

BS in Statistics: Statistical Science (695220) MAP Sheet

Physical and Mathematical Sciences, Statistics

For students entering the degree program during the 2024-2025 curricular year

University Core and Graduation Requirements				Suggested Sequence of Courses			
University Core Requirements:				FRESHMAN YEAR		JUNIOR YEAR	
Requirements	# Classes	Hours	Classes	<u>1st Semester</u>		<u>5th Semester</u>	
Religion Cornerstones				First Year Writing	3.00	Requirement 4 Elective	3.00
Teachings and Doctrines of the Book of Mormon	1	2.00	REL A 275	MATH 112	4.00	STAT 340	3.00
Jesus Christ and the Everlasting Gospel	1	2.00	REL A 250	STAT 121	3.00	GE Arts, Letters, Sciences	3.00
Foundations of the Restoration	1	2.00	REL C 225	STAT 130	0.50	WRTG 316	3.00
The Eternal Family	1	2.00	REL C 200	UNIV 101	2.00	GE Religion	2.00
BYU Foundations for Student Success				Religion Cornerstone Class	2.00	Open Elective	0.50
Foundations for Student Success	1	2.00	UNIV 101	Total Hours:	14.50	Total Hours:	14.50
The Individual and Society				<u>2nd Semester</u>		<u>6th Semester</u>	
American Heritage	1 to 2	3.00-6.00	from approved list	American Heritage	3.00	Requirement 6 Elective 1	3.00
Global and Cultural Awareness	1	3.00	from approved list	MATH 113	4.00	Requirement 7 Elective 1	3.00
Skills				STAT 230	3.00	Open Electives	4.00
First Year Writing	1	3.00	from approved list	GE Arts, Letters, Sciences	3.00	GE Arts, Letters, Sciences	3.00
Advanced Written and Oral Communications	1	3.00	WRTG 316	Religion Cornerstone Class	2.00	GE Religion	2.00
Quantitative Reasoning	1	4.00	MATH 112*	Total Hours:	15.00	Total Hours:	15.00
Languages of Learning (Math of Language)	1	4.00	MATH 112*	SOPHOMORE YEAR			
Arts, Letters and Sciences (Complete 6 of 7)				<u>3rd Semester</u>		<u>7th Semester</u>	
Civilization 1	1	3.00	from approved list	STAT 240	3.00	Requirement 6 Elective 2	3.00
Civilization 2	1	3.00	from approved list	MATH 213	2.00	Requirement 7 Elective 2	3.00
Arts	1	3.00	from approved list	MATH 215	1.00	GE Religion	2.00
Letters	1	3.00	from approved list	STAT 250	3.00	Open Elective	8.00
Biological Science	1	3.00-4.00	from approved list	GE Arts, Letters, Sciences	3.00	Total Hours:	16.00
Physical Science	2	3.00	from approved list	Religion Cornerstone Class	2.00	<u>8th Semester</u>	
Social Science	1	3.00	from approved list	Total Hours:	14.00	Requirement 7 Elective 3	3.00
Core Enrichment: Electives				<u>4th Semester</u>		Requirement 7 Elective 4	3.00
Religion Electives	3 to 4	6.00	from approved list	MATH 314	3.00	GE Arts, Letters, Sciences	3.00
Open Electives	Variable	Variable	personal choice	Global and Cultural Awareness	3.00	Open Electives	6.00
Graduation Requirements:				STAT 330	3.00	Total Hours	15.00
Minimum residence hours required		30.00		GE Arts, Letters, Sciences	3.00		
Minimum hours needed to graduate		120.00		Religion Cornerstone Class	2.00		
				Open Electives	2.00		
				Total Hours:	16.00		
*These classes fill both university core and program requirements							

Requirement 1 — Complete 2 Courses

STAT 121 - Principles of Statistics 3.0
 STAT 130 - Intro to Statistics Department 0.5

Requirement 2 — Complete 5 Courses

Statistics core courses:

STAT 230 - Analysis of Variance 3.0
 STAT 240 - Probability and Inference 1 3.0
 STAT 250 - Applied R Programming 3.0
 STAT 330 - Introduction to Regression 3.0
 STAT 340 - Probability and Inference 2 3.0

Requirement 3 — Complete 4 Courses

Mathematical foundation courses:

MATH 112 - Calculus 1 4.0
 MATH 113 - Calculus 2 4.0
 MATH 213 - Elementary Linear Algebra 2.0
 MATH 215 - Computational Linear Algebra 1.0

Requirement 4 — Complete 3 hours

C S 110 - How to Program 3.0
 C S 111 - Intro to Computer Science 3.0
 HLTH 440 - Statistical Computing in Epi 3.0
 IS 520 - Spreadsheet Automation 3.0
 STAT 286 - Data Science Ecosystems 3.0

