

DEPARTMENT OF MATHEMATICS

university of south carolina

ARTS & SCIENCES

Departmental Strengths

The Department of Mathematics leads the state of South Carolina with its outstanding program of research, teaching, and service. It has internationally -recognized research groups in the areas of Applied and Computational Math, Approximation Theory, Functional Analysis, Discrete Math, and Number Theory, as well as experts in Algebra, Geometry, Logic, Math Education, and Topology. Faculty research grants total well over \$1 million per year.

The Department includes the Industrial Mathematics Institute (IMI) for advanced research with potential applications. The IMI is supported through federal (Defense Depts and Labs, National Science Foundation, Dept of Energy, and National Security Agency) and corporate funding. It carries on cooperative projects with leading universities, including Princeton, Stanford, and Rice. The IMI is currently working to increase interdisciplinary collaboration with USC programs in Nanoscience, Engineering, and Science fields, and with MUSC in medical simulation and modeling.

Recent Student achievements: Doctoral student **Carrie Finch** won the 2005 USC Outstanding Graduate Assistant Teaching Award, while **Hua Wang** won the 2006 College of Arts and Sciences Award for an Outstanding Recent Dissertation. Undergraduate student accolades include Goldwater Scholars **Tyler Ray** (2007, Hon. Mention), **Jason Owens** (2004), **Jae-Jun Kim** (2003, Hon. Mention), and **Katie Spurrier** (2002), NSF Graduate Research Fellows **Matt Elder** and **Jason Owens** (2006), Knowles Math Teaching Fellows **Andrew McNeice** (2007), **Alison Wellings** (2006), **DeVita Lane** and **Ashleigh Lewis** (2005), Wooddy Actuarial Scholars **Horia Basarabeanu** (2005) and **Andreea Brezaie** (2004), and Natl. Physical Science Consortium Fellow **Corinne Sheridan** (2006).

Faculty recognition: The International Congress of Mathematicians assembles every four years for special lectures and awards. Prof. **DeVore** delivered a Plenary Address at the 2006 Congress in Madrid, while Prof. **Temlyakov** presented a prestigious invited lecture in the Analysis Section. Prof. **Griggs** serves as Editor-in-Chief of the SIAM Journal on Discrete Math. Prof. **Sumner** was honored with the 2007 Math. Assn. of America Distinguished Teaching Award for the Southeastern US. Prof. **Temlyakov** was appointed Carolina Distinguished Professor in 2007. The AMOCO Award, the top teaching honor at USC, went to Profs. **Roberts** (2004) and **Sumner** (2001). Winners of the USC Russell Research Award in Science, Math, and Engineering include Profs. **Szekely** (2007), **Griggs** (1999), **DeVore** (1995), and **Nyikos** (1990), while the USC Educational Foundation Research Award was given to Profs. **Brenner** (2004) and **Temlyakov** (2003).

Transformational Goals

- Continue to **expand course offerings, activities, and research opportunities**, particularly for undergraduates.
- Expand the doctoral program and **raise the national profile** of the program. The additional students will also strengthen faculty research projects.
- Continue to **recruit and retain outstanding faculty** who can elevate the program to compete with other leading universities
- Create programs in **Computational Science, Modeling, and Applied Math**, to increase the IMI's outreach to Engineering, Science, and Medical researchers across the state
- Create **new positions in Mathematics Education and Mathematical Finance** to develop new opportunities for our students

Fundraising Objectives

- Create **two new endowed named chairs** to recruit and retain outstanding faculty in Pure and Applied Math: \$1.5 million each.
- Fund a **named state-of-the-art lecture hall and foyer/lobby in Le Conte**, with columns outside to enhance the exterior: \$3 million
- Create eight **new named graduate fellowships** to attract top Mathematics graduate students in a competitive national market: \$500,000 each
- Endow a fund to support **named student grants** (both undergraduate and graduate) to encourage participation and presentations at research conferences: \$25,000 - \$100,000
- Endow an **annual named lecture or lecture series** to be given by a prominent international mathematician: \$150,000
- Endow the **USC High School Math Contest**, ensuring appropriate cash awards every year for the top finishers: \$100,000

Mathematics Department at a Glance

Number of Faculty: 38

Undergraduate majors: 265

Graduate students: 46

Programs: Actuarial, Education,
Applied, General, Intensive

Degrees offered: BS, MS, MAT, PhD

Website: <http://www.math.sc.edu/>

Notable Alumni: **Pattie Blitch**, former Chair, Math, Lander U.; **Ben Cohen**, Principal and Consulting Actuary for Wakely Actuarial Services; **Vladimir Dubinin**, VP at Automated Trading Desk LLC; **Martin Farach-Colton**, Prof., CS, Rutgers; **Carrie Finch**, Asst. Prof., Math, Washington & Lee U.; **Erik Kimrey**, Teacher and Coach, Hammond School; **Terri Miley**, Risk Scientist, Pacific Northwest Natl. Lab.; **Marius Mitrea**, Prof., Math., U. of Missouri; **Noel Nachtigal**, Computational math researcher, Oak Ridge Natl. Lab., **Guergana Petrova**, Assoc. Prof., Math., Texas A&M; **Paul Sisson**, Dean of Sciences, LSU Shreveport; **Katie Spurrier**, PhD student, Math, U. of Virginia; **Rich Williams**, Associate Actuary, Colonial Life.



Alumni Profile—Patrick Rybarczyk

"In my sophomore year I had the fortune of taking a course with Dr. Sumner," says Patrick Rybarczyk, BS Mathematics 2003 (Magna Cum Laude) and MT Secondary Education 2004.

"He turned routine mathematics into a problem solving endeavor. I remember wishing that I had had a teacher like him before. Additionally, I took the problems that were given in his class and my other math classes, and I could work on them anywhere. I spent many days out on the Horseshoe solving problems."

When Patrick entered USC he did not plan to study mathematics, but he quickly found the mathematics courses and faculty to be more engaging and satisfying than his original major. Patrick has transferred the energy and excitement he experienced in his mathematics courses at USC to his career. He is currently a mathematics teacher at A.C. Flora High School in Columbia, SC, and the Head Coach of the SC All-State Mathematics Team.

Professor Ed Dickey adds that "Patrick brings to teaching a genuine love of mathematics, sincere care for students, and a profound desire for his students to understand what they are learning. ... His passion and intelligence are the foundation and it's contagious. Spend 10 minutes in his class, with the math club, or talking to his students [and you will] see how Patrick's "magic" works."

