

Statistical Science and Data Analytics BS

Overview

The Department of Statistics, Operations and Data Science offers the **Bachelor of Science in Statistical Science and Data Analytics**. A recent Best Jobs list compiled by CareerCast (a Local and National Job search company) ranks Data Scientist as No. 1 in their list of the best jobs with high demand. As we survey representatives from different companies, the consistent message we receive is that the cost of hiring and the demand for talent are skyrocketing. The demand is driven by the proliferation of computing technology, software and statistical tools for capturing and interpreting the substantial volume of data now available at the enterprise, government and personal levels.

The educational objective of the program is to provide graduates with a rigorous and broad-based curriculum providing:

1. Rigorous quantitative foundation;
2. Alignment and coordination with the established quantitative disciplines at Fox and at Temple University;
3. Exposure to programming and modern languages such as Python, R and SQL; and
4. Effective communication skills.

With this degree, there are a wide range of employment areas including decision-making in business, healthcare, public policy and the pharmaceutical industry, as well as in social media and commercial areas. In each field, there are large bodies of data accumulated in need of being explored, understood and analyzed. Reputable national organizations, like the American Statistical Association (ASA), endorse the value of undergraduate programs in statistics as a reflection of the increasing importance of the discipline. Statistics programs should be flexible enough to prepare bachelor's graduates to either be functioning statisticians in a service-oriented economy or go on to graduate school. We ensure students entering the work force or heading to graduate school have the appropriate capacity to "think with data" and to pose and answer statistical questions.

Minor

Skilled users of data enhance their career opportunities. Students in any major who wish to become proficient in the ability to select, utilize and apply quantitative and data analysis skills can pursue a minor in Statistical Science and Data Analytics. Courses cannot be used to meet minor requirements if already used to meet the requirements for a major or a different minor. Requirements for the minor must be completed prior to graduation.

Campus Location: Main

Program Code: BU-SSDA-BS

Contact Information

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Learn more about the Bachelor of Science in Statistical Science and Data Analytics.

These requirements are for students who matriculated in academic year 2023-2024. Students who matriculated prior to fall 2023 should refer to the Archives to view the requirements for their Bulletin year.

Summary of Requirements

University Requirements

All new students are required to complete the university's General Education (GenEd) curriculum.

Note that students not continuously enrolled who have not been approved for a Leave of Absence or study elsewhere must follow University requirements current at the time of re-enrollment.

College Requirements

Students must meet College Graduation Requirements for the Bachelor of Science, including the requirements of the major listed below. Students must attain an overall GPA of 2.0 and a 2.0 GPA in the major to graduate as a Statistical Science and Data Analytics major.

Core Requirements

Code	Title	Credit Hours
ECON 1101 or ECON 1901	Macroeconomic Principles Honors Macroeconomic Principles	3
ECON 1102 or ECON 1902	Microeconomic Principles Honors Microeconomic Principles	3
BA 1103 or BA 1903	Legal and Ethical Reasoning in Business Honors Legal and Ethical Reasoning in Business	3
ACCT 2103 or ACCT 2903	Financial and Managerial Accounting for Decision Making Honors Financial and Managerial Accounting	4
BA 2104	Excel for Business Applications	1
BA 2196 or BA 2996	Business Communications Honors Business Communications	3
BA 2502	Business Analytics: Modern Data Science Techniques	3
RMI 2101 or RMI 2901	Introduction to Risk Management Honors Introduction to Risk Management	3
MATH 1041 or MATH 1941	Calculus I Honors Calculus I	4
MATH 1042 or MATH 1942	Calculus II Honors Calculus II	4
STAT 2103 or STAT 2903	Statistical Business Analytics Honors Statistical Business Analytics	4
CIS 1051	Introduction to Problem Solving and Programming in Python	4
BA 2101	Professional Development Strategies	1
Total Credit Hours		40

Note: In order to graduate, a grade of C- or better must be obtained in all FSBM core requirements.

Major Requirements

Students must follow the Major Requirements and College Requirements current at the time of declaration. Students not continuously enrolled who have not been approved for a Leave of Absence or study elsewhere must follow University, College, and Major requirements current at the time of re-enrollment.

