BACHELOR OF SCIENCE

Statistics, the science of learning from data, has become increasingly important as scientists, businesses, and governments rely more and more on data-driven decision-making. Statisticians work in many areas, including business, economics, medicine, epidemiology, agriculture, environmental sciences, sports, and all aspects of government. With the increasing digitization and networking of society, data have become ever more ubiquitous, further expanding the demand for statisticians and their expertise in the collection and analysis of data.

About this Program

- **College:** Liberal Arts and Sciences (http://catalog.ufl.edu/UGRD/colleges-schools/UGLAS/)
- **Degrees:** Bachelor of Arts (http://catalog.ufl.edu/UGRD/colleges-schools/UGLAS/STA_BA_BS/STA_BA/) | Bachelor of Science (p. 1)
- **Credits for Degree:** 120
- **Contact:** Email (dathien@stat.ufl.edu?Subject=Statistics%20Major)
- **More Info**

To graduate with this major, students must complete all university, college, and major requirements.

Department Information

The mission of the Department of Statistics is to provide its students with a fundamental understanding of statistical reasoning and methodology, to train them to apply this knowledge to the collection and analysis of data, and to prepare them for careers in a highly technological society in which science and decision-making are increasingly driven by a rapid expansion in the quantity and availability of data.
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Map (http://campusmap.ufl.edu/#/index/0010)

Curriculum

- Actuarial Science Minor
- Combination Degrees
- Data Analytics Certificate
- Data Science
- Statistics
- Statistics Minor

Statistics majors learn how to design studies that effectively address the purpose of a research project and how to properly analyze the data collected in such studies. Core courses cover statistical methods applicable in a wide variety of settings (e.g., regression and design of experiments) as well as the conceptual and mathematical foundations of statistics. Other courses explore specific data types often encountered in practical settings. Statistics majors have the option to minor in actuarial science, a profession involving the statistical and financial practices of insurance.

Students who wish to major in Statistics must consult a department advisor early in their programs.

Requirements for the Major

The BS in Statistics requires 12 credits of foundation coursework, 25 credits of core coursework, and 12 credits of major electives for a minimum of 49 credits in statistics and related coursework. The BS is intended for students who wish to pursue graduate study in statistics or a closely related area, and for other strong students with a deeper interest in the mathematical foundations of statistics.

Students must receive minimum grades of B in MAC 2312 and MAC 2313. In addition, they must receive minimum grades of C within two attempts (including withdrawals) in every other required course, and in every course counted toward the 12-credit major elective requirement. Students cannot retake foundation, core, or statistics elective courses after earning a minimum grade of C, with the exception of MAC 2312 and MAC 2313 (which may be retaken to receive the minimum B grades). It is important that the prerequisites for each course are met before the course is attempted.

A minimum GPA of 2.0 must be achieved on all attempts of core and major elective courses. A minimum GPA of 3.0 is required in all attempts of MAC 2312 and MAC 2313. The grades from all attempts to satisfy foundation and core requirements will be used to compute the minimum GPA.

A minimum of 18 credits of major coursework must be taken at UF, including a minimum of 12 credits of core coursework.

Required Foundation Coursework

Code	Title	Credits
Required Foundation Coursework		
Select one Calculus sequence:		12
MAC 2311	Analytic Geometry and Calculus 1	
& MAC 2312	and Analytic Geometry and Calculus 2	
& MAC 2313	and Analytic Geometry and Calculus 3	
MAC 3472	Honors Calculus 1	
& MAC 3473	and Honors Calculus 2	
& MAC 3474	and Honors Calculus 3	
Core Courses		
STA 3100	Programming With Data in R	3
STA 4210	Regression Analysis [1]	3
STA 4211	Design of Experiments [1,2,4]	3
STA 4321	Introduction to Probability [1]	3
STA 4322	Introduction to Statistics Theory (1,3)	3
STA 4504	Categorical Data Analysis	3
MAS 4105	Linear Algebra 1	4
MHF 3202	Reasoning and Proof in Mathematics	3
Statistics BS Major Electives		
Select two:		6
STA 4222	Sample Survey Design	
STA 4241	Statistical Learning in R	
STA 4273	Statistical Computing in R	
STA 4502	Nonparametric Statistical Methods	
STA 4702	Multivariate Statistical Methods	
STA 4712	Introduction to Survival Analysis	
STA 4821	Stochastic Processes	
or MAP 4102	Probability Theory and Stochastic Processes 2	
STA 4853	Introduction to Time Series and Forecasting	
STA 4930	Special Topics	
Statistics BS Math Electives		
Select two:		6
MAA 4102	Introduction to Real Analysis 1 [1]	
or MAA 4211	Real Analysis and Advanced Calculus 1	
or MAA 4103	Introduction to Real Analysis 2	
or MAA 4212	Real Analysis and Advanced Calculus 2	
MAA 4402	Functions of a Complex Variable	
MAD 4401	Introduction to Numerical Analysis	
MHF 4102	Elements of Set Theory	
Total Credits		**49**

