

Graduate Studies in the School of Mathematical Sciences

Overview, Highlights, and Opportunities

School of Mathematical Sciences,
U. of Arizona, Tucson AZ

School of Mathematical Sciences

- *Mathematics Department*
- *Graduate Interdisciplinary Program of Applied Mathematics*
- *Graduate Interdisciplinary Program in Statistics*

The three units closely cooperate in academics and research, yet each unit is designed to best meet professional training demands.

The Application Process

Get started by visiting <http://www.math.arizona.edu>.

- "Which Program Should I Apply To?"

Apply to programs that best matches your interests. The recruiting information is shared.

- The Recruitment Workshop: held in Spring. Those short-listed for this workshop will have the opportunity to talk to the faculty and experience the Sonoran Desert.

- Admissions Criteria:

Students come to our programs with diverse technical backgrounds. The technical background is a consideration in the admissions; equally important is demonstrated passion, intellectual curiosity and productivity.

Graduate School Funding

- Research Assistantships

VIGRE , GK12, Graduate School Fellowships, NSF Fellowships, Ford Foundation Fellowships, NPSC Fellowship, Fullbright Fellowship, CONACyT, Government-agency grants. Faculty advisor grants.

- Teaching Assistantships

Teaching lower and mid-level college courses, Super-TA, Special Projects.

Virtually every student has support during their 5-6 year PhD program (1-2 year MS). Full financial aid (Fellowship and/or TA), health insurance, tuition waivers, summer support for first summer. Long term financial support commitment. TA/RA Stipend scales: approx \$15K - \$17K (nine months).

Academic Process

- 1st Year, core phase: master material, qualifying exams. *Each program has its own year-long core courses.* Students with unusual technical backgrounds may be given 2 years to complete these.

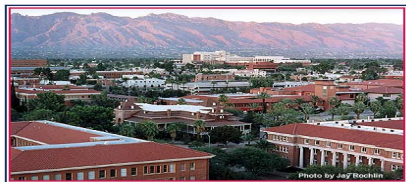
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Academic Process

- 1st Year, core phase: master material, qualifying exams. *Each program has its own year-long core courses.* Students with unusual technical backgrounds may be given 2 years to complete these.
- 2nd Year, specialization phase: coursework, research experience, independent study, oral exams. *Programs offer tailored course requirements.*
- Dissertation phase: oral exam and faculty-directed student research. *applied math and stat students could choose a supervisor in mathematics as well as a variety of other fields in science and engineering.*

The University and Life in Tucson



- Land Grant University, established in 1885. 38000 undergraduates, 8000 graduate students, 2700 faculty. PAC12 Athletics.
- *Emphasis on Interdisciplinary Research.*
- A top 20 Research University in USA. *\$600 million in research.*
- Highly ranked (nationally) UA programs: Applied Mathematics, Mathematics, Planetary Science, Astronomy, Optics, Geosciences, Hydrology, Atmospheric Sciences.

The University and Life in Tucson

- Tucson:

Population 800,000, elevation 2400 ft. Outstanding outdoor recreation, rich and diverse cultural atmosphere. Mexico, Southern California, the Rockies, within a half-day drive.



Metrics of Success

- *Highly ranked among peers in the 2010 National Research Council study (Assessment of Research Doctorate Programs).*
- *Over \$ 10 Million in research funding.*
- *Our Alumni....*

Some of Our Alumni

- Stephen Shipman, Associate Professor, Louisiana State University
- Greg Forest, Professor, Mathematics Dept, University of North Carolina
- Larry Winter, Professor, University of Arizona Hydrology
- David Kopriva, Head of Applied Mathematics, Florida State University
- Mike Shelley, Professor, Courant Institute, New York University
- Peter Tonellato, Director, Biomedical Informatics, Harvard Medical School
- Alejandro Aceves, Professor, Southern Methodist University
- Shi Jin, Professor, Mathematics Dept, University of Wisconsin
- Peter Miller, Professor, Mathematics Dept, University of Michigan
- Natalia Komarova, Professor, Mathematics Dept, UC Irvine
- Barbara Shipman, Associate Professor, UT Arlington
- Regan Murray, Staff Scientist, Environmental Protection Agency (EPA)
- Aaron King, Associate Professor, Ecology & Evolutionary Biology Dept, University of Michigan
- Dan Coombs, Associate Professor, Mathematics Dept, University of British Columbia
- Patrick Shipman, Assistant Professor, Colorado State University
- Janet McShane, Professor, Northern Arizona University
- Sergei Pond, Project Scientist, Antiviral Research Center, UC San Diego
- Aric Hagberg, Staff Scientist, Los Alamos National Laboratory
- Abbie Warrick, Staff Scientist, Lawrence Livermore National Laboratory
- Bridget Kennedy, Department of Defense
- Joe McMann, Department of Defense
- Fang-Fang Shen, Research Scientist, CDM Optics, Boulder, Colorado
- John Kerl, 2 Sigma Investments
- Postdocs: Bob Jenkins and Rosalyn Rael, University of Michigan; Julia Arciero and Jared Barber, University of Pittsburgh; Thomas La Gatta, Courant Institute; Brad Weir, Oregon State University; Mei Yian, Bing Instructor U. Texas, David Hertzog Visiting Asst Prof, Duke University.