Requirements of Statistical Science and Data Analytics Major

Code	Title	Credit Hours
BA 2501	Turning Numbers into Knowledge: Visualizing Data	3
STAT 2501	Quantitative Foundations for Data Science (spring only)	3
STAT 2521	Data Analysis and Statistical Computing	3
STAT 2522	Survey Design and Sampling (spring only)	3
STAT 2523	Design of Experiments and Quality Control (fall only)	3
STAT 3502	Regression and Predictive Analytics (fall only)	3
STAT 3503	Applied Statistics and Data Science	3
STAT 3504	Time Series and Forecasting Models (fall only)	3
STAT 3506	Nonparametric and Categorical Data Analysis (fall only)	3
STAT 3507	Intermediate Statistics	3
STAT 3508	Data Management, Missing Data, and Outlier Analysis	3
STAT 4596	Capstone: Statistical Science and Data Analytics (spring only)	3
Select three (3) business electives ¹		9-12
Total Credit Hours		45-48

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2000-3999 electives can be selected from: ACCT, AS, BA, ECON, FIN, HRM, IB, LGLS, MIS, MKTG, RE, RMI, STAT, SCM, SGM. Please see your advisor for elective suggestions that match your career objectives. Interested students should consider research with faculty members (Independent Study) as part of their electives.

Suggested Academic Plan

Bachelor of Science in Statistical Science and Data Analytics

Suggested Plan for New Students Starting in the 2023-2024 Academic Year

Please note that this plan is suggested only, ensuring prerequisites are met.

Year 1		
Fall		Credit Hours
MATH 1041	Calculus I (waives GenEd Quantitative Literacy requirement)	4
BA 2104	Excel for Business Applications	1
ECON 1102	Microeconomic Principles	3
BA 1103 or BA 1903	Legal and Ethical Reasoning in Business or Honors Legal and Ethical Reasoning in Business	3
ENG 0802 or ENG 0812 or ENG 0902	Analytical Reading and Writing or Analytical Reading and Writing: ESL or Honors Writing About Literature	4
Credit Hours		15
Spring		
MATH 1042	Calculus II	4
STAT 2103	Statistical Business Analytics	4
ECON 1101	Macroeconomic Principles	3
IH 0851 or IH 0951	Intellectual Heritage I: The Good Life or Honors Intellectual Heritage I: The Good Life	3
GenEd Breadth Course		3
Credit Hours		17
Year 2		
Fall		
STAT 2521	Data Analysis and Statistical Computing	3
BA 2196	Business Communications	3
ACCT 2103 or ACCT 2903	Financial and Managerial Accounting for Decision Making or Honors Financial and Managerial Accounting	4
CIS 1051	Introduction to Problem Solving and Programming in Python	4
IH 0852 or IH 0952	Intellectual Heritage II: The Common Good or Honors Intellectual Heritage II: The Common Good	3
Credit Hours		17
Spring		
STAT 2501	Quantitative Foundations for Data Science	3
STAT 2522	Survey Design and Sampling	3
BA 2502	Business Analytics: Modern Data Science Techniques	3
BA 2101	Professional Development Strategies	1
RMI 2101	Introduction to Risk Management	3
GenEd Breadth Course		3
Credit Hours		16
Year 3		
Fall		
BA 2501	Turning Numbers into Knowledge: Visualizing Data	3
STAT 2523	Design of Experiments and Quality Control	3
STAT 3502	Regression and Predictive Analytics	3
Business Elective 1 ¹		3-4

Free Elective		3-2
Credit Hours		15
Spring		
STAT 3503	Applied Statistics and Data Science	3
STAT 3507	Intermediate Statistics	3
STAT 3508	Data Management, Missing Data, and Outlier Analysis	3
GenEd Breadth Course		3
GenEd Breadth Course		3
Credit Hours		15
Year 4		
Fall		
STAT 3504	Time Series and Forecasting Models	3
STAT 3506	Nonparametric and Categorical Data Analysis	3
GenEd Breadth Course		3
GenEd Breadth Course		3
GenEd Breadth Course		3
Credit Hours		15
Spring		
STAT 4596	Capstone: Statistical Science and Data Analytics	3
Business Elective 2 ¹		3-4
Business Elective 3 ¹		3-4
Free Elective		3-1
Credit Hours		12
Total Credit Hours		122

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2000-3999 electives can be selected from: ACCT, AS, BA, ECON, FIN, HRM, IB, LGLS, MIS, MKTG, RE, RMI, STAT, SCM, SGM. Please see your advisor for elective suggestions that match your career objectives. Interested students should consider research with faculty members (Independent Study) as part of their electives.