



# NEWSLETTER

## DEPARTMENT OF MATHEMATICS

FRAMINGHAM STATE COLLEGE

100 State Street, P.O. Box 9101

Framingham, Massachusetts 01701-9101

Phone: 508-626-4700 Fax: 508-626-4703

Editors: Joyce Cutler and Sarah Mabrouk

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### Department News

Our department was shocked by the sudden death of **Kenneth Preskenis**, a dedicated teacher, a serious scholar, and a valued friend. He had a passion for mathematics and for sharing his insights with others. His mathematical interests, however, were not confined to the classroom or his office. He shared his love for mathematics with children through the Mathematics Olympics Program, which he initiated 11 years ago at South Boston's five parochial schools. A South Boston Little League coach for 43 years, Ken often used baseball to promote the power and beauty of mathematics. Ken graduated from Boston College and earned his M.S. and Ph.D. from Brown University. He joined the faculty at FSC in 1977 where he established a distinguished record of teaching and scholarship. In 1985, Ken organized a two-day conference at FSC to celebrate the 100<sup>th</sup> anniversary of the Weierstrass Approximation Theorem. His extension of the Approximation Theorem was a significant breakthrough. Ken was active in the MAA serving as Program Co-Chair for the NES/MAA Fall 1990 meeting held at FSC and as a member of the Local Arrangements Committee for the Fall 2002 meeting. He presented contributed papers at nearly every Fall meeting of the NES/MAA and at numerous national conferences, and he authored a number of articles in analysis and mathematics education. Ken was a colleague who gave freely of his time to mentor others and to serve the department. He was editor of this newsletter for several years. His dedication and enthusiasm will be greatly missed by students and friends. The Department is in the process of establishing a scholarship at Framingham State College in his memory.

Ken was hired by **Fred Bown**, and Fred mentored Ken through the tenure process. We are privileged that both **Fred Bown** and **Betsey Whitman**, professors emeriti, contribute to department activities. Fred taught two Introduction to Statistics courses in Fall 2002 and is scheduled to teach again in Fall 2003. He regularly attends the monthly Research Colloquium initiated by **Eileen Lee** of our department and by David Keil of the Computer Science Department. **Betsey** enjoyed teaching Biostatistics and Introduction to Statistics classes in Fall 2002. This Spring, she is teaching in the International Education FSC Masters program in Lithuania, South Korea, Venezuela, and Barcelona, Spain.

**Ned Price** retired in Spring 2002, but continues to collaborate with colleagues at FSC including attending some computer science classes. In February, he was the first speaker at the Research Colloquium where he gave a presentation on Bernstein Polynomials. Ned earned his Bachelor of Science degree from the University of Chicago and his Masters degree from Illinois Institute of Technology. His Ph.D. research was done at Purdue University where he specialized in the area of real variables. Ned was a member of the mathematics faculty at FSC for 29 years and for five of those years, he was president of the faculty union. He remains active in Framingham town politics.

Our department chair, **Walter Czarnec**, has led the department in an evaluation of the curriculum for math majors. We reintroduced a required course called Finite Mathematics, which will serve as an introductory course providing majors with the basics of discrete math topics, logic, and proof techniques. In addition, we are examining the sequencing of our courses and reevaluating our concentrations, minors, and elective courses. Walter is pleased to report that the number of math majors has increased to 82 and that our department will graduate at least 9 majors this year.

In November, the department hosted the Fall NES/MAA meeting. **Sarah Mabrouk** served as Program Chair and Local Arrangements Coordinator for the meeting whose theme was "The Changing Face of Mathematics: A Mathematics Sampler". Sarah was elected Vice-Chair for the NES/MAA during the meeting and she will become Chair for the Section in November; she will serve as Section Chair for two years.

The department is pursuing opportunities to provide professional development for teachers in the local area. In collaboration with Rutgers University, **Eileen Lee** and **Anita Goldner** are laying the groundwork for a 2004 summer discrete math conference at FSC. The conference will target elementary school teachers in Framingham and surrounding areas.

Working with the McAuliffe Center on campus, our department hosted a graphing calculator workshop attended by our preservice teachers and by local teachers. **Walter Czarnec** and **Ray Griffin**, director of the McAuliffe Center, are planning additional workshops that will be taught by math department faculty and coordinated by the staff at the McAuliffe Center.

### Faculty News

**Sonja Sandberg** is on a leave-of-absence to work at the U.S. Food and Drug Administration (FDA). Her job involves doing risk assessments of biologic products, such as vaccines, blood products, and tissues for transplantation and gene therapy. Current projects include a mathematical

model for an HIV vaccine, a statistical analysis of blood transfusions (who receives blood and why, and who donates blood), and a study of what's going to happen with the West Nile Virus epidemic this summer. In March, she gave a presentation entitled "Risk Assessments: Models, Assumptions, and Data" at a two-day meeting of Health Canada (the equivalent of our CDC). We look forward to seeing her back on campus next Fall and hearing about her research.

