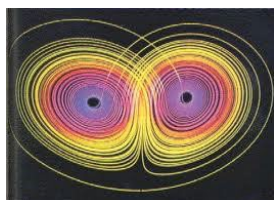


GEORGIA STATE UNIVERSITY

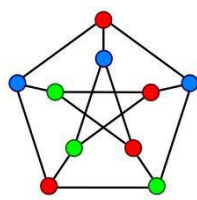
GRADUATE PROGRAMS IN MATHEMATICS AND STATISTICS

Programs: The Department offers **PhD in Mathematics and Statistics** with concentrations in Mathematics, Applied Mathematics, Machine Learning and Data Science, Bioinformatics, and Biostatistics, **MS in Mathematics** with no concentration or concentrations in Applied Mathematics, Bioinformatics, Discrete Mathematics, Scientific Computing, and Statistics, as well as **MS in Applied Statistics** with no concentration or concentrations in Biostatistics, or Statistics and Allied Field. The department has a diverse faculty body conducting impactful research in areas including applied and computational mathematics, bioinformatics, biomathematics, biostatistics, combinatorial matrix theory, combinatorics and graph theory, commutative algebra, dynamical systems, inverse problems, machine learning, mathematical music theory, and scientific computing. Our graduate education is designed for people who wish to prepare for careers as professional mathematicians or statisticians in industry, business, academia or government. All programs present an optimal balance among the broad range of mathematical methods, statistical techniques, and computational skills.

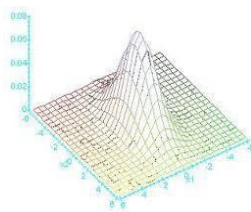
Financial Support: Graduate Research Assistantship (GRA), Graduate Lab Assistantship (GLA), and Graduate Teaching Assistantship (GTA) are available for both MS and PhD students. **More than 90% of PhD students and 70% of the first year MS students have financial support; the department also offers assistantships to all qualified second year MS students.** Other financial support opportunities may be available through faculty members' grants, or from Georgia State University Fellowships and Research Initiatives. All these graduate assistantships and fellowships include tuition waiver.



Dynamical System



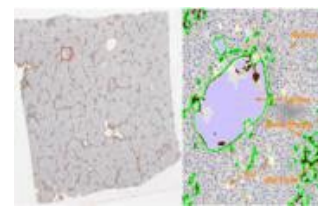
Graph Theory



Advanced Statistical Research



Bioinformatics and Biomedical Analytics



Application Deadline:

Spring	November 15
Summer	May 1
Fall	July 15

Financial Assistantship Deadline

Spring	September 15
Summer	February 15
Fall	February 15

The University:

Georgia State University is the Southeast's leading urban research institution. Georgia State has over 1600 dedicated faculty members who work closely to support over 7000 graduate students as they launch the next phase of their careers. With a diverse campus located in the heart of downtown Atlanta, we offer internships and career-building opportunities, scholarly resources, great food, fantastic sights, friendly faces from around the world, and

a welcoming city with more than a dozen Fortune 500 companies, countless consulates and major nonprofits. We are the No. 2 most innovative university in the nation, according to US News and World Report. In addition to fantastic scholarships and assistantships, we also offer flexible formats and schedules to fit the busiest of lifestyles.

Contact:

Dr. Zhongshan Li, Graduate Director of Mathematics

Email: zli@gsu.edu

Dr. Gengsheng(Jeff) Qin, Graduate Director of Statistics

Email: gqin@gsu.edu

[http://mathstat.gsu.edu/graduate/;](http://mathstat.gsu.edu/graduate/)

<https://cas.gsu.edu/graduate-admissions/>

Ms. Katina Akins, Academic Advisor

Email: kakins@gsu.edu

Address: Department of Mathematics & Statistics, 25 Park Place, 14th floor, Atlanta, Georgia 30303-3083

Mathematics and Statistics Graduate Faculty:

Marina Arav – PhD in Mathematics, Technion, Israel, 2000; Matrix Analysis, Linear Algebra

Igor Belykh – PhD in Mathematics, University of Nizhny Novgorod, Russia, 2000; Dynamical Systems and Computational Neuroscience

Vladimir Bondarenko – PhD in Physics, Moscow State University, 1990; Neuronal and Cardiac Cell Models and Neural Networks

Vince D. Calhoun – PhD in Electrical Eng., Univ. of Maryland, 2002; Signal processing, Medical Image Analysis, Brain Imaging, Data Fusion, Machine Learning, Deep Learning, Neuroinformatics, Data Science, Magnetic Resonance Imaging; Primary affiliation: Psychology

