

# MASTER OF SCIENCE IN APPLIED STATISTICS



## Why the MS in Applied Statistics (MSAS)?

In an increasingly data-driven world, businesses need to make sense of the data they are collecting to make sound decisions. The job market seeks people with a strong background in fundamental statistical training, a solid exposure to operations research and a firm understanding of management information systems and business operations. Students graduating with an MSAS have all of the tools to be successful in a career in industry or in a PhD program.

## Why the MS in Applied Statistics at BGSU?

The MSAS at BGSU is an interdisciplinary graduate program that encourages students to take coursework in four departments across two colleges. BGSU already thrives on its strong and nationally recognized programs in mathematics and statistics, applied statistics, operations research, management information systems, and computer science. BGSU has embraced a long standing tradition of collaborations among faculty from these fields. These strengths and traditions at BGSU put the university in a unique position to offer a high quality MS in Applied Statistics degree.

## Learning outcomes

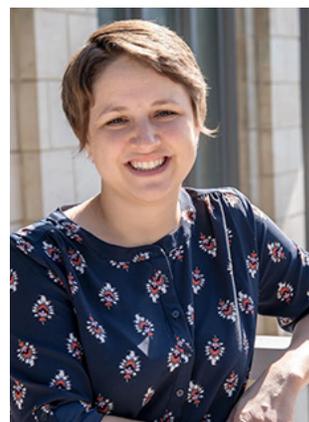
The MS in Applied Statistics degree program at BGSU strives to develop a learning environment that stimulates intellectual curiosity, enhances critical thinking, develops quantitative reasoning and problem-solving skills, encourages ethical behavior and develops communication and leadership ability.

## Professional opportunities

Our graduates have gone on to successful careers in industry and academia. Some of our alumni are data scientists working at Harvard University, The Cleveland Clinic, First Solar, Owens Corning, Toyota, Bridgestone Americas, Allstate Insurance, Nationwide Insurance, Amazon, Bank of America, and The Walt Disney Company, to name a few. The program also provides excellent preparation for the student who wishes to pursue a Ph.D. degree in statistics, biostatistics, or operations research. Many of our graduates have been admitted to top Ph.D. programs such as Harvard, Penn, Ohio State, Michigan, Northwestern, North Carolina, and UCLA.

## Program strengths and uniqueness

- Students can choose the traditional applied statistics program or specialize in business analytics. The program provides a variety of electives that allow a student to tailor the degree to fit their career goals.
- The MSAS is run jointly between the Department of Applied Statistics and Operations Research within the College of Business and the Department of Mathematics and Statistics in the College of Arts and Sciences.
- In addition to developing analytical skills in descriptive, predictive and prescriptive analytics, students can acquire technical skills in database management, business intelligence and big data analytics, along with complementary soft skills in management and leadership.
- Students have the possibility of working in our Center for Business Analytics, assisting faculty members across campus or external clients with their statistical and optimization project needs.
- Students can participate in a business analytics case competition involving the analysis of real business data to apply what they have learned in the classroom and compete for prize money.
- The College of Business has a dedicated Career Center to help place students in internships with local businesses as well as for placement upon graduation.



*"The training I received from the ASOR department has proved to be invaluable. The professors are committed to providing a well-rounded statistical education for their students. In addition to their ability to lay out difficult statistical theory in a clear manner, they also provide learning experiences through real-life data. It is this intricate coupling of theory and practice that enables their students to thrive beyond the classroom."*

— Erin Leatherman, '08  
Assistant Professor of Statistics  
Kenyon College

## FOR MORE INFORMATION

Contact Dr. Christopher Rump, Graduate Coordinator, College of Business, at [cmrump@bgsu.edu](mailto:cmrump@bgsu.edu) or 419-372-8090, or Carol Mathis, Department Secretary, at [cmathis@bgsu.edu](mailto:cmathis@bgsu.edu) or 419-372-2363.

## Admission requirements

Applicants should have satisfactorily completed courses in differential and integral calculus, including multivariable calculus, and a course in linear algebra. Although no background in statistics is required for entrance into the program, it would be beneficial for a student to have completed an introductory two-course sequence in probability and statistics. If a student has not completed the calculus requirement, these courses will be prescribed as remedial work and will not count toward the degree program.

Admission to the MSAS program requires completion of a bachelor's degree from an accredited institution and a cumulative undergraduate GPA of at least 3.0 on a 4-point scale. Applicants are required to submit scanned copies of official or unofficial transcripts from all institutions attended. Upon admission, final official or notarized copies of transcripts from all institutions where degrees were earned and diplomas from international institutions must be submitted. Applicants are also required to submit official scores from the Graduate Record Examination (GRE) or the Graduate Management Admission Test (GMAT).

All applicants must submit three letters of recommendation from faculty or professionals in the field, a statement of purpose, and a current resume.

International applicants are also required to submit scores from the International English Language Testing System (IELTS), the Pearson Test of English (PTE), or the Test of English as a Foreign Language (TOEFL). Successful completion of ELS 112 will also be accepted for this requirement.

## Cost of tuition

Please refer to [www.bgsu.edu/bursar](http://www.bgsu.edu/bursar) for current information on tuition and fees.

## Financial assistance

A limited number of scholarships and graduate assistantships are available on a competitive basis for full-time students who qualify. For more information, please contact the department.

Domestic students enrolled in four (4) or more credit hours are eligible to apply for financial aid using the Free Application for Federal Student Aid (FAFSA) to calculate student contribution and financial need. You may apply online at [www.fafsa.ed.gov](http://www.fafsa.ed.gov).

## How to apply

Visit the BGSU Graduate College website at [www.bgsu.edu/graduate/admissions](http://www.bgsu.edu/graduate/admissions).

**Fall Application Deadline:** Applications and supporting materials should be received by February 1st to receive fullest consideration for admission and funding. Applications received after February 1st will be reviewed for admission, but consideration for financial assistance may be limited based on available funds.

## Curriculum

A total of 36 (thesis option) or 33 (comprehensive exam option) are required for the MS in Applied Statistics degree. The degree can be completed in three semesters (Fall, Spring, Fall).

### Masters of Science in Applied Statistics

#### Required Core Courses

- MATH 6410: Probability Theory I
- MATH 6420: Probability Theory II
- STAT 5020: Regression Analysis
- STAT 5060: Sample Design
- STAT 5080: Experimental Design

#### Electives (2 STAT/OR and 2 MATH)

##### Plan I Thesis Option (36 credits)

- STAT 6990: Thesis Research and one more elective course

##### Plan II Comprehensive Exam Option (33 credits)

- STAT 6750: Research Methods in Statistics and Comprehensive Exam

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MS in Applied Statistics degree with a specialization in Business Analytics requires 39 credits and is generally completed in four semesters.

### Masters of Science in Applied Statistics

*with Specialization in Business Analytics*

#### Required Core Courses

- MATH 6410: Probability Theory I
- MATH 6420: Probability Theory II
- IS 5400: Business Database Management
- OR 6610: Linear and Integer Programming
- STAT 5020: Regression Analysis
- STAT 5080: Experimental Design
- STAT 5160: Time Series Analysis
- STAT 6440: Data Mining

#### Applied Probability Elective (1 Course)

#### MATH/STAT Elective (1 Course)

#### CS/IS/OR Electives (1 Course)

#### ECON/MBA Elective (1 Course)

##### Plan I Thesis Option (36 credits)

- STAT 6990: Thesis Research

##### Plan II Comprehensive Exam Option (39 credits)

- STAT 6750: Research Methods in Statistics and Comprehensive Exam