**Tom Koshy** has authored several papers and given numerous talks related to his expertise in Number Theory and Fibonacci Numbers. In April 2002, he gave a talk titled "Fibonacci, Lucas, and Graphs" at Bridgewater State College, and in July 2002, his article titled "Summing Integer Cubes Using Thébault's Array of Arithmetic Sequences" was published in The Mathematical Gazette. Tom helped with the NES/MAA Fall meeting at FSC and gave a talk titled "Fibonacci, Lucas, Combinatorics, and Graphs" at the meeting. In November, 2002, Tom's articles, "Immediate Successors and Predecessors of Fibonacci and Lucas Numbers" and "Generalized Fibonacci Pythagorean Triples", were published in The Mathematical Gazette. Another paper titled, "Fibonacci, Lucas, and Eigenvalues" was published this spring in the Pi Mu Epsilon Journal. Tom attended the MAA/AMS national meeting in Baltimore in January and also served on a NSF grant proposal review panel in March. His most recent book, Fibonacci and Lucas Numbers and Applications, was published by Wiley-Interscience.

Tom and **Mo Salmassi** continue their research collaboration and have written a joint paper entitled "Zeros of Jacobsthal and Koshy Polynomials and Koebe's  $\frac{1}{4}$ <sup>th</sup> Function". Mo also worked with Ed Merkes of the University of Cincinnati to produce a second paper titled "Zeros of Polynomials Associated with a 1-Periodic Continued Fraction". Both of these papers built upon the results in one of Tom's papers entitled "A Family of Polynomial Functions", published in part in the Pi Mu Epsilon Journal. These polynomials are related to Fibonacci and Lucas Numbers, and have interesting properties. In addition to his research activities, Mo lent his expertise to Worcester State College where last summer he taught a selected topics course entitled "Mathematics of Computer Graphics and Computer-Aided Design" and an on-line Business Calculus course. The courses were well received by the students, and Mo found the experience enriching.

**Walter Czarnec** recently served on a Department of Education evaluation team that reviewed another college's program for educating teachers. His insights into the process will help our department as we prepare for a similar visit in the fall. He was asked by FSC's Academic Vice President to serve as FSC's representative to a meeting at Keene State College in New Hampshire. Keene State is considering converting their curriculum to one similar to Framingham State's. Walter spent a day meeting with administrators, faculty, and members of the science departments. He continues to be involved in several community activities including being a member of the Board of Directors of the Framingham Rotary and of the Council of the Framingham Civic League.

**Anita Goldner** is on sabbatical this semester. While away, she is researching new problems and ideas for the Problem Solving and Modeling course, developing a course for practicing elementary teachers, and updating the freshman courses that she teaches.

**Eileen Lee** has organized an interesting agenda of speakers for the new monthly Research Colloquium. At the second meeting, David Keil spoke on "Gödel's Theorem". In May, Eileen will speak about her research, "Measures of Irrationality".

We welcome the newest member of our department, **Michelle Capozzoli**. Michelle received her Ph.D. in Mathematics from the University of New Hampshire. Statistics is her specialty, and she has published articles in the areas of interrater agreement, accelerated life testing, and Bayesian analysis. After receiving her Ph.D., she worked at Bristol-Myers Squibb as a Biostatistician in the Non-Clinical Department. While there, she was an active member of the Connecticut Chapter of the American Statistical Association. Her activities included working on the Education Committee for the Poster Competition for Connecticut students in grades K-12, presenting at the Colloquium for AP Statistics which was co-sponsored by Bristol-Myers & Squibb and the CT Chapter of the ASA, and reviewing continuing education proposals for JSM 2002. Since coming to FSC, she has been interested in implementing the statistical software package JMP in her statistics classes and in expanding its use to other classes. She demonstrated the package to the Sociology and Psychology Department members who were enthusiastic about its capabilities. At the Fall meeting of the NES/MAA, she was invited to give a workshop on JMP and made a presentation entitled "Searching for Synergy" during the New Colleagues Session. She is currently on the program committee for the 5<sup>th</sup> Annual FDA/Industry Statistics Workshop, and will be co-chairing a session on Genomics.

**Sarah Mabrouk** had several papers published most notably one in the May/June 2002 MAA Focus entitled "Lessons Learned from having a Course Web Site." Last summer, she conducted a 4-day 2002 ICTCM Professional Development Short Course called "Using the Web in

Mathematics". During this course, she taught college faculty from across the United States to create online course resources using a variety of software including Microsoft applications, Adobe Acrobat, and Macromedia Dreamweaver. Sarah continues to be a leader in the use of technology both on campus and in the wider mathematics community. She has participated in the wireless laptop program for two years integrating laptop use into courses from General Math to Differential Equations. She has been active in presenting papers at local conferences and national meetings, and she has organized and moderated several workshops, contributed paper sessions, and panel discussions. In addition, she found time to give an invited colloquium talk, "An Introduction to Filtering" to the students and faculty of the Mathematics Department at Colby College. She served as a judge for both the 2002 and 2003 Massachusetts Science Fairs held at MIT. In April, she organized an NES/MAA Dinner Meeting in memory of **Ken Preskenis**; the speaker was Dr. Andrew Browder, Professor Emeritus of Brown University, Ken's Masters and Doctoral advisor.