1. The course sequences, STA 4210-STA 4211 and STA 4321-STA 4322 should be completed by the end of the junior year.
2. Prerequisite: STA 4210 (https://catalog.ufl.edu/search/?P=STA%204210).
3. Prerequisite: STA 4321 (https://catalog.ufl.edu/search/?P=STA%204321).
4. Students who aim to pursue (doctorate) graduate degrees in the field of mathematical sciences/statistics are encouraged to complete MAA 4211 .

Critical Tracking

Critical Tracking records each student's progress in courses that are required for progress toward each major. Please note the critical-tracking requirements below on a per-semester basis.

For degree requirements outside of the major, refer to CLAS Degree Requirements: Structure of a CLAS Degree.

Equivalent critical-tracking courses as determined by the State of Florida Common Course Prerequisites (https://cpm.flvc.org/advance-search/) may be used for transfer students.

Semester 1

- 2.0 UF GPA required

Semester 2

- Complete MAC 1147 or higher-level calculus
- 2.0 UF GPA required

Semester 3

- Complete MAC 2311
- 2.0 UF GPA required

Semester 4

- Complete MAC 2312 with a 2.5 critical-tracking GPA
- 2.0 UF GPA required

Semester 5

- Complete MAC 2313 and STA 3100 with a 2.5 critical-tracking GPA
- 2.0 UF GPA required

Semester 6

- Complete MHF 3202 and STA 4210 and STA 4321
- 2.0 UF GPA required

Semester 7

- Complete MAS 4105 and STA 4211 and STA 4322
- 2.0 UF GPA required

Semester 8

- Complete STA 4504 and all remaining Statistics and Math and Sciences electives
- 2.0 UF GPA required

Model Semester Plan

Students are expected to complete the Writing, Civic Literacy, summer enrollment, and Quest requirements while in the process of taking the courses below. Students are also expected to complete the General Education International (GE-N) requirements concurrently with another General Education requirement (typically, GE-C, H, or S) as part of the CLAS Basic Distribution requirements. One of the two general education mathematics courses must be a pure math course.

College of Liberal Arts and Sciences allows students additional flexibility in its Distribution Requirements. Students may count a maximum of 6 credits TOTAL from the CLAS Distribution course lists towards Humanities, Social and Behavioral Sciences, or Biological and Physical Sciences, with no more than 3 credits of Humanities, 3 credits of Social and Behavioral Sciences, or 6 credits of Biological or Physical Sciences.

The full list of major-specific requirements for this major can be found on the Overview tab. College of Liberal Arts and Sciences degree requirements can be found on the college's degree requirements page (https://catalog.ufl.edu/UGRD/colleges-schools/UGLAS/#degreerequirementstext).

MAC 2312, MAC 2313, MAS 4105, and the math elective outside of Statistics may count towards 3000-level or above electives outside of the major.

To remain on track, students must complete the appropriate critical-tracking courses, which appear in bold. These courses must be completed by the terms as listed above in the Critical Tracking criteria.

This semester plan represents an example progression through the major. Actual courses and course order may be different depending on the student's academic record and scheduling availability of courses. Prerequisites still apply.

