

STATISTICS, BA

Contact

Department Chair: Graham Leuschke, 215 Carnegie Building,
gjlusch@syr.edu, 315-443-1478

Associate Chair for Undergraduate Studies: Leonid Kovalev, 311C
Carnegie Building, lvkovale@syr.edu, 315-443-1487

Advisor

Hyune-Ju Kim, hjkim@syr.edu

Faculty

Uday Banerjee, Pinyuen Chen, Dan Coman, Steven Diaz, Shukai Du, Nicole L. Fonger, Pierre Yves Gaudreau Lamarre, Jack E. Graver, Duane Graysay, Pawel Grzegorzolka, Thomas John, Lee Kennard, Hyune-Ju Kim, Justin Ko, Leonid Kovalev, Graham J. Leuschke, Wei Li, Jianxuan Liu, Adam Lutoborski, Rachana Maharjan, Joanna O. Masingila, Moira McDermott, Jeffrey Meyer, Claudia Miller, Jani Onninen, Josh Pollitz, Declan Quinn, Hamidreza Rahmati, Lixin Shen, Gregory Verchota, Stephan Wehrli, William Wylie, Yiming Zhao

B.A. in Statistics is recommended for students who intend to pursue a career in a field that requires quantitative training with an emphasis in statistics. The B.A. program provides students with fundamental knowledge in statistical theory and methods, and also practical skills for data analysis. The flexibility of the B.A. program, which requires fewer credits in mathematics than the B.S. program, makes it an ideal option for a dual/double major, particularly for those whose majors are in social sciences, humanities, or management.

Student Learning Outcomes

1. Demonstrate facility with the basic mathematics techniques used in statistical theory and applications.
2. Effectively communicate statistical ideas.
3. Manipulate and summarize data efficiently and effectively.
4. Formulate statistical models and perform statistical inferences using fundamental concepts and principles of statistics.
5. Conduct data analysis using various statistical methods and summarize findings.

Preliminary Requirements

As a preliminary requirement for the statistics major, students complete 25 credits in the following classes with no grade below a C: MAT 221 Elementary Probability and Statistics I, MAT 222 Elementary Probability and Statistics II, MAT 295 Calculus I, MAT 296 Calculus II, MAT 331 First Course in Linear Algebra, MAT 397 Calculus III, and MAT 422 Statistical Computing. These courses are prerequisites for most upper-division statistics courses. The following sequence is recommended: MAT 221 Elementary Probability and Statistics I and MAT 295 Calculus I in the first semester; MAT 222 Elementary Probability and Statistics II and MAT 296 Calculus II in the second semester; MAT 331 First Course in Linear Algebra and MAT 397 Calculus III in the third semester; and MAT 422 Statistical Computing when appropriate. However, students with knowledge of trigonometry and a year of high school calculus may be able to enter the sequence at MAT 296 Calculus II or even MAT 397 Calculus III; students with less preparation may be advised to complete MAT 194 Precalculus before beginning the calculus sequence. Students

considering becoming Statistics majors are strongly encouraged to talk to a major advisor as soon as possible.

| Code | Title | Credits |
|---|--|-----------|
| Preliminary Requirements | | |
| MAT 221 | Elementary Probability and Statistics I | 4 |
| MAT 222 | Elementary Probability and Statistics II | 3 |
| MAT 295 | Calculus I | 4 |
| MAT 296 | Calculus II | 4 |
| MAT 331 | First Course in Linear Algebra | 3 |
| MAT 397 | Calculus III | 4 |
| MAT 422 | Statistical Computing | 3 |
| Upper-Division Courses | | |
| In addition to the preliminary requirement described above, students are required to complete the following coursework with an average of at least 2.0. | | |
| MAT 521 | Introduction to Probability | 3 |
| MAT 524 | Regression Analysis | 3 |
| MAT 525 | Mathematical Statistics | 3 |
| Select three of the following: | | 9 |
| MAT 495 | Fundamentals of Data Science | |
| MAT 526 | Introduction to Stochastic Processes | |
| MAT 527 | Analysis of Variance and Experimental Design | |
| MAT 528 | Probability Models for Actuarial Science | |
| MAT 529 | Introduction to Bayesian Statistics | |
| MAT 532 | Applied Linear Algebra | |
| MAT 581 | Numerical Methods with Programming | |
| MAT 598 | Statistics Seminar | |
| Total Credits | | 43 |

College of Arts and Sciences Requirements

For all Arts and Sciences|Maxwell students, successful completion of a bachelor's degree in this major requires a minimum of 120 credits, 96 of which must be Arts and Sciences|Maxwell credits, completion of the Liberal Arts Core (<https://coursecatalog.syracuse.edu/undergraduate/arts-sciences/#text>) requirements, and the requirements for this major (30 credits) that are listed above.

Dual Enrollments:

Students dually enrolled in **Newhouse*** and Arts and Sciences|Maxwell will complete a minimum of 122 credits, with at least 90 credits in Arts and Sciences|Maxwell coursework and an Arts and Sciences|Maxwell major.

*Students dually enrolled in the College of Arts and Sciences|Maxwell as first year students must complete the Liberal Arts Core (<https://coursecatalog.syracuse.edu/undergraduate/arts-sciences/#text>). Students who transfer to the dual program after their first year as singly enrolled students in the Newhouse School will satisfy general requirements for the dual degree program by completing the Newhouse Core Requirements.

Undergraduate University Requirements

The following requirements and experiences apply to all Syracuse University Undergraduate matriculated degree programs.

- IDEA Course Requirement (<https://coursecatalog.syracuse.edu/undergraduate/idea-course-requirement/>)

- First Year Seminar (<https://coursecatalog.syracuse.edu/undergraduate/courses/fys/>)