I am also pleased to welcome new full-time Lecturers Michael Muzheve (PhD in Math Education, Texas A&M) and UTEP alumna Hongling Yang (PhD in Statistics, Arizona State). These faculty reflect the quality of recruits attracted to our department Mission.

Special thanks to faculty taking on major leadership, including Dr. Leticia Velázquez directing an interdepartmental PhD program, Dr. Matthew Winsor heading the Greater El Paso Council of Teachers of Mathematics, and Dr. Larry Lesser chairing the statewide vertical team on college readiness.

Most of all, I thank Alumni and Friends for last year's generous contributions. The Gladman Fund helps our most talented undergraduates, the Gregory Fund helps graduate students in statistics, the Miculka Fund (named for former instructor Vladik "Chuck" Miculka) helps Math/Physics undergraduates, and our Excellence Fund supports student travel to meetings and other items not covered by our budget.

– Dr. Steve Aley



## UTEP HOSTS COMBINATEXAS

Dr. Art Duval co-chaired the ninth annual CombinaTexas (Combinatorics in the South Central US; [www.math.utep.edu/combinatexas](http://www.math.utep.edu/combinatexas)) April 19-20, 2008. The conference was hosted at UTEP for the first time ever and attracted attendees from across the country and even as far as Kuwait.

Talks covered many topics within and around combinatorics, including graph theory, computer science, and connections to algebra, topology, geometry, and analysis. Several UTEP faculty were among the presenters and 21 UTEP undergraduate and graduate student volunteers helped keep things running smoothly when they weren't attending talks. Thanks to generous financial support from the department, the College, and the National Security Agency, the conference was able to have 6 invited speakers and offer free registration.



## UTEP, NMSU COLLABORATE

The third NMSU/UTEP Joint Workshop on Mathematics and Computer Science was held April 2008 and featured 15 plenary talks on a variety of topics in computational and mathematical sciences. Though New Mexico State is only 45 miles from UTEP, the universities' computer scientists and mathematicians had not taken full advantage of opportunities for interaction and collaboration. Initiated by faculty including Dr. Pavel Šolín, this workshop series consists of a spring meeting at NMSU and a fall meeting at UTEP (next on November 8; [www.cs.nmsu.edu/vladik/utepnmsu08.html](http://www.cs.nmsu.edu/vladik/utepnmsu08.html)).

In another recent example of collaboration between the schools, international statistics education leader (and IASE president) Allan Rossman (of Cal Poly) was jointly hosted by and gave talks at both universities. Dr. Larry Lesser arranged for Rossman to speak twice at UTEP: an interactive student talk (attended by 72 students!) on the famous "secretary problem" and a provocative faculty colloquium on current issues in statistics education.

## FACULTY GRANT NEWS

**Dr. Ming-Ying Leung** received an Outstanding Performance Award from the Office of Research and Sponsored Projects at UTEP's 2008 Grant Writers' Reception on April 17, 2008. Since 2003, Leung has been principal investigator of five research grants totaling \$1.8 million (awarded by NSF, NIH, and the Texas Higher Education Coordinating Board Advanced Research Program) and co-investigator in six other grants totaling over \$5 million. Her research aims to develop a fast and reliable way to predict the two-dimensional structure of a long molecular sequence. With the new ARP and NSF grants, Dr. Leung and her co-researchers hope to generalize the techniques of Poisson process approximation and the recently developed excursion theory for sums of random variables to improve the speed and accuracy of the prediction method.

**Dr. Matthew Winsor** co-wrote and co-directs a \$350,000 grant from the Texas Higher Education Coordinating Board. The grant is supporting the College of Science academy known as SABEMAS (Supporting a Better Education in Math and Science). SABEMAS aims to increase the number of pre-service teachers prepared to teach math and science, increase the number of in-service math and science teachers with Master of Arts in Teaching (MAT) degrees and Master Teacher Certifications, and increase their conceptual understanding of science, technology, engineering, and mathematics topics (and their interconnections) through experimentation, lesson plan development, and exemplary pedagogy.

**Dr. Hamide Dogan-Dunlap** (with Dr. Piotr Wojciechowski) began a \$149,939 NSF grant entitled "Interactive Online Modules and Take-Home Assignments for Inquiry-Learning to Provide First-Hand Experience in Matrix Algebra."

