Graduate Studies
in the School of Mathematical Sciences

Overview, Highlights, and Opportunities

School of Mathematical Sciences,
U. of Arizona, Tucson AZ
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, Fulbright 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.
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.
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. 38,000 undergraduates, 8,000 graduate students, 2,700 faculty. PAC12 Athletics.
- Emphasis on Interdisciplinary Research.
- A top 20 Research University in USA. $600 million in research.
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