Guantao Chen – PhD in Mathematics, University of Memphis, 1991; Graph Theory and Bioinformatics

Florian Enescu – PhD in Mathematics, University of Michigan - Ann Arbor, 2001; Commutative Algebra, Algebraic Geometry

Russell Jeter – PhD in Mathematics, Georgia State University, 2018; Large-Scale Learning Tools, Data Science, Reinforcement Learning, Stochastically Evolving Networks, Stochastically Evolving Networks, Healthcare Optimization

Yi Jiang – PhD in Physics, University of Notre Dame, 1998; Bioinformatics and Biophysics

Zhongshan (Jason) Li – PhD in Mathematics, North Carolina State University, 1990; Combinatorial Matrix Theory and Graph Theory

Li-Hsiang Lin – PhD in Industrial Engineering, Georgia Institute of Technology, 2020; Statistics, Machine Learning

Ruiyan Luo – PhD in Statistics, University of Wisconsin-Madison, 2007; Biostatistics; Primary affiliation: School of Public Health

Valerie A. Miller – PhD in Mathematics, University of South Carolina, 1985; Numerical Analysis, Mathematical Visualization

Yaroslav Molkov – Ph.D. in Physics and Mathematics, Russian Academy of Sciences, 2009; Theoretical and Computational Neuroscience

Mariana Montiel – PhD in Mathematics, University of New Hampshire, 2005; Mathematical Music Theory

Liang Peng – Ph.D. in statistics, Erasmus University Rotterdam, 1998; Extreme Value Theory in Finance, Nonparametric Statistics, Risk Management; Primary affiliation: Robinson College of Business

Gengsheng (Jeff) Qin – PhD in Statistics, Hong Kong University of Science and Technology, 1999; Statistical Methods in Diagnostic Medicine, Nonparametric Statistics

Pejman Sanaei – PhD in Applied Math, New Jersey Institute of Tech., 2017; Applied Mathematics, Mathematical Modeling, Fluid Mechanics, Fluid Structure Interaction, Tissue Engineering

Andrey Shilnikov – PhD in Mathematics, University of Nizhny Novgorod, Russia, 1990; Dynamical Systems and Computational Neuroscience; Primary affiliation: Neuroscience Institute

Alexandra Smirnova (Dept. Chair)– PhD in Mathematics, Kansas State University, 2000; Applied Inverse Problems: Theoretical and Computational Aspects

Samuel Spiro – PhD in Mathematics, University of California - San Diego, 2022; Probabilistic Combinatorics, Spectral Graph Theory

Michael Stewart – PhD in Electrical Engineering, University of Illinois-Urbana, 1996; Matrix Theory and Numerical Analysis

Hendricus van der Holst – PhD in Mathematics, University of Amsterdam, 1996; Bioinformatics and Combinatorial Optimization

Yongwei Yao – PhD in Mathematics, University of Kansas, 2002; Commutative Algebra

Xiaojing Ye – PhD in Mathematics, University of Florida, 2011; Applied and Computational Mathematics

Chi-Kuang Yeh – PhD in Statistics, University of Waterloo, 2023; Functional Data Analysis, Machine Learning, High-dimensional Statistical Inference, Dependence Modeling, Optimal Design of Experiment, Applications in Drug Development, Toxicology, Neuroscience, etc.

Jing Zhang - PhD in Statistics, Harvard University, 2009; Statistics and Bioinformatics

Yi Zhao – PhD in Mathematics, Rutgers University, 2001; Combinatorics and Graph Theory

Yichuan Zhao – PhD in Statistics, Florida State University, 2002; Nonparametric Statistics, Survival Analysis, Monte Carlo Methods

Georgia State University does not discriminate on the basis of race, color, religion, national origin, sex, age, disability or veteran status.



ATTENTION UNDERGRADUATES! MATHEMATICS MINOR INFORMATION

The requirements for the minor in Mathematics and Statistics have recently changed. The new requirements are:

Students who wish to minor in mathematics and statistics must take at least 15 hours of courses in mathematics or statistics, including at least nine hours at the 3000 level or above (excluding MATH 3050, MATH 3070, and MATH 3090). Students are responsible for meeting all prerequisite requirements for the mathematics and statistics courses they choose to take and are strongly encouraged to take these prerequisites as early as possible in their academic career. If MATH 2212 is required in the Mathematics Area or the STEM Area in the student's major, they will need to choose an additional course as a substitute and are urged to consult with the Director of Undergraduate Studies in the Department of Mathematics and Statistics on guidance for a proper substitute.

