STATISTICS, BS

Contact

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The B.S. in Statistics is recommended for students who intend to pursue a career in a field that requires rigorous statistical training. The program is designed to equip students with a solid understanding of statistical concepts and methods, as well as practical skills to analyze data. Upon the successful completion of the B.S. program, graduates will be well prepared for statistical analysis and research in industry or government, or graduate study in statistics and/or related fields.

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.
6. Demonstrate advanced knowledge and skills in statistical computing.
7. Demonstrate advanced knowledge and skills in statistical modeling and applications.

Code	Title	Credits
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, MAT 222, MAT 295, MAT 296, MAT 331, MAT 397, and MAT 422. These courses are prerequisites for most upper-division statistics courses. The following sequence is recommended: MAT 221 and MAT 295 in the first semester; MAT 222 and MAT 296 in the second semester; MAT 331 and 397 in the third semester; and MAT 422 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 or even MAT 397; students with less preparation may be advised to complete MAT 194 before beginning the calculus sequence. Students considering becoming Statistics majors are strongly encouraged to talk to a major advisor as soon as possible.		
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
Statistics Core Requirements		
In addition to the preliminary requirement described above, students are required to complete the following statistics 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
MAT 527	Analysis of Variance and Experimental Design	3
MAT 598	Statistics Seminar	3
Upper-Division Courses		
Students are also required to complete 15 additional credits in mathematics (MAT) courses from the following list:		15
At least two courses from the following list (495, 526, 528, 529) must be included in the 15 credits:		6
MAT 495	Fundamentals of Data Science	
MAT 526	Introduction to Stochastic Processes	
MAT 528	Probability Models for Actuarial Science	
MAT 529	Introduction to Bayesian Statistics	
MAT 412	Introduction to Real Analysis I	
MAT 511	Advanced Calculus	
MAT 512	Introduction to Real Analysis II	
MAT 513	Introduction to Complex Analysis	
MAT 517	Partial Differential Equations and Fourier Series	
MAT 518	Fourier Series, Transforms and Wavelets	
MAT 531	Second Course in Linear Algebra	
MAT 532	Applied Linear Algebra	
MAT 545	Introduction to Combinatorics	
MAT 551	Fundamental Concepts of Geometry	
MAT 562	Elementary Topology	
MAT 581	Numerical Methods with Programming	
Course Substitutions		
Up to 3 credits in other MAT courses numbered 490 or higher and in advanced courses in other departments that have been approved in advance by the student's major advisor may be included in the 15 credits.		3
Total Credits		**64**

Distinction in Statistics

Distinction in Statistics is awarded by the Mathematics Department upon completion of a B.S. in Statistics with a minimum cumulative GPA of 3.4, a minimum GPA of 3.6 in mathematics (MAT) courses at the 300+ level, and either an A or A- in the Statistics Seminar.

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/)