

BS in Statistics: Statistical Science (695220) MAP Sheet

Physical and Mathematical Sciences, Statistics

For students entering the degree program during the 2021-2022 curricular year.



University Core and Graduation Requirements				Suggested Sequence of Courses			
University Core Requirements:				FRESHMAN YEAR			
Requirements	#Classes	Hours	Classes	JUNIOR YEAR			
Religion Cornerstones				5th Semester			
Teachings and Doctrine of The Book of Mormon	1	2.0	from approved list	First Year Writing	3.0	Requirement 4 Elective #1	1.5
Jesus Christ and the Everlasting Gospel	1	2.0	from approved list	MATH 112 (FWSpSu)	4.0	Requirement 4 Elective #2	1.5
Foundations of the Restoration	1	2.0	REL C 225	STAT 121	3.0	STAT 340	3.0
The Eternal Family	1	2.0	from approved list	STAT 130	0.5	Adv. Written and Oral Communication	3.0
The Individual and Society				Arts	3.0	Civilization 1	3.0
American Heritage	1-2	3-6.0	from approved list	Religion Cornerstone course	2.0	Religion elective	2.0
Global and Cultural Awareness	1	3.0	from approved list	Total Hours	15.5	Total Hours	14.0
Skills				2nd Semester			
First Year Writing	1	3.0	from approved list	American Heritage	3.0	6th Semester	
Advanced Written and Oral Communications	1	3.0	from approved list	MATH 113 (FWSpSu)	4.0	Requirement 6 Elective #1	3.0
Quantitative Reasoning	1	4.0	MATH 112*	STAT 230	3.0	Requirement 7 Elective #1	3.0
Languages of Learning (Math or Language)	1	4.0	MATH 112*	Religion Cornerstone course	2.0	Civilization 2	3.0
Arts, Letters, and Sciences				Physical Science	3.0	Religion elective	2.0
Civilization 1	1	3.0	from approved list	Total Hours	15.0	Open Electives	4.0
Civilization 2	1	3.0	from approved list	SOPHOMORE YEAR		Total Hours	15.0
Arts	1	3.0	from approved list	3rd Semester		SENIOR YEAR	
Letters	1	3.0	from approved list	MATH 213	2.0	7th Semester	
Biological Science	1	3-4.0	from approved list	MATH 215	1.0	Requirement 6 Elective #2	3.0
Physical Science	1-2	3-7.0	from approved list	STAT 240	3.0	Requirement 7 Elective #2	3.0
Social Science	1	3.0	from approved list	STAT 250	3.0	Religion elective	2.0
Core Enrichment: Electives				Biological Science	3.0	Open Electives	8.0
Religion Electives	3-4	6.0	from approved list	Religion Cornerstone course	2.0	Total Hours	16.0
Open Electives	Variable	Variable	personal choice	Total Hours	14.0	8th Semester	
*THESE CLASSES FILL BOTH UNIVERSITY CORE AND PROGRAM REQUIREMENTS (4 hours overlap)				4th Semester		Requirement 7 Elective #3	3.0
Graduation Requirements:				MATH 314 (FWSpSu)	3.0	Requirement 7 Elective #4	3.0
Minimum residence hours required		30.0		STAT 330	3.0	Social Science	3.0
Minimum hours needed to graduate		120.0		Global and Cultural Awareness	3.0	Open Electives	6.0
				Letters	3.0	Total Hours	15.0
				Religion Cornerstone course	2.0		
				Open Electives	2.0		
				Total Hours	16.0		
				Note 1: Students should take STAT 130 the semester they declare themselves as a Statistics Major.			
				Note 2: The sequence of courses suggested may not fit the circumstances of every student. Students should contact their college advisement center for help in outlining an efficient schedule.			
				Note 3: Students are encouraged to complete an average of 15 credit hours each semester or 30 credit hours each year, including spring and/or summer terms, to reach the 120 credit minimum needed to graduate. Taking fewer credits substantially increases the number of semesters to graduate.			
				Note 4: Students must have the statistics core completed before their senior year in order to graduate within four years.			
				Note 5: Open elective credits can be classes of your choosing, classes for a minor, or credits that have already been earned through AP classes, transfer credits, etc.			