Department of Mathematics

- Incoming class size: 8 - 12.
- Program currently has 58 students, 17 of these are Foreigners.

Mathematics Research Areas

- Algebra and Geometry
- Analysis
- Applied Mathematics
- Mathematics Education
- Probability and Statistics

Program Highlights: Mathematics

- Integration workshop
- Research Tutorial Group
- Excellent student participation in the research seminars
- Graduate student seminar
- Teaching assistants given responsibility for classes taught.
- Centers and Institutes:
 - Center for Mathematics Education of Latinos/as
 - Arizona Center for Mathematical Sciences
 - Southwest Center for Arithmetic Geometry (Arizona Winter School)
 - Math and Parent Partners

Our program is well-known for being highly supportive, academically as well as socially.

Program in Applied Mathematics

- Incoming class size: 8 - 12.
- Program currently has 47 students, 25 male, 13 female, 9 minorities.

Applied Mathematics Research Areas

- Biomathematics
 - Biomedicine
 - Computer Science
 - Condensed Matter Physics
 - Continuum mechanics
 - Control Theory
 - Dynamical Systems and Chaos
 - Electrical Engineering and Signal Processing
 - Scientific Computing and Numerical Analysis
 - Systems Engineering

 - Operations Research
- Geophysics and Atmospheric Sciences
 - Hydrology and Soil Science
 - Material Science
 - Mathematical Physics
 - Medical Imaging
 - Nonlinear Optics
 - Partial Differential Equations
 - Pattern Formation
 - Planetary Science and Astrophysics
 - Probability Theory

 - Statistics
- Fluid Mechanics and turbulence
 - Geometric Methods and Nonlinear Analysis
 - Geophysics and Atmospheric Sciences
 - Hydrology and Soil Science
 - Material Science
 - Mathematical Physics
 - Medical Imaging
 - Fluid Mechanics and Turbulence
 - Geometric Methods

 - Nonlinear Analysis

Program Highlights: Applied Math

Applied Math and Biophysics Laboratory



Program Highlights: Applied Math

- Graduate student seminar series
- Internships in Government Laboratories
- Neuromathematics Working Group
- Uncertainty Quantification Group
- Biomath Seminar

Program Highlights: Applied Math

NIH Training Grant

- Trains graduate students at the interface of the biological, biomedical and mathematical sciences.
- Students often work with interdisciplinary faculty teams.
- Supports students from many different departments.
- Collaborative activities that cross the traditional boundaries between disciplines.
- Grant provides students with full year fellowships for up to two years
- Formerly supported by a NSF IGERT grant and University of Arizonas BIO5 Institute for Collaborative BioResearch.

Program in Statistics

- Multi-College Program.
- Incoming class size: 3 - 6.
- Program currently has 21 students, 13 male, 8 female, 1 minority.

Program Highlights: Statistics

- Newly chartered by Arizona Board of Regents, in 2006 – first class entered Fall 2008
- Active and growing Statistics Consulting Laboratory
- Monthly statistics colloquium and weekly biostatistics seminar

Statistics Research Areas

- Bayesian analysis
- Bioinformatics
- Biostatistics
- Data mining
- Data visualization
- Econometrics
- Environmental statistics
- Genomics/proteomics
- Machine learning
- Mathematical statistics
- Nonparametric statistics
- Quantitative risk assessment
- Survival analysis
- Statistical genetics
- Stochastic modeling

FURTHER INFORMATION



www.math.arizona.edu

CONTACTS:

- Math: Prof. Tom Kennedy
- Applied Math: Prof. Michael Tabor
- Stat: Prof. Walter Piegorsch