**Dr. Ori Rosen** is PI of a 3-year \$120,000 NSF grant that just began entitled "Flexible Statistical Methods for the Analysis of Correlated Multivariate Data." The research focuses on combining Bayesian methods, mixture methods and nonparametric techniques in order to develop novel flexible methods for the analysis of functional, longitudinal and time series data in a variety of fields.

**Dr. Miguel Argáez** continues his funded work (with Dr. Leticia Velázquez) to conduct a numerical comparison of parameterization schemes for large scale problems. His latest project is a \$30,776 grant from Mississippi State University called "Automated Parameter Estimation and Sensitivity Schemes."

# ALUMNI NEWS

**Yolanda Gonzalez** (2007, MAT-M) completed a successful term as president of Greater El Paso Council of Teachers of Mathematics.

**Corine Prieto** (1968, BS-physics and mathematics) was last year's Gold Nugget Award Honoree for the College of Science. Prieto is founder and president of Integrated Geophysics Corporation in Houston.

**Jin Seoweon** (2006, MS-statistics) won a 2008 Distinguished Student Paper Award for a submission based on his thesis to the East-North American Region of the Biometrics Society Student Paper Competition. He is currently a doctoral student in the Department of Statistics at Southern Methodist University.

**MAXIMA Staff**  
**Editor: Larry Lesser**  
**Production: Art Duval**  
**MAXIMA logo: Natalia Rodriguez**

*Layout and production by*  
**Paydirt Printing**

## Alumni Data Update Form Department of Mathematical Sciences

Please return this form or visit <http://www.math.utep.edu/alumni> so we can update our records!

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

Yes, I want to support the Department of Mathematical Sciences!

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

Enclosed is my gift in the amount of \$\_\_\_\_\_ for:

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

\_\_\_ Mathematical Sciences Excellence Fund

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

\_\_\_ G. G. Gregory Scholarship Fund

Home Phone: \_\_\_\_\_ Business Phone: \_\_\_\_\_

\_\_\_ C. H. Gladman Scholarship Fund

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

\_\_\_ Prof. Vladik A. Miculka Scholarship

Degree(s) and Major: \_\_\_\_\_

or you may use: \_\_\_ Mastercard \_\_\_ Visa \_\_\_ Discover

Year(s): \_\_\_\_\_

Card Number: \_\_\_\_\_ Expiration Date: \_\_\_\_\_

Employer: \_\_\_\_\_

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

Position/Title: \_\_\_\_\_

**Please return to:**

The University of Texas at El Paso  
Department of Mathematical Sciences  
El Paso, Texas 79968-0514

Let us know what you have been up to  
(to be included in the Math Department newsletter or website):

---

---

---

---

---

---

---

---

# STUDENT NEWS

---

Club Zero kicked off the past school year with a soccer game against graduate students, followed by a rich variety of mathematical events — weekly faculty or student talks (including talks on their summer research experiences) spanning topics in pure and applied math, statistics and math education. Other events explored the mathematics in M.C. Escher's art and in the 2007 movie *Flatland*.

In November, several undergraduate students traveled to Houston to attend talks at a regional conference of the National Council of Teachers of Mathematics. In February, Jaime Ramos traveled to Arizona State University to present his research on Electrical Network Mixed Problems at the annual SUnMaRC (Southwestern Undergraduate Mathematics Research Conference; formerly: Arizona Mathematics Undergraduate Conference).

In the spring, attention turned to the campus-wide celebration of Pi Day (3/14), which again featured pi(e) sales, a pi(e)-eating contest, counting pi-stachios in a jar, the Buffon needle experiment with frozen hot dogs, and a culminating math song sing-along with Dr. Larry Lesser (a prelude to the 2008 Mathematical Association of America MathFest opening banquet, where his presentation drew a standing ovation!).

Club Zero ended the spring with a 6-round Hex tournament ([www.hexwiki.org](http://www.hexwiki.org)) involving two faculty, thirteen students, and the 13-year-old younger brother of one of the students. Students were from Club Zero or SPS (Society of Physics Students) and many had been practicing during the spring. While SPS did better this tournament, Club Zero looks forward to additional friendly competitions in the future. The top prize (a UTEP bookstore gift certificate) went to Max Piñones, a friend of SPS and a senior majoring in Clinical Laboratory Sciences.



*UTEP undergraduates Eduardo Espínola (math) and Judith Rivera (physics) study the hex board in a close game.  
(Photo courtesy of Eduardo Espínola)*

ADDRESS SERVICE REQUESTED

The University of Texas at El Paso  
Department of Mathematical Sciences  
El Paso, Texas 79968-0514

