Morris Campus

Statistics B.A.

Division of Science & Mathematics - Adm

Division of Science and Mathematics

- Program Type: Baccalaureate
- Requirements for this program are current for Spring 2020
- Required credits to graduate with this degree: 120
- Required credits within the major: 42
- Degree: Bachelor of Arts

The mission of the discipline is to create and apply statistical methods for collecting, storing, exploring, analyzing, processing and communicating qualitative/quantitative information and to disseminate this knowledge through teaching, scholarly activity, collaboration and outreach. Statistics is the science and art of enhancing knowledge in the face of uncertainty. In our information age, statistics and data science are central to solving problems in the environment, medicine, law, industry, technology, finance, business, public policy, computing, and science in general. The need for statistics applies to almost every area of our lives. The statistics program provides an operational knowledge of the theory and methods of statistics and the application of statistical methods in a liberal arts environment. It seeks to enhance students' critical thinking in making judgments based on data and provides students with the basic knowledge and skills to make contributions to modern society. Students learn to communicate and collaborate effectively with people in other fields and understand the substance of these fields. The curriculum prepares students to enter graduate school or pursue careers in statistics and data science.

The statistics discipline has the following student learning objectives:

Students will gain the ability to make contributions to society through knowledge of statistical theory and statistics applied to other disciplines.
Students will sharpen their ability to extract useful information from data.
The statistics curriculum will enhance students understanding of the mathematical foundations of statistical theory and methods.
The curriculum will prepare students to enter graduate school, and pursue careers in applied statistics.
Students will be able to communicate statistical ideas and results effectively using presentation skills and visualizations.

The curriculum is designed to ensure that students are able to demonstrate the following outcomes:

Model and solve real-world problems by analyzing them statistically, and determine an appropriate approach towards its solution.
Write, read, and construct proofs of key statistical results
Create estimated models, data displays, and new datasets to address problems using computing tools.
Demonstrate basic knowledge of calculus, analysis, linear algebra, probability, and describe their importance to statistics.
Demonstrate students have background to be employed or gain admission to graduate school.
Meet the requirements for employment in professions such as actuarial science and data science.
Describe and explain a theorem, statistical model, and results of a statistical analysis to a non-specialist audience.

Program Delivery

This program is available:

- via classroom (the majority of instruction is face-to-face)

Admission Requirements

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements

All students are required to complete general University and college requirements. For more information, see the general education requirements.

Program Requirements

Students are required to take 2 semester(s) of any second language.

The GPA in these courses must be at least 2.00. Courses may not be taken S-N, unless offered S-N only.

Recommended electives for students planning to pursue graduate work in statistics or biostatistics:

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MATH 2101 - Calculus III
MATH 6111 - Linear Algebra

Recommended electives (beyond those listed for graduate work) for students planning to pursue a PhD in statistics or biostatistics:

MATH 2202 - Mathematical Perspectives
MATH 3221 - Real Analysis I

Required Courses

MATH 1101 - Calculus I [M/SR] (5.0 cr)
MATH 1102 - Calculus II [M/SR] (5.0 cr)
STAT 2501 - Probability and Stochastic Processes [M/SR] (4.0 cr)
STAT 2611 - Mathematical Statistics [M/SR] (4.0 cr)
STAT 3601 - Data Analysis [M/SR] (4.0 cr)
STAT 3901 - Statistical Communication (2.0 cr)
STAT 4901 - Senior Seminar (2.0 cr)
STAT 1601 - Introduction to Statistics [M/SR] (4.0 cr)
or STAT 2601 - Statistical Methods [M/SR] (4.0 cr)

Elective Courses

Take 8 or more credit(s) from the following:
•STAT 1993 - Directed Study (1.0 - 5.0 cr)
•STAT 2701 - Introduction to Data Science [M/SR] (4.0 cr)
•STAT 2993 - Directed Study (1.0 - 5.0 cr)
•STAT 3501 - Survey Sampling [M/SR] (4.0 cr)
•STAT 3611 - Multivariate Statistical Analysis [M/SR] (4.0 cr)
•STAT 3993 - Directed Study (1.0 - 5.0 cr)
•STAT 4601 - Biostatistics (4.0 cr)
•STAT 4631 - Design and Analysis of Experiments (4.0 cr)
•STAT 4651 - Applied Nonparametric Statistics (4.0 cr)
•STAT 4671 - Statistical Computing (4.0 cr)
•STAT 4681 - Introduction to Time Series Analysis (4.0 cr)
•STAT 4993 - Directed Study (1.0 - 5.0 cr)

Additional Elective Courses

Choose from the list below or from courses with faculty approval.
Take 4 or more credit(s) from the following:
•CSCI 1201 *{Inactive}*[M/SR] (4.0 cr)
•CSCI 1251 - Computational Data Management and Manipulation [M/SR] (4.0 cr)
•CSCI 1301 - Problem Solving and Algorithm Development [M/SR] (4.0 cr)
•CSCI 1302 - Foundations of Computer Science [M/SR] (4.0 cr)
•CSCI 4403 - Systems: Data Mining (4.0 cr)
•CSCI 4458 - Systems: Bioinformatic Systems (4.0 cr)
•CSCI 4555 - Theory: Neural Networks and Machine Learning (4.0 cr)
•ECON 3501 - Introduction to Econometrics [M/SR] (4.0 cr)
•GEOG 3501 - Geographic Information Systems [ENVT] (4.0 cr)
•GEOL 2161 - GIS and Remote Sensing [SCI] (4.0 cr)
•MATH 2101 - Calculus III [M/SR] (4.0 cr)
•MATH 2202 - Mathematical Perspectives [M/SR] (4.0 cr)
•MATH 3111 - Linear Algebra (4.0 cr)
•MATH 3221 - Real Analysis I (4.0 cr)
•MATH 3401 - Operations Research (4.0 cr)
•MATH 3501 *{Inactive}*(2.0 cr)
•MATH 3502 *{Inactive}*(2.0 cr)
•POL 2001W - Political Science Research Methods [SS] (4.0 cr)
•PSY 2001 - Research Methods in Psychology [SS] (4.0 cr)
•SOC 3103 *{Inactive}*(4.0 cr)
•SOC 3131 *{Inactive}*[ENVT] (4.0 cr)

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