BA 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 BA 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. 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

In addition to Department Degree Requirements (https://catalog.missouri.edu/collegeofartsandscience/statistics/#undergraduatetext), University (https://catalog.missouri.edu/academicdegreerequirements/universityrequirements/), general education (https://catalog.missouri.edu/academicdegreerequirements/generaleducationrequirements/), and College of Arts and Science (https://catalog.missouri.edu/collegeofartsandscience/#undergraduatetext) requirements, students must also meet the following major program requirements. All major requirements in the College of Arts and Science must be completed with grades of C- or higher unless otherwise indicated.

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 & MATH 1400	Finite Mathematics and Calculus for Social and Life Sciences I	

6 additional credits in statistics (beyond those used to fulfill the statistics requirements of the degree) or approved statistically-oriented courses; must be numbered 4000 or above and may not include STAT 4050 Connecting Statistics to Middle and Secondary Schools

Statistics Courses

Traditional Track		
STAT 4510	Applied Statistical Models I	3
STAT 4710	Introduction to Mathematical Statistics	3
or STAT 4750	Introduction to Probability Theory	
STAT 4970W	Junior/Senior Seminar - Writing Intensive	3

12 additional credits offered by the department, at least 9 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 4510	Applied Statistical Models I	3
STAT 4710	Introduction to Mathematical Statistics	3
or STAT 4760	Statistical Inference	
or STAT 3500	Introduction to Probability and Statistics II	
STAT 4970	Junior/Senior Seminar	3

18 additional credits offered by the department, at least 15 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: Select one course		
CMP_SC 1300	Computing with Data in Python	3
or INFOTC 1040	Introduction to Problem Solving and Programming	
or CMP_SC 1050	Algorithm Design and Programming I	

Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year

Fall	CR	Spring	CR
CMP_SC 1300 or INFOTC 1040	3	STAT 2500	3
ENGLSH 1000	3	MATH 1500	5
MATH 1160 (Math and Quantitative Reasoning)	5	Biological or Physical Science Lab	4
Humanities from Arts and Science	3	Second major, minor, certificate, or elective	3
	14		**15**

Second Year

Fall	CR	Spring	CR
STAT 3500	3	MATH 2300	3
MATH 1700	5	Behavioral Science	3
Second Language Requirement	4	Humanities, First Writing Intensive	3
Second major, minor, certificate, or elective	3	Second Language Requirement	4
		Second major, minor, certificate, or elective	3
	15		**16**

Third Year

Fall	CR	Spring	CR
STAT 4510	3	STAT 4970W	3
STAT 4710 or 4750	3	MATH 4140	3
Second Language Requirement	4	Behavioral Science	3
Second major, minor, certificate, or elective	3	Social Science, 2000+ level	3
Social Science	3	Second major, minor, certificate, or elective	3
	16		**15**

Fourth Year

Fall	CR	Spring	CR
Stat, 4000-level	3	Stat, 4000-level	3
Humanities	3	Stat, 4000-level	3
Missouri State Law Requirement: Social Science from Arts and Science	3	Humanities, 2000+ level	3
Second major, minor, certificate, or elective	3	Second major, minor, certificate, or elective	3
Second major, minor, certificate, or elective	3	Second major, minor, certificate, or elective	2
	15		**14**

Total Credits: 120