These changes should make minoring in mathematics and statistics more accessible to a variety of students in other disciplines. You probably don't need to be convinced that this minor has some very real and specific advantages, but below are key benefits to consider:

Increased Confidence in Quantitative Areas:

For students whose major involves quantitative analysis, a mathematics and statistics minor can increase their confidence and competence in handling statistical and numerical problems.

Increased Marketability:

In today's job market, mathematical proficiency is highly valued. A minor in mathematics can make a resume stand out, signaling to employers that the student has strong quantitative and analytical skills.

Broader Career Opportunities:

Many fields, such as finance, engineering, computer science, and economics, require a solid understanding of mathematics. A minor in mathematics and statistics can open doors to a wider range of career options and potentially lead to roles that require advanced quantitative skills.

Enhanced Data Interpretation Skills:

Mathematics provides tools for analyzing and interpreting data. This is especially useful in fields such as social sciences, biology, and business, where data-driven decision-making is crucial.

Minoring in mathematics and statistics will complement your major by providing you a diverse skill set and open up additional opportunities for academic, professional and personal growth.

Have we piqued your interest? To declare the mathematics and statistics minor, simply ask your academic advisor to add it on your behalf.

If you have other questions, please contact Dr. Leslie Meadows, Director of Undergraduate Studies in the Department of Mathematics and Statistics: lmeadows2@gsu.edu



MS in Applied Statistics

Courses Additional 50+ Courses Available

STAT 8090 - Applied Multivariate Statistics
 STAT 8630 - Experimental Designs
 STAT 8670 - Computational Methods in Statistics
 STAT 8678 - SAS Programming and Data Analysis
 STAT 8310 - Bayesian Data Analysis
 STAT 8440 - Survival Analysis

STAT 8540 - Advanced Methodologies in Biostatistics
 STAT 8610 - Time Series Analysis
 STAT 8672 - Statistical Learning for Big Data
 STAT 8680 - Applied Nonparametric Methods
 STAT 8700 - Categorical Data Analysis
 STAT 8760 - Sample Surveys

CAREER PATHS OF GRADUATES

The contemporary employment trends suggest increased demand for workers who are highly skilled in using statistics and data analysis in a widening range of applications. Statistics careers are lauded for abundant job opportunities with high income levels and impressive job satisfaction rates. The Bureau of Labor Statistics projects a 35% growth in job opportunities for statisticians by the year 2029. US News and World Report, the magazine known for its research into and analysis of the best jobs in the country, ranks statistician as its #6 overall job, #2 best business job, and #5 best STEM job. Our applied statistics graduates are expected to find jobs as statisticians, biostatisticians, data scientists, and data analysts in healthcare, finance, industry, government, academia, and other fields.

At the GSU Department of Mathematics and Statistics, most M.S. students get GLA positions (with tuition waiver) in the emporium tutoring lab, which serves a high enrollment undergraduate level elementary statistics course, thus getting both assistantship and extra professional training.

Tailoring its curriculum to the practical application of statistics, the program addresses the demand for professionals capable of informed, data-driven decision-making, ready to meet the current and future needs of growing economy.

Application

Requirements:

- A baccalaureate degree in mathematics, statistics or its equivalent
- Courses in mathematics equivalent to:

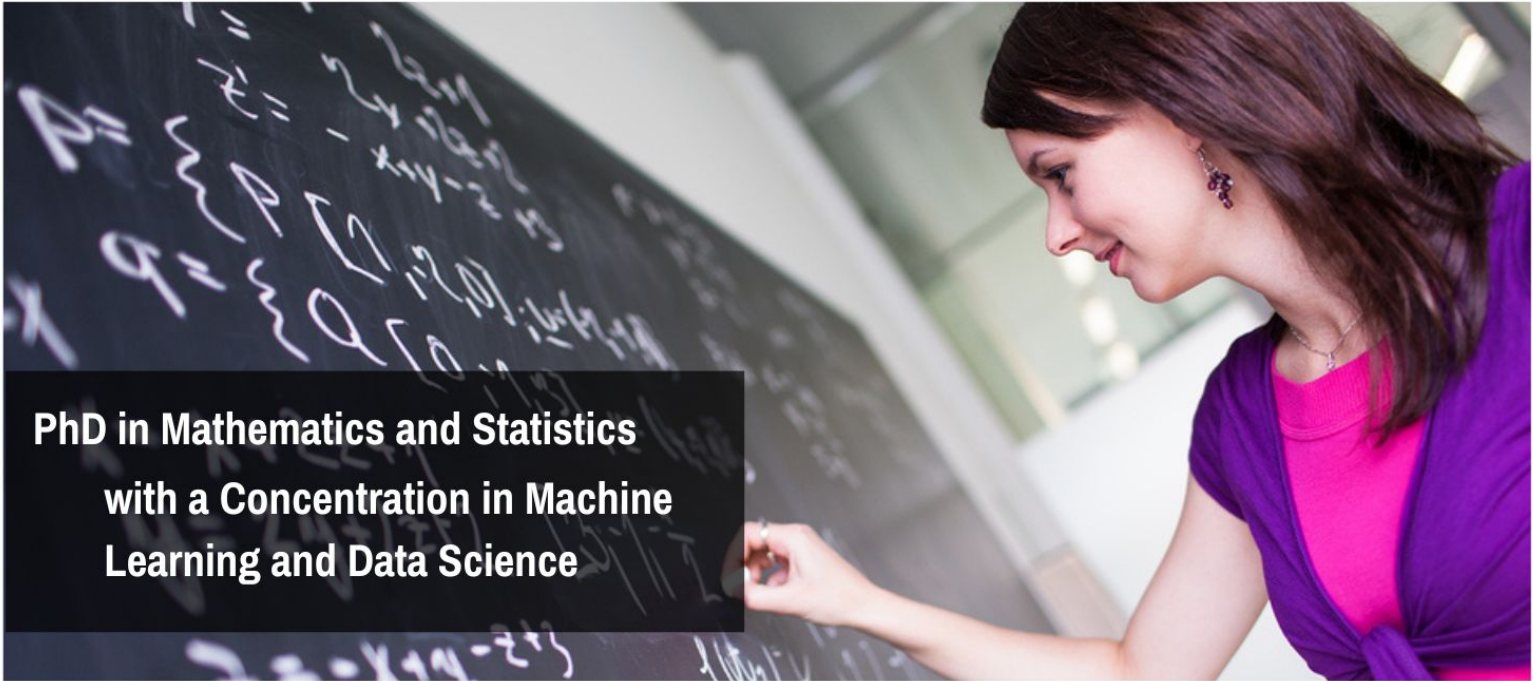
MATH 4435/MATH 6435
Linear Algebra II

MATH 4751/MATH 6751
Mathematics
Statistics I

MATH 4752/MATH 6752
Mathematics
Statistics II

- Statement of Purpose
- Three Letters of Recommendation
- Transcripts (one from each institution attended)
- Official TOEFL/IELTS Scores (international applicants only)

Application Deadlines: Fall: June 15th
 Spring: Nov 1st
 Summer: May 1



PhD in Mathematics and Statistics with a Concentration in Machine Learning and Data Science

Courses Additional 50+ Courses Available

STAT 8090 - Applied Multivariate Statistics
STAT 8305 - Pattern Recognition in Machine Learning
STAT 8310 - Bayesian Data Analysis
STAT 8540 - Advanced Methodologies in Biostatistics
STAT 8670 - Computational Methods in Statistics
MATH 8600 - Mathematical Foundations of Deep Learning

MATH 8525 - Applied Stochastic Processes
MATH 8610 - Advanced Numerical Analysis
MATH 8620 - Numerical Linear Algebra
CSC 6780 - Fundamentals of Data Science
CSC 8740 - Advanced Data Mining
CSC 8850 - Advanced Machine Learning

CAREER PATHS OF GRADUATES

In today's digital age, the rapid expansion of data has led to increasingly complex challenges in the realms of machine learning and data science, touching every facet of our lives. In healthcare, finance, environmental science, marketing and countless other domains, the ability to derive meaningful insights and solve challenges from vast datasets has become not only a valuable skill, but a necessity for informed decision making. Beyond traditional employment, this concentration may also inspire students to launch their own startups

\$100K+ Average starting salary
for PhD graduates

100% Career placement rate

100% Full-time admitted PhD
students receive
assistantship support

10^x The average growth
rate for jobs in
Machine Learning and
Data Science

Application Requirements:

(1a) a BS in Mathematics, Statistics or its equivalent with a GPA of at least 3.0 out of 4.0 and courses equivalent to Linear Algebra II, Analysis I, and Mathematical Statistics I

(1b) MS in Mathematics, Statistics, Data Science or an equivalent with a GPA of at least 3.0 out of 4.0;

(2) Transcripts;

(3) Statement of Purpose;

(4) Three letters of recommendation.

International students must also submit a score of at least 80 on the TOEFL or an IELTS band score of 6.5.

Application Deadlines: Fall: June 15th
Spring: Nov 1st
Summer May 1