In Fall 2002, **Joyce Cutler** served as an external reviewer for the Mathematics Department at Worcester State College. She produced a written report evaluating their program and giving recommendations. Joyce served on the state committee that reviewed the test items for the MTEL mathematics subject matter test and is currently serving on the Department of Education Preservice Assessment Committee, a committee that will review the student teacher evaluation process.

### Student News

Congratulations to the winners of **The Frank Castagna Award** for excellence in mathematics! The 2002 winner was **Aaron Gong** and the 2003 winner is **Jennifer Jordan**. The Castagna Award is given in memory of a former mathematics faculty member.

During the 2001-2002 academic year, a dozen enthusiastic math majors revived the **Math Club** with help from **Eileen Lee**. The students wrote a new constitution and elected officers. Students enjoyed a variety of math-related activities including several field trips and research talks. The group visited the Boston Stock Exchange and had a dinner meeting with the Everett school superintendent and his staff. **Sonja Sandberg** spoke to the group about the mathematical modeling of the spread of Lyme Disease, **Jonathan DeVicariis** and **Aaron Gong** presented a topic from their Abstract Algebra reading course, and Steve Benson from the Educational Development Corporation in Newton spoke about mathematics curriculum projects at EDC. **Eileen** organized an ice cream social this spring to begin plans for next fall.

**Jonathan DeVicariis**, **John Meany**, and **Aaron Gong** (Natick Labs) participated in the MAA/NES Fall meeting. **Jonathan** and **Aaron** were members of the panel discussion "What Can I Do with a Mathematics Major?" and **John Meany** presented a paper titled "Taylor, Maclaurin, And Polynomial Approximations" during the Student Paper Session.

In November, six members of the Professional Preparation class and **Joyce Cutler** attended the NCTM Regional Convention in Boston. The students spent the day attending workshops and talking with others about mathematics education at the secondary level. **Sarah Mabrouk** and twelve mathematics majors from her Differential Equations class attended RUMBUS 2003, the Research by Undergraduates in Mathematics Boston University Symposium, held at Boston University in March. The keynote speaker was Frank Morgan from Williams College who gave a presentation entitled "Soap Bubbles and Mathematics".

### Alumni News

Several alumni sent news of their activities. **Kevin Jackson-Meade** is working at McDougal Littell (a division of Houghton Mifflin). He was originally hired for a pilot program, but his contract has been extended and he is now working on various technology products, for example, reviewing MS PowerPoint versions of lessons and online tutorials. He has become very familiar with middle school mathematics textbooks. **Aaron Gong** is an Equipment Specialist/Provisioner at the U.S. Army Soldiers Systems Center in Natick. His primary responsibility is to review technical documentation and to maintain all provisioning data for Field Service items used to support soldiers. The technical documentation provides guidance for the soldier in operating and maintaining mission-essential equipment. **Dan Weiner** is working at a local health club and has applied to several Masters Programs in Number Theory. He enjoys tutoring high school students in math and says that some of the more difficult high school math problems keep him on his toes. **Dan Lopes** is working as a Merchandising Coordinator at Marshalls in Stoneham.

Many of our alumni teach in schools in the area. **April Frey** has been teaching mathematics at King Phillip High School in Wrentham for the past 3 years. She is also enrolled in the Master of Education program at Fitchburg State College and she will receive her degree in August thus giving her professional status. **Tom Griffin** teaches 7<sup>th</sup> and 8<sup>th</sup> grade mathematics in Southborough where he is also the Mathematics Department Chair. **Palmina Maglio** graduated from FSC in December and now teaches 6<sup>th</sup> grade at P. Brent Trottier Middle School in Southborough. **Andrew Merck** teaches at Sharon Middle School and enjoys working with that age level. **Steve O'Leary** works at Ashland High School and is very happy that he changed his career to teaching. **Jennifer Lumb** lives in Lewiston, Maine, and works as a high school math teacher. She teaches remedial math. **Johanna Bolton** is teaching 9<sup>th</sup> and 10<sup>th</sup> graders at City on a Hill Charter High School in Boston. She reports that she has a fantastic group of young people to work with each day. **Sue Ekberg** returned to her hometown of Ambridge, Pennsylvania, where she is a substitute teacher at local high schools. She teaches primarily at the secondary level in every subject imaginable. She enjoys teaching and plans to begin work on her teacher's certification in Fall 2003.

Mathematics Department  
Framingham State College  
100 State Street, P.O. Box 9101  
Framingham, MA 01701-9101