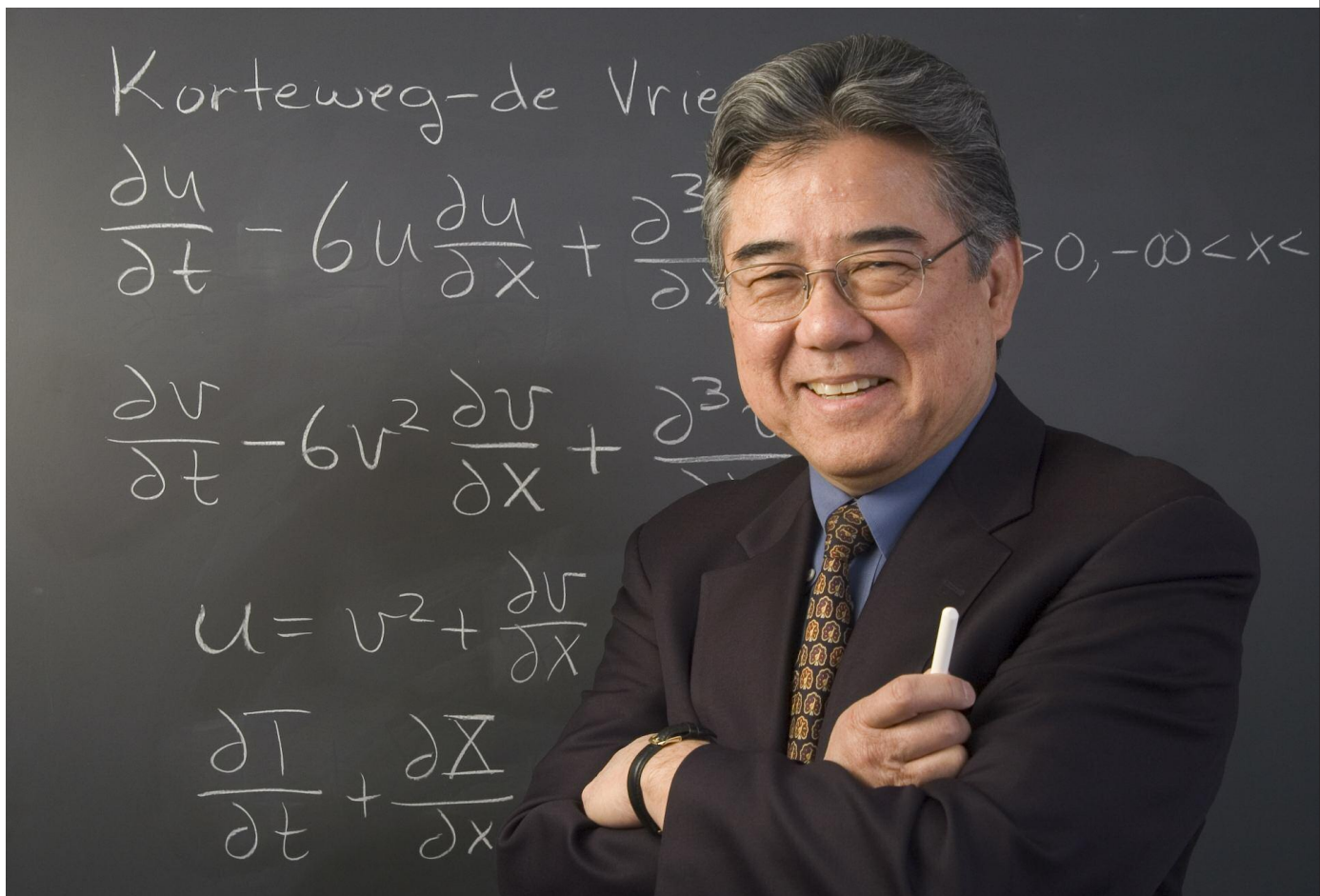


# NJIT

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 [www.njit.edu/admissions/graduate/index.php](http://www.njit.edu/admissions/graduate/index.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:

Graduate Programs, Department of Mathematical Sciences  
[math@njit.edu](mailto:math@njit.edu) 973-596-5782  
[math.njit.edu](http://math.njit.edu)

### TO APPLY, CONTACT:

Office of Graduate Admissions,  
(973) 596-3300, or apply on-line at  
[www.njit.edu/admissions/graduate/apply\\_online.php](http://www.njit.edu/admissions/graduate/apply_online.php)