Requirement 5 — Complete 1 Course

MATH 314 - Calculus of Several Variables 3.0

Requirement 6 — Complete 6 hours

STAT 435 - Nonparametric Stat Methods 3.0
 STAT 437 - Applications in Biostatistics 3.0
 STAT 451 - Applied Bayesian Statistics 3.0
 STAT 466 - Intro to Reliability 3.0
 STAT 469 - Analysis of Correlated Data 3.0
 STAT 482 - Data Science Capstone 1 3.0
 STAT 483 - Data Science Capstone 2 3.0
 STAT 486 - Machine Learning 3.0
 STAT 495R - Special Topics in Statistics - *You may take once 1.0v*
 STAT 531 - Experimental Design 3.0
 STAT 538 - Survival Analysis 3.0

Requirement 7 — Complete 12 hours

Note: Courses used in Requirements 4 and 6 will not double count here. Note: No more than 3.0 hours of any combination of STAT 496R and STAT 497R can be used for this requirement.

MATH 334 - Ordinary Differential Equation 3.0
 MATH 341 - Theory of Analysis 1 3.0
 MATH 342 - Theory of Analysis 2 3.0
 STAT 234 - Methods of Survey Sampling 3.0
 STAT 251 - Intro to Bayesian Statistics 3.0
 STAT 274 - Theory of Interest 3.0
 STAT 281 - Data Visualization 3.0
 STAT 286 - Data Science Ecosystems 3.0
 STAT 348 - Predictive Analytics 3.0
 STAT 381 - Statistical Computing 3.0
 STAT 386 - Data Science Process 3.0
 STAT 395R - Special Topics in Applied Stat - *You may take once 1.0v*
 STAT 435 - Nonparametric Stat Methods 3.0
 STAT 437 - Applications in Biostatistics 3.0
 STAT 451 - Applied Bayesian Statistics 3.0
 STAT 466 - Intro to Reliability 3.0
 STAT 469 - Analysis of Correlated Data 3.0
 STAT 482 - Data Science Capstone 1 3.0
 STAT 483 - Data Science Capstone 2 3.0
 STAT 486 - Machine Learning 3.0
 STAT 495R - Special Topics in Statistics - *You may take up to 3.0 credit hours 1.0v*
 STAT 496R - Academic Internship - *You may take once 0.5v*
 STAT 497R - Intro to Research - *You may take once 0.5v*
 STAT 531 - Experimental Design 3.0
 STAT 538 - Survival Analysis 3.0

It is strongly recommended that students interested in graduate study in statistics choose electives to prepare for the BYU BS/MS statistics integrated program by

meeting with the Statistics Department graduate coordinator.

THE DISCIPLINE:

Statisticians apply sophisticated methods to increasingly massive data sets to discover insights into important business, government, and health policy questions. The curriculum and degrees offered through the Department of Statistics are designed to equip students with decision-making skills for careers as professional statisticians in industrial organizations, government agencies, insurance companies, pharmaceutical companies, universities, and research institutes.

While the Statistical Science emphasis is designed to prepare students for graduate programs, all students in the Statistical Science emphasis leave BYU with a resourceful, disciplined, and flexible approach to statistics, an enhanced capacity to analyze and interpret data, a broadened perspective on the impact of data in decisionmaking, and a well-developed capacity for understanding and communicating statistical results.

CAREER OPPORTUNITIES:

The increase of big data and analytics across disciplines is creating new challenges and opportunities for statisticians. The Statistical Science emphasis prepares students to enter competitive graduate programs in statistics. The technical tools statisticians acquire are useful in many areas and for this reason a statistics degree is also excellent preparation for public administration. Recent alumni who did not go to graduate school are working at Adobe, Saks Fifth Avenue, Qualtrics, Milliman, Pariveda Solutions, and the Utah Governor's Office of Planning and Budget.

INTERNSHIPS:

Undergraduates can seek paid positions in various areas such as (but not limited to) Environment, Business, Health & Medicine, Physical Sciences, and Government. STAT 250, 286, and 330 provide excellent preparation for many internship opportunities. Students are encouraged to meet with their Career Services Director or reach out to the department for the most up-to-date internship opportunities.

MAP DISCLAIMER

While every reasonable effort is made to ensure accuracy, there are some student populations that could have exceptions to listed requirements. Please refer to the university catalog and your college advisement center/department for complete guidelines.

DEPARTMENT INFORMATION

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FACULTY ADVISOR:

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ADVISEMENT CENTER INFORMATION FOR UNIVERSITY CORE OR PROGRAM QUESTIONS, CONTACT THE ADVISEMENT CENTER.**Computational, Mathematical, & Physical Sciences**

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