

Why Study MATHEMATICS?

Mathematical skills and mathematics literacy are central to the emerging “Information Technology” economy. Basic research in the physical and biological sciences, engineering design, and many applications in the social sciences rely heavily on mathematics, particularly mathematical modeling as a tool.

The objectives of the Mathematics

Department’s graduate programs are:

1. Develop the student’s ability to do independent research and prepare for more advanced study in mathematics, and
2. Give advanced training and preparation for professional careers as mathematicians, mathematics teachers, and those employed in engineering, scientific and business areas.

Specialized Program for Secondary

Teaching: *Master of Arts in Mathematics* degree designed for those who are interested in strengthening their understanding of mathematics and enriching their mathematics teaching.



GRADUATE STUDIES

Graduate Advisor:
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MATHEMATICS



GRADUATE STUDIES

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PROGRAMS OF STUDY

Graduate programs are offered leading to M.A., M.S. and Ph.D. degrees.

Financial Assistance:

Competitive stipends for graduate teaching assistantships (GTA) are available for students in M.S. and Ph.D. programs. GAANN Fellowships are also available for qualified students pursuing Ph.D. degrees.

The GTAs have an option to choose 9 month or 12 month support (including summer). Stipend for 12 month support is up to

Level I (Masters)- \$18,600

Level II (Beginning Doctoral)- \$21,000

Level III (Advanced Doctoral)- \$22,800

Doctoral/Masters Degree Fellowships

Graduate Fellowships are being offered for the support of outstanding masters degree and doctoral students at The University of Texas at Arlington. For more information, visit the website:

http://grad.uta.edu/prospective/fin_aid_resources.asp

FACULTY RESEARCH

The research interests of the faculty in the Mathematics Department are classified into the following areas:

ALGEBRA: Conformal and vertex algebras; homological theory of commutative Noetherian rings; noncommutative algebra using geometric methods; symbolic computations.

David Jorgensen, Alex Retakh, Michaela Vancliff

DIFFERENTIAL EQUATIONS, INTEGRAL EQUATIONS AND

DYNAMICAL SYSTEMS: Inverse problems and wave propagation; computerized tomography; mathematical problems of imaging; geometric study of integrable Hamiltonian systems; stability and instability of solitary waves; nonlinear dispersive waves; free boundary problems related to phase transition and multi-fluid flow; stochastic differential equations; control theory.

Tuncay Aktosun, Gaik Ambartsoumian, Gangaram

Ladde, Yue (David) Liu, Merlynd Nestell,

Barbara Shipman, Jianzhong Su

GEOMETRY: Birational algebraic geometry and Mori theory; differential geometry and inverse spectral geometry; finite geometry related to nonassociative division algebra.

Minerva Cordero-Epperson, Ruth Gornet, Tie Luo

MATHEMATICAL BIOLOGY: Mathemati-

cal modeling of microbial populations, biofilms and competition dynamics; population biology and epidemiology; neuronal dynamics.

Hristo Kojouharov, Christopher Kribs-Zaleta,

Jianzhong Su

MATHEMATICAL STATISTICS, PROBABILITY THEORY AND STOCHASTIC PROCESS:

Multivariate analysis, statistical inference, sample survey and statistical process control; stochastic processes and applications to stochastic differential equations, random graphs, path integrals, quantum mechanics.

Danny Dyer, Chien-Pai Han, D.L. Hawkins,

Andrzej Korzeniowski, Gangaram Ladde, Shan Sun-Mitchell

MATHEMATICAL EDUCATION:

Mathematics program development, impact of reform mathematics learning strategies on mathematics teaching, mathematics problem solving for teaching.

James Epperson, Christopher Kribs-Zaleta,

Theresa Jorgensen

NUMERICAL ANALYSIS: Numerical solutions to ordinary and partial differential equations; moving grid, multi-grid and multilevel adaptive methods; fluid dynamics (mechanics); numerical simulation and scientific computation; numerical analysis; numerical combustion; numerical linear algebra, reduced order modeling; elementary function computations; software development.

Hristo Kojouharov, Ren-Cang Li, Guojun Liao,

Chaoqun Liu, Hua Shan, Jianping Zhu