

NJIT

New Jersey's Science &
Technology University

THE EDGE IN KNOWLEDGE

The Doctor of Philosophy Program in Mathematical Sciences



Department of Mathematical Sciences

College of Science and Liberal Arts

New Jersey Institute of Technology

WHY STUDY FOR A DOCTORATE IN THE MATHEMATICAL SCIENCES?

Mathematical scientists play increasingly important roles as advances in research use and benefit from quantitative mathematical models. Successful analysis of complex models illuminates the role and interaction of key components in the system being studied and provides essential tools for evaluating and improving system performance. The sequence of model development, analysis, simulation and interpretation of data demands application of advanced mathematical methods at a level that often requires the knowledge and skills acquired during doctoral study.

WHY STUDY MATHEMATICAL SCIENCES AT NJIT?

NJIT's doctoral program has more than 40 active faculty, supported by state-of-the-art computer facilities, with research interests across many areas of applied mathematics and statistics. Many of the faculty have earned international reputations as a result of the breadth and depth of their accomplishments. Through activities, such as a regular colloquium series and seminars, students are exposed to the latest innovations in the mathematical sciences. The environment is uniquely suited for students setting out on a research career.

WHAT RESEARCH SPECIALIZATIONS ARE REPRESENTED?

Applied Mathematics - Mathematical modeling, asymptotic methods, and scientific computing are emphasized. Specific areas of application include: Acoustics, Dynamical Systems, Electromagnetics, Fluid Mechanics and Combustion, Materials Science, Mathematical Biology and Neuroscience, and Wave Propagation.

Applied Probability and Statistics - Applied Probability and Stochastic Modeling, Nonparametric Statistics and Statistical Inference, Reliability Theory and Applications, and Time Series Analysis and Forecasting.

WHO SHOULD ENROLL?

The program is intended for highly motivated and able students with a strong interest in mathematics and its applications, who are interested in the challenges of research and a career in the mathematical sciences or a related field.

The degree can be completed on a part-time basis, but participation on a full-time basis is strongly encouraged.

IS FINANCIAL AID AVAILABLE?

Various financial support and award options are available to students who enroll for full-time study in the PhD program. These include university fellowships, teaching assistantships, and government and industry sponsored research assistantships. For further information on financial aid, visit <https://www.njit.edu/financialaid/graduate/financial-support.php>

PROGRAM SUMMARY.

Degree Awarded: PhD in Mathematical Sciences

The time taken to complete the PhD degree from entry with a bachelor's degree is usually four to five years.

Program Objective: To prepare students for advanced independent research in the mathematical sciences that is directed to the solution of modern scientific, technological, and industrial problems.

ADMISSIONS REQUIREMENTS:

Bachelor's or master's degree in Mathematics or other mathematically oriented discipline such as Physics, Engineering, or Chemistry.

GPA from prior study of at least 3.5 on a 4.0 scale required.

GRE scores are required. TOEFL (550 or above, 213 computer based) is required for international students from non-English speaking countries who do not have a degree from a U.S. university.

ADVANCED GRADUATE COURSES

Advanced graduate courses offered on a regular basis include:

Analytical and Computational Neuroscience
Asymptotics I and II
Biological Waves and Oscillations
Biostatistics
Computational Fluid Dynamics
Design and Analysis of Experiments
Financial Mathematics
Mathematical Fluid Dynamics I and II
Foundations of Mathematical Biology
Integral Equations
Inverse Problems and Global Optimization
Mathematical and Computational Aspects of Combustion
Mathematical Modeling I and II
Ordinary Differential Equations
Partial Differential Equations
Pattern Formation in Biological Systems
Probability
Sampling Theory
Scientific Computation
Special Topics in Applied Mathematics
Special Topics in Statistics
Statistical Inference
Statistical Theory of Reliability
Stochastic Differential Equations
Systems Computational Neuroscience
Time Series Analysis
Wave Propagation I and II

FOR FURTHER INFORMATION, CONTACT:

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TO APPLY, CONTACT:

Office of Graduate Admissions,
(973) 596-3300, or apply on-line at
<http://www.njit.edu/apply-now>