

STATISTICS (B.S.)

The Bachelor of Science degree program in Statistics provides students with a strong foundation in statistical methodology, experience in its applications, a solid background in the use of statistical computing packages, and the skills to communicate the results of statistical analysis. The BS in Statistics program provides courses that prepare students for careers in business, government, and private industry as statisticians and for graduate training in statistics and related fields.

Statistics is the science involving the collection, analysis and interpretation of data. Employment of statisticians is projected to grow 33 percent from 2022 to 2030. Government agencies will employ more statisticians to improve the quality of the data available for policy analysis. Statisticians are needed in the pharmaceutical industry as pharmaceutical companies develop new treatments and medical technologies. Businesses need statisticians to organize, analyze, and sort through the data for commercial reasons. The field will also see growth in research and development in the physical, engineering, and life sciences, where statisticians' skills in designing tests and assessing results prove highly useful.

Major Requirements

Code	Title	Hours
MATH 241	CALCULUS I WITH LABORATORY	3
MATH 242	CALCULUS II WITH LABORATORY	3
MATH 243	CALCULUS III WITH LABORATORY	3
MATH 244	CALCULUS IV WITH LABORATORY	3
MATH 271	ELEMENTARY STATISTICS I	3
MATH 331	LINEAR ALGEBRA & MATRIX THEORY	3
MATH 351	ADVANCED CALCULUS I	3
MATH 355	PROBABILITY&STATISTICS I	3
MATH 356	PROBABILITY & STATS II	3
MATH 368	DIFFERENTIAL EQUATIONS	3
STAT 272	DATA ANALYSIS	3
STAT 300	REGRESSION ANALYSIS	3
STAT 323	NONPARAMETRIC STATISTICS	3
STAT 350	COMPTNL STATS AND DATA MNGT	3
STAT 357	ACTUARIAL SCI EXAM:PROB/EXAM I	3
STAT 408	TIME SERIES ANALYSIS	3
STAT 414	MULTIVARIATE DATA ANALYSIS	3
STAT 418	SEMINAR IN STATISTICS	3
STAT 455	EXPERIMENTAL DESIGN	3
Total Hours		57

Curriculum Map

Course	Title	Hours
Freshman		
Fall		
ENG 104 or ENG 103 or ENG 111	COMPOSITION I or English Composition I with Co-requisite Support or COMPOSITION & LITERATURE FOR L	3
MATH 241	CALCULUS I WITH LABORATORY	3
MATH 271	ELEMENTARY STATISTICS I	3
UNIV 100	UNIVERSITY SUCCESS	2
Humanities & Fine Arts Option		3

Social & Behavioral Science Option		3
Hours		17
Spring		
ENG 105 or ENG 112	COMPOSITION II or COMPOSITION	3
MATH 242	CALCULUS II WITH LABORATORY	3
STAT 272	DATA ANALYSIS	3
Humanities & Fine Arts Option		3
Natural Science Option		3
Pathway Option		3
Hours		18
Sophomore		
Fall		
MATH 243	CALCULUS III WITH LABORATORY	3
STAT 350	COMPTNL STATS AND DATA MNGT	3
Social & Behavioral Science Option		3
Natural Science Option		3
Pathway Option		3
Hours		15
Spring		
MATH 244	CALCULUS IV WITH LABORATORY	3
MATH 331	LINEAR ALGEBRA & MATRIX THEORY	3
STAT 300	REGRESSION ANALYSIS	3
UNIV 200	CIVIC ENGAGEMENT	1
Humanities & Fine Arts Option		3
Pathway Option		3
Hours		16
Junior		
Fall		
MATH 351	ADVANCED CALCULUS I	3
MATH 355	PROBABILITY&STATISTICS I	3
Science Elective with Lab		4
General Elective		3
Hours		13
Spring		
MATH 356	PROBABILITY & STATS II	3
MATH 368	DIFFERENTIAL EQUATIONS	3
STAT 357	ACTUARIAL SCI EXAM:PROB/EXAM I	3
STAT 455	EXPERIMENTAL DESIGN	3
General Elective		3
Hours		15
Senior		
Fall		
STAT 323	NONPARAMETRIC STATISTICS	3
STAT 414	MULTIVARIATE DATA ANALYSIS	3
General Elective		3
Science Elective and Lab		4
Hours		13
Spring		
STAT 408	TIME SERIES ANALYSIS	3
STAT 418	SEMINAR IN STATISTICS	3
General Elective		3
Science Elective with Lab		4
Hours		13
Total Hours		120

Notes:

- Candidates that transfer 12 or more hours of college credit are exempt from UNIV 100 UNIVERSITY SUCCESS; however, the student must take 2 hours of general electives to replace the UNIV course.

- General electives must be taken with the consultation of the department academic advisor.
- Online Graduation Clearance (**to be completed during the graduating semester only**)

Specialization Courses

Code	Title	Hours
Pure Mathematics		
MATH 311	ABSTRACT ALGEBRA I	3
MATH 431	REAL ANALYSIS I	3
MATH 441	COMPLEX ANALYSIS I	3
MATH 321	MODERN GEOMETRY I	3
MATH 451	GENERAL TOPOLOGY I	3
Applied Mathematics		
MATH 415	PARTIAL DIFF EQUATIONS I	3
MATH 466	OPERATIONS RESEARCH	3
Applied Statistics (See Advisor)		

Student Learning Outcomes

Upon completing the BS degree requirements in statistics, recipients will be able to:

- Apply statistical content knowledge to solve problems and use appropriate technology to gain insights into statistical principles and data analysis.
- Demonstrate an understanding of statistical modeling and ability to carry out analysis using R/ Python software and interpret the results, and
- Communicate statistical ideas and methods effectively through oral presentation, written reports, visualization, and usage of popular statistical packages and graphical methods to display and interpret results independently and cooperatively.
- Students will be able to demonstrate the design of experiments and basic applied statistics, and their capabilities with a major software package.