STATISTICS (BS)

Students earning a B.S. in Statistics will acquire knowledge of a broad range of statistical techniques and methods, an understanding of the mathematical underpinnings of these methods and techniques, and the computational skills, such as R and SAS, to apply and implement these methods using real data. Statistics majors are in high demand in industry in a wide array of fields such as medical research, technology companies, pharmaceuticals, insurance, finance, government, genetics, public health, sports, and epidemiology to name a few.

Related Programs

Master's

- Applied Statistics (MS) (https://catalog.luc.edu/graduate-professional/graduate-school/arts-sciences/mathematics-statistics/applied-statistics-ms/)

Combined

- Mathematics - Education Track/Applied Statistics (BS/MS) (https://catalog.luc.edu/undergraduate/accelerated-bachelors-masters-program/mathematics-education-track-bs-applied-statistics-ms/)
- Mathematics and Computer Science/Applied Statistics (BS/MS) (https://catalog.luc.edu/undergraduate/accelerated-bachelors-masters-program/mathematics-computer-science-bs-applied-statistics-ms/)

Curriculum

AP Credit Policies (https://catalog.luc.edu/undergraduate/arts-sciences/mathematics-statistics/#policiestext)

Code	Title	Hours
MATH 161	Calculus I	4
MATH 162	Calculus II	4
MATH 212	Linear Algebra	3
MATH 263	Multivariable Calculus	4
STAT 203	Introduction to Probability & Statistics	3
or STAT 335	Introduction to Biostatistics	
STAT 303	SAS Programming & Applied Statistics	3
STAT 304	Introduction to Probability	3
STAT 305	Introduction to Mathematical Statistics	3
STAT 307	Statistical Design & Analysis of Experiments (capstone)	3
STAT 308	Applied Regression Analysis	3
Science Requirement		
Select two of the following:		6
ANTH 101	Human Origins	
ANTH 103	Biological Background Human Social Behavior	
BIOL 101	General Biology I	
BIOL 102	General Biology II	
CHEM 101	General Chemistry A Lecture/Discussion	
CHEM 102	General Chemistry B Lecture/Discussion	
CHEM 160	Chemical Structure and Properties	
CHEM 180	Chemical Reactivity I	
ENVS 101	The Scientific Basis of Environmental Issues	
ENVS 218	Biodiversity & Biogeography	
ENVS 224	Climate & Climate Change	
PHYS 121	College Physics I with Calculus Lecture/Discussion	
PHYS 122	College Physics II with Calculus Lecture/Discussion	
Electives		
Select three of the following:		9
STAT 306	Intro to Stochastic Processes	
STAT 310	Categorical Data Analysis	
STAT 311	Applied Survival Analysis	
STAT 321	Computational Aspects of Modeling and Simulation	
STAT 336	Advanced Biostatistics	
STAT 337	Quantitative Methods in Bioinformatics	
STAT 338	Predictive Analytics	
STAT 344	Longitudinal Data Analysis and Mixed Modelling	
STAT 351	Nonparametric Statistical Methods	
STAT 370	Data Science Consulting	
STAT 388	Topics	
Total Hours		**48**

Note: This degree has waivers for both Quantitative and Scientific core.

Suggested Sequence of Courses

Note: This is only one possibility. Among other things, depending on initial math placement, which can range from MATH 100 to MATH 263, the schedule will look very different. Especially for students starting at MATH 161 or above, there is a lot of space to pursue a minor or even a second major.

Course	Title	Hours
Year 1		
Fall		
MATH 161	Calculus I	4
	Hours	**4**
Spring		
MATH 162	Calculus II	4
STAT 203	Introduction to Probability & Statistics	3
	Hours	**7**
Year 2		
Fall		
MATH 263	Multivariable Calculus	4
STAT 303	SAS Programming & Applied Statistics	3
Science Requirement		3
	Hours	**10**
Spring		
MATH 212	Linear Algebra	3
STAT 308	Applied Regression Analysis	3
Science Requirement		3
	Hours	**9**
Year 3		
Fall		
STAT 304	Introduction to Probability	3
	Hours	**3**

Spring		
STAT 305	Introduction to Mathematical Statistics	3
300-level Major Elective		3
	Hours	**6**
Year 4		
Fall		
STAT 307	Statistical Design & Analysis of Experiments	3
300-level Major Elective		3
	Hours	**6**
Spring		
300-level Major Elective		3
For students in departmental honors: Additional 300-level math class		
	Hours	**3**
	Total Hours	**48**

College of Arts and Sciences Graduation Requirements

All Undergraduate students in the College of Arts and Sciences are required to take two Writing Intensive courses (6 credit hours) as well as complete a foreign language requirement at 102-level or higher (3 credit hours) or a language competency test. More information can be found here (https://www.luc.edu/cas/college-requirements/).

Additional Undergraduate Graduation Requirements

All Undergraduate students are required to complete the University Core, at least one Engaged Learning course, and UNIV 101. SCPS students are not required to take UNIV 101. Nursing students in the Accelerated BSN program are not required to take core or UNIV 101. You can find more information in the University Requirements (https://catalog.luc.edu/undergraduate/university-requirements/) area.

Learning Outcomes

- After completing STAT 203 and STAT 304, students majoring in statistics will understand the fundamentals of probability theory by applying them properly to statistical methods.
- After completing introductory statistics courses (STAT 203, STAT 303, STAT 308), students majoring in statistics will be able to analyze and interpret descriptive statistics through a report.
- Upon completing the program, students majoring in statistics will be able to properly use statistical reasoning as it applies to inferential methods in a written analysis and/or oral presentation.
- Upon completing the program, students majoring in statistics will be able to create and interpret statistical models including understanding the limitations of the model in a written analysis and/or oral presentation.
- Upon completing the program, students majoring in statistics will be able to use statistical software to generate appropriate output for data analysis.