Course	Title	Credits
Semester One		
MAC 2311	Analytic Geometry and Calculus 1 (**Critical Tracking**; State Core Gen Ed Mathematics)	4
State Core Gen Ed Biological or Physical Sciences (http://catalog.ufl.edu/UGRD/academic-programs/general-education/#genedcoursestext)		3
State Core Gen Ed Composition (http://catalog.ufl.edu/UGRD/academic-programs/general-education/#genedcoursestext); Writing Requirement		3
Gen Ed Social and Behavioral Sciences		3

Natural Science Laboratory [1]		1
	Credits	**14**
Semester Two		
Quest 1		3
MAC 2312	Analytic Geometry and Calculus 2 (**Critical Tracking**; Gen Ed Mathematics)	4
STA 2023 or STA 3032	Introduction to Statistics 1 (**Critical Tracking**; Gen Ed Mathematics) or Engineering Statistics	3
State Core Gen Ed Humanities (http://catalog.ufl.edu/UGRD/academic-programs/general-education/#genedcoursestext)		3
State Core Gen Ed Social and Behavioral Sciences (http://catalog.ufl.edu/UGRD/academic-programs/general-education/#genedcoursestext)		3
	Credits	**16**
Semester Three		
MAC 2313	Analytic Geometry and Calculus 3 (**Critical Tracking**; Gen Ed Mathematics)	4
MHF 3202	Reasoning and Proof in Mathematics (**Critical Tracking**)	3
STA 3100	Programming With Data in R (**Critical Tracking**)	3
Gen Ed Biological or Physical Sciences (area not taken in semester one)		3
CLAS Foreign Language Proficiency Requirement [2]		4-5
	Credits	**17-18**
Semester Four		
MAS 4105	Linear Algebra 1 (**Critical Tracking**)	4
Quest 2		3
Gen Ed Humanities		3
CLAS Foreign Language Proficiency Requirement [2]		3-5
	Credits	**13-15**
Semester Five		
STA 4210	Regression Analysis (**Critical Tracking**)	3
STA 4321	Introduction to Probability (**Critical Tracking**)	3
Gen Ed Physical Sciences		3
Gen Ed Social and Behavioral Sciences		3
Elective (or CLAS Foreign Language Proficiency Requirement if 4-3-3 option) [2]		3
	Credits	**15**
Semester Six		
STA 4211	Design of Experiments (**Critical Tracking**)	3
STA 4322	Introduction to Statistics Theory (**Critical Tracking**)	3
Gen Ed Biological Sciences		3
Gen Ed Composition; Writing Requirement		3
Gen Ed Humanities		3
	Credits	**15**
Semester Seven		
STA 4504	Categorical Data Analysis (**Critical Tracking**)	3
STA elective (**Critical Tracking**)		3
Electives		10
	Credits	**16**
Semester Eight		
Math and Science electives (**Critical Tracking**)		6
STA elective (**Critical Tracking**)		3
Electives		5
	Credits	**14**
	Total Credits	**120**

1 Degree Requirements (https://catalog.ufl.edu/UGRD/colleges-schools/UGLAS/#degreerequirementstext)

2 CLAS Foreign Language Proficiency Requirement (https://catalog.ufl.edu/UGRD/colleges-schools/UGLAS/#degreerequirementstext)

Academic Learning Compact

The Statistics major enables students to achieve proficiency in the fundamentals of statistical reasoning. Through study of both theoretical and applied statistics and through data analysis projects, students will gain knowledge in problem solving, statistical applications and data-based inferences. Emphasis is on developing the ability to approach real world problems and through the use of statistical methods to be able to analyze and to draw valid scientific inferences.

Before Graduating Students Must

- Complete an exam on the fundamentals of statistics, which will be 5% of the grade in STA 4211.
- Complete a data analysis project, which will be 10% of the grade in STA 4211.
- Complete requirements for the baccalaureate degree, as determined by faculty.

Students in the Major Will Learn to

Student Learning Outcomes | SLOs

Content

1. Identify, define, and describe concepts and issues in statistics, including those involved in designing a statistical study, in statistical estimation and in tests of hypotheses.

Critical Thinking

2. Identify sources of variability in a given problem setting and formulate an appropriate statistical analysis.

Communication

3. Clearly and effectively present ideas in speech and in writing concerning statistical issues and analyses of data.

Curriculum Map

I = Introduced; R = Reinforced; A = Assessed

Courses	SLO 1	SLO 2	SLO 3
STA 4210	I	I	I
STA 4211	A	A	A
STA 4222	R	R	R
STA 4321	I		
STA 4322	I		
STA 4502	R	R	R
STA 4504	R	R	R
STA 4702	R	R	R
STA 4712	R	R	R
STA 4853	R	R	R

Assessment Types

- Exams
- Projects
- Written and oral presentations