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2021-2022 Program Requirements (53.5 Credit Hours)

No more than 3 hours of credit below C- is allowed in major courses.		
REQUIREMENT 1 Complete 2 courses		
STAT 121 - Principles of Statistics	3.0	
STAT 130 - Introduction to the Department of Statistics	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 3.0 hours from the following course(s)		
STAT 124 - SAS Base Programming Skills	1.5	
STAT 125 - Introduction to Operating Systems, Linux/Unix, and Shell Prog	1.5	
STAT 126 - Introduction to Python Programming	1.5	
STAT 224 - Applied SAS Programming	1.5	
STAT 226 - SQL	1.5	
REQUIREMENT 5 Complete 1 course		
MATH 314 - Calculus of Several Variables	3.0	
REQUIREMENT 6 Complete 6.0 hours from the following course(s)		
NOTE: COURSES USED IN REQUIREMENT 4 WILL NOT DOUBLE COUNT HERE.		
STAT 420 - Big Data Science 1	3.0	
STAT 421 - Big Data Science 2	3.0	
STAT 426 - Data Science Methods and Applications in Statistics	3.0	
STAT 435 - Nonparametric Statistical Methods	3.0	
STAT 437 - Applications in Biostatistics	3.0	
STAT 451 - Applied Bayesian Statistics	3.0	
STAT 462 - Quality Control and Industrial Statistics	3.0	
STAT 466 - Introduction to Reliability	3.0	
STAT 469 - Analysis of Correlated Data	3.0	
STAT 475 - Life Contingencies	3.0	
STAT 477 - Statistical Distributions for Actuarial Modeling and Data Analy	3.0	
STAT 495R - Special Topics in Statistics	3.0v	
STAT 531 - Experimental Design	3.0	
STAT 538 - Survival Analysis	3.0	
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.		
CERTIFICATION:		
SAS Certified Base Programmer and SAS Certified Advanced Programmer. Students can take the SAS Certification exams after completing Stat 124 and 224. Information and exam registration is available at http://support.sas.com/certify/creds/index.html .		
REQUIREMENT 7 Complete 12.0 hours from the following course(s)		
NOTE: COURSES USED IN REQUIREMENTS 4 AND 6 WILL NOT DOUBLE COUNT HERE.		
C S 142 - Introduction to Computer Programming	3.0	
MATH 334 - Ordinary Differential Equations	3.0	
MATH 341 - Theory of Analysis 1	3.0	
MATH 342 - Theory of Analysis 2	3.0	
STAT 124 - SAS Base Programming Skills	1.5	
STAT 125 - Introduction to Operating Systems, Linux/Unix, and Shell Prog	1.5	
STAT 126 - Introduction to Python Programming	1.5	
STAT 224 - Applied SAS Programming	1.5	
STAT 226 - SQL	1.5	
STAT 234 - Methods of Survey Sampling	3.0	
STAT 251 - Introduction to Bayesian Statistics	3.0	
STAT 274 - Theory of Interest	3.0	
STAT 377 - Statistical Models for Financial Economics	3.0	
STAT 381 - Statistical Computing	3.0	
STAT 420 - Big Data Science 1	3.0	
STAT 421 - Big Data Science 2	3.0	
STAT 426 - Data Science Methods and Applications in Statistics	3.0	
STAT 435 - Nonparametric Statistical Methods	3.0	
STAT 437 - Applications in Biostatistics	3.0	
STAT 451 - Applied Bayesian Statistics	3.0	
STAT 462 - Quality Control and Industrial Statistics	3.0	
STAT 466 - Introduction to Reliability	3.0	
STAT 469 - Analysis of Correlated Data	3.0	
STAT 475 - Life Contingencies	3.0	
STAT 477 - Statistical Distributions for Actuarial Modeling and Data Analy	3.0	
STAT 495R - Special Topics in Statistics	3.0v	
<i>You may take up to 3 credit hours.</i>		
STAT 496R - Academic Internship: Statistics	9.0v	
<i>You may take up to 3 credit hours.</i>		
STAT 497R - Introduction to Statistical Research	3.0v	
<i>You may take up to 3 credit hours.</i>		
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 graduate coordinator.		

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2021-2022

SAS/BYU Applied Statistics and Advanced SAS

Programming Certificate. Students who earn a B or higher in the applied and computing core classes (Stat 124, 224, 230, 330, 381) are eligible to receive a certificate jointly issued by SAS and BYU which can be listed on a resume. More information is available at <https://statistics.byu.edu/content/sas-certificate-opportunities>.

INTERNSHIPS:

Several government agencies offer internship programs suitable for students in the Statistical Science emphasis: the Joint Program in Survey Methodology (<https://jpsm.umd.edu/undergraduate/junior-fellows-overview>), National Institute of Standards and Technology (<https://www.nist.gov/programs-projects/internship-program>), National Institutes of Health—Summer Institute for Training in Biostatistics (<https://www.nhlbi.nih.gov/node-general/summer-institute-biostatistics>). Local internships are also available at Qualtrics, Utah Transit Authority, Intermountain Healthcare, Adobe Predictive Analytics, and inc.com.

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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ADVISEMENT CENTER INFORMATION

FOR UNIVERSITY CORE OR PROGRAM QUESTIONS, CONTACT THE ADVISEMENT CENTER.

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