BACHELOR OF ARTS

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 (p. 1) | Bachelor of Science (http://catalog.ufl.edu/UGRD/colleges-schools/UGLAS/STA_BA_BS/STA_BS)
- **Credits for Degree**: 120
- **Contact**: Email (dathien@stat.ufl.edu?Subject=Statistics Major)
- **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.

Website (https://stat.ufl.edu)

CONTACT

Email (staff@stat.ufl.edu) | 352.392.1941 (tel) | 352.392.5175 (fax)

P.O. Box 118545
102 GRIFFIN-FLOYD HALL
GAINESVILLE FL 32611-8545
Map (http://campusmap.ufl.edu/#/index/0010)

Curriculum

- Actuarial Science Minor
- Combination Degrees
- 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.

Bachelor of Arts

Intended for students who wish to pursue a career in the field of statistics or to teach statistics at the secondary-school level, but who do not currently contemplate graduate study in statistics.

Bachelor of Science

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.

Required Coursework for Both Degrees

The B.A. in statistics requires a minimum of 42 credits in statistics and related coursework. The B.S. in statistics requires a minimum of 49 credits in statistics and related coursework. It is important that the prerequisites of each class are met before the class is attempted.

Students must receive minimum grades of C within two attempts (including withdrawals) in every required core course and in every course counted toward the 12 credit elective requirement, with the exception of MAC 2312 and MAC 2313 where students must receive a minimum grade of B-. Students cannot retake core or statistics elective courses after earning a minimum grade of C, with the exception of MAC 2312 and MAC 2313, in which students must receive a minimum grade of B-. A minimum GPA of 2.0 must be achieved on all attempts of core and major elective courses and 2.67 on MAC 2312 and MAC 2313. The grades from all attempts to satisfy 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.

Coursework for the Major

The College of Liberal Arts and Sciences offers the Bachelor of Science and the Bachelor of Arts in statistics.

### Bachelor of Arts

- **Title**: Intended for students who wish to pursue a career in the field of statistics or to teach statistics at the secondary-school level, but who do not currently contemplate graduate study in statistics.

### Bachelor of Science

- **Title**: 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.

#### Required Coursework for Both Degrees

- **Title**: The B.A. in statistics requires a minimum of 42 credits in statistics and related coursework. The B.S. in statistics requires a minimum of 49 credits in statistics and related coursework. It is important that the prerequisites of each class are met before the class is attempted.

- **Subtitle**: Students must receive minimum grades of C within two attempts (including withdrawals) in every required core course and in every course counted toward the 12 credit elective requirement, with the exception of MAC 2312 and MAC 2313 where students must receive a minimum grade of B-. Students cannot retake core or statistics elective courses after earning a minimum grade of C, with the exception of MAC 2312 and MAC 2313, in which students must receive a minimum grade of B-. A minimum GPA of 2.0 must be achieved on all attempts of core and major elective courses and 2.67 on MAC 2312 and MAC 2313. The grades from all attempts to satisfy 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.

#### Code

<table>
<thead>
<tr>
<th>Core</th>
<th>Title</th>
<th>Credits</th>
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<tr>
<td>STA 4210</td>
<td>Regression Analysis</td>
<td>3</td>
</tr>
<tr>
<td>STA 4211</td>
<td>Design of Experiments</td>
<td>3</td>
</tr>
<tr>
<td>STA 4321</td>
<td>Introduction to Probability</td>
<td>3</td>
</tr>
<tr>
<td>STA 4322</td>
<td>Introduction to Statistics Theory</td>
<td>3</td>
</tr>
<tr>
<td>STA 4504</td>
<td>Categorical Data Analysis</td>
<td>3</td>
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#### Statistics Electives

- **Title**: Select two:

