BS in Statistics

Degree Program Description

Statistics is a modern science concerned with making decisions and inferences from empirical data subject to random variability and error. It deals with designing experiments, sample surveys, summarizing numerical information, building and analyzing statistical models, prediction and choosing between alternate actions. Statistics can tell us how much safer it is to fly than drive, the odds of winning the lottery, our life expectancy and who is likely to win the next election. The BS in Statistics allows students to pursue either a traditional track or an applied track. Students who are interested in graduate study are strongly encouraged to follow the traditional track. All students are encouraged to supplement their work in statistics with courses from areas such as economics, biology, accounting, finance, marketing, management, psychology, sociology, engineering, agriculture and atmospheric science. Students pursuing the BS degree may elect to take an alternative to a foreign language. Because of its importance as a scientific method, the demand for trained statisticians has grown in education, medicine, government, business and industry as well as in the biological, social and physical sciences. Students are trained to meet this demand and develop careers in teaching and research.

Major Program Requirements

Students must complete the university general education requirements (http://catalog.missouri.edu/academicdegerequirements/), university graduation requirements (http://catalog.missouri.edu/academicdegerequirements/universityrequirements/), and Department Degree Requirements (http://catalog.missouri.edu/collegeofartsandscience/statistics/statistics/#undergraduatetext) in addition to the degree requirements below.

Mathematics courses

Traditional track
MATH 1500  Analytic Geometry and Calculus I  5
MATH 1700  Calculus II  5
MATH 2300  Calculus III  3
MATH 4140  Matrix Theory  3

Applied track
MATH 1500  Analytic Geometry and Calculus I  5-6
or MATH 1300  Finite Mathematics  3
& MATH 1400  and Calculus for Social and Life Sciences I  3

6 additional credits in statistics courses (beyond those used to fulfill the statistics requirements of the degree) or approved statistically-oriented courses; must be numbered 4000 or above

Statistics courses

Traditional Track
STAT 4970W  Junior/Senior Seminar - Writing Intensive  3
STAT 4710  Introduction to Mathematical Statistics  3
or STAT 4750  Introduction to Probability Theory  3

15 additional credits offered by the department, at least 12 of which must be numbered 3000 or above and may not include STAT 4050:
Connecting Statistics to Middle and Secondary Schools or more than 3 credits of STAT 4999: Departmental Honors in Statistics

Applied Track
STAT 4970W  Junior/Senior Seminar - Writing Intensive  3
STAT 4710  Introduction to Mathematical Statistics  3

or STAT 4760  Statistical Inference  3
or STAT 3500  Introduction to Probability and Statistics II  3

21 additional credits offered by the department, at least 18 of which must be numbered 3000 or above and may not include STAT 4050:
Connecting Statistics to Middle and Secondary Schools or more than 3 credits of STAT 4999: Departmental Honors in Statistics

Computing courses

Both tracks
INFOTC 1040  Introduction to Problem Solving and Programming  3

AND 3 additional credits in computer science or other approved computing courses (STAT 4110: Statistical Software and Data Analysis may be used as part of this requirement if it is not counted in statistics group above.)

Professional writing courses
ENGLSH 2030  Professional Writing  3-4
or COMMUN 1200  Public Speaking  3
or CMP_SC 2050  Algorithm Design and Programming II

Foreign Language Option for Students Pursuing a BS Degree

Students pursuing the BS degree may elect to take an alternative to a foreign language. Such students must complete no fewer than 12 upper-class credits that are not from the parent department, are not normally required of departmental majors and do not appear elsewhere in the graduation plan. This program must be carefully planned to form a coherent unit and must be approved by the director of undergraduate studies.

The following are examples of foreign language alternatives:

- mathematical sciences
- biological sciences
- behavioral sciences
- physical sciences
- business
- engineering
- economics

Semester Plan

First Year
Fall  |  CR  |  Spring  |  CR
--- | --- | --- | ---
MATH 1160+  5  MATH 1500  5
ENGLSH 1000+  3  INFOTC 1040  3
Hum/Fine Arts Elective+  3  Soc/Behav Science Elec+  3
American History of Government+  3  Bio/Phys Science lab+  5
Elective  3

17  16

Second Year
Fall  |  CR  |  Spring  |  CR
--- | --- | --- | ---
MATH 1700  5  MATH 2300  3
STAT 2500  3  STAT 3500  3
ENGLSH 2030  3  Hum/Fine Arts Elective+  3
Hum/Fine Arts Elective+  3  WI Elective+  3
Elective  3  Elective  3

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| Total Credits: 120

* Course used as area in lieu of foreign language
+ Course meets University General Education and/or campus requirements