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<td>STA 4222</td>
<td>Sample Survey Design</td>
<td>6</td>
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<td>STA 4502</td>
<td>Nonparametric Statistical Methods</td>
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<td>STA 4702</td>
<td>Multivariate Statistical Methods</td>
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<td>STA 4712</td>
<td>Introduction to Survival Analysis</td>
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<tr>
<td>STA 4821</td>
<td>Stochastic Processes</td>
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<tr>
<td>STA 4853</td>
<td>Introduction to Time Series and Forecasting</td>
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<tr>
<td>STA 4930</td>
<td>Special Topics</td>
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</table>

**Total Credits**: 33

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.
Bachelor of Arts

The B.A. is intended for students who wish to pursue a career in the field of statistics or to teach statistics at the secondary-school level, but who do not currently contemplate graduate study in statistics.

Additional Required Coursework for B.A.

<table>
<thead>
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<tr>
<td>Core</td>
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<tr>
<td>MAS 4105</td>
<td>Linear Algebra 1</td>
<td>3-4</td>
</tr>
<tr>
<td>or MAS 3114</td>
<td>Computational Linear Algebra</td>
<td></td>
</tr>
<tr>
<td>Programming Elective</td>
<td>Select one of the following:</td>
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<tr>
<td>COP 2271</td>
<td>Computer Programming for Engineers</td>
<td>3</td>
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<tr>
<td>&amp; 2271L</td>
<td>and Computer Programming for Engineers Laboratory</td>
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<tr>
<td>COP 2800</td>
<td>Computer Programming Using JAVA</td>
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<tr>
<td>COP 3275</td>
<td>Computer Programming Using C</td>
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<td>COP 3502</td>
<td>Programming Fundamentals 1</td>
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<td>Math and Science Elective</td>
<td>Select one of the following:</td>
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<tr>
<td>COT 4501</td>
<td>Numerical Analysis: a Computational Approach</td>
<td>3-4</td>
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<td>ESI 3312</td>
<td>Operations Research 1</td>
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<tr>
<td>MAA 4102</td>
<td>Introduction to Advanced Calculus for Engineers and Physical Scientists 1</td>
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<td>MAA 4211</td>
<td>Advanced Calculus 1</td>
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<td>MAD 4401</td>
<td>Introduction to Numerical Analysis</td>
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<td>MAS 4105</td>
<td>Linear Algebra 1</td>
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<tr>
<td>MHF 4102</td>
<td>Elements of Set Theory</td>
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</tbody>
</table>

Total Credits: 9-11

1 Prerequisite: MHF 3202.

Equivalent critical-tracking courses as determined by the State of Florida Common Course Prerequisites (http://www.flvc.org/cpp/displayRecord.jsp?cip=270501&track=01) 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 a programming elective or any STA course with a 2.5 critical-tracking GPA
- 2.0 UF GPA required

Semester 6
- Complete Programming elective and MAS 3114 and STA 4210 and STA 4321
- 2.0 UF GPA required

Semester 7
- Complete 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 requirement while in the process of taking the courses below. Students are also expected to complete the general education international (GE-N) and diversity (GE-D) requirements concurrently with another general education requirement (typically, GE-C, H, or S).

MAC 2312, MAC 2313, MAS 4105, and the math elective 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...
Gen Ed Biological Sciences

STA 4504
STA 4322
STA 4211

Semester Six

Gen Ed Social and Behavioral Sciences

Gen Ed Physical Sciences

Elective or foreign language if 4-3-3 option

STA 4321
STA 4210

Semester Five

Programming elective (Critical Tracking)

Gen Ed Humanities

Foreign language

Elective (needed if placed out of language with SAT II)

State Core Gen Ed Social and Behavioral Sciences (http://catalog.ufl.edu/UGRD/academic-programs/general-education/#genedcoursestext)

STA 4321

Semester Four

Gen Ed Social and Behavioral Sciences

Foreign language

Gen Ed Humanities

Programming elective (Critical Tracking)

MAC 2313
STA 4211

Semester Three

#genedcoursestext)

catalog.ufl.edu/UGRD/academic-programs/general-education/

State Core Gen Ed Social and Behavioral Sciences

Select one:

MAC 2313
STA 2023
STA 3032

Semester Two

MAC 2312

Analytic Geometry and Calculus 2 (Critical Tracking; Gen Ed Mathematics)

Gen Ed Biological or Physical Sciences (area not taken in semester one)

Elective

Select one:

STA 2023
STA 3032

Foreign language

Gen Ed Social and Behavioral Sciences

Credits

Semester One

MAC 2311

Analytic Geometry and Calculus 1 (Critical Tracking; State Core Gen Ed Mathematics)

Quest 1 (Gen Ed Humanities)

State Core Gen Ed Biological or Physical Sciences (http://catalog.ufl.edu/UGRD/academic-programs/general-education/#genedcoursestext)

State Core Gen Ed Composition (http://catalog.ufl.edu/UGRD/academic-programs/general-education/#genedcoursestext);

Writing Requirement

Science laboratory (Gen Ed Biological or Physical Sciences)

Credits

Course | Title | Credits
---|---|---
MAC 2311 | Analytic Geometry and Calculus 1 (Critical Tracking; State Core Gen Ed Mathematics) | 4
Quest 1 (Gen Ed Humanities) | 3
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
Science laboratory (Gen Ed Biological or Physical Sciences) | 1
MAC 2312 | Analytic Geometry and Calculus 2 (Critical Tracking; Gen Ed Mathematics) | 4
Gen Ed Biological or Physical Sciences (area not taken in semester one) | 3
Elective | 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
MAC 2313 | Analytic Geometry and Calculus 3 (Critical Tracking; Gen Ed Mathematics) | 4
Select one:

STA 2023 | Introduction to Statistics 1 (Critical Tracking) | 3
STA 3032 | Engineering Statistics (Critical Tracking; Gen Ed Mathematics) | 3
Foreign language | 4-5
Gen Ed Social and Behavioral Sciences | 3

Credits

Semester Four

MAS 3114 | Computational Linear Algebra (Critical Tracking) | 3
Elective (needed if placed out of language with SAT II) | 3
Foreign language | 3-5
Gen Ed Humanities | 3
Programming elective (Critical Tracking) | 3

Credits

Semester Five

STA 4210 | Regression Analysis (Critical Tracking; Gen Ed Mathematics) | 3
STA 4321 | Introduction to Probability (Critical Tracking; Gen Ed Mathematics) | 3
Elective or foreign language if 4-3-3 option | 3
Gen Ed Physical Sciences | 3
Gen Ed Social and Behavioral Sciences | 3

Credits

Semester Six

STA 4211 | Design of Experiments (Critical Tracking) | 3
STA 4322 | Introduction to Statistics Theory (Critical Tracking; Gen Ed Mathematics) | 3
STA 4504 | Categorical Data Analysis (Critical Tracking) | 3
Gen Ed Biological Sciences | 3

Credits

Gen Ed Composition; Writing Requirement | 3

Semester Seven

STA elective (Critical Tracking) | 3
Electives (3000 level or above, not in major) | 7
Electives | 6

Credits | 16

Semester Eight

Math science elective (Critical Tracking) | 3
STA elective (Critical Tracking) | 3
Electives | 9

Credits | 15

Total Credits | 120

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 your grade in STA 4211.
- Complete a data analysis project, which will be 10% of your 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

<table>
<thead>
<tr>
<th>Courses</th>
<th>SLO 1</th>
<th>SLO 2</th>
<th>SLO 3</th>
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</thead>
<tbody>
<tr>
<td>STA 4210</td>
<td>I</td>
<td>I</td>
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</tr>
<tr>
<td>STA 4211</td>
<td>A</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>STA 4222</td>
<td>R</td>
<td>R</td>
<td>R</td>
</tr>
<tr>
<td>STA 4321</td>
<td>I</td>
<td></td>
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<tr>
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<tr>
<td>STA 4702</td>
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Assessment Types

- Exams
- Projects
- Written and oral presentations