

BS in Statistics: Data Science (695236) MAP Sheet

Physical and Mathematical Sciences, Statistics

For students entering the degree program during the 2020-2021 curricular year.



University Core and Graduation Requirements				Suggested Sequence of Courses			
University Core Requirements:							
Requirements	#Classes	Hours	Classes				
Religion Cornerstones				FRESHMAN YEAR			
Teachings and Doctrine of The Book of Mormon	1	2.0	REL A 275	<u>1st Semester</u>			JUNIOR YEAR
Jesus Christ and the Everlasting Gospel	1	2.0	REL A 250	First-year Writing	3.0	STAT 126	1.5
Foundations of the Restoration	1	2.0	REL C 225	MATH 112	4.0	STAT 226	1.5
The Eternal Family	1	2.0	REL C 200	STAT 121	3.0	STAT 340	3.0
The Individual and Society				STAT 130	0.5	Statistics Elective 1	3.0
American Heritage	1-2	3-6.0	from approved list	Arts	3.0	Civilization 1	3.0
Global and Cultural Awareness	1	3.0	from approved list	Religion Cornerstone course	2.0	General Elective	1.0
Skills				Total Hours	15.5	Religion Elective	2.0
First Year Writing	1	3.0	from approved list	<u>2nd Semester</u>		Total Hours	15.0
Advanced Written and Oral Communications	1	3.0	from approved list	American Heritage	3.0	<u>6th Semester</u>	
Quantitative Reasoning	1	4.0	MATH 112*	MATH 113	4.0	Statistics Elective 2	3.0
Languages of Learning (Math or Language)	1	4.0	MATH 112*	STAT 230	3.0	Social Science	3.0
Arts, Letters, and Sciences				PHY S 100	3.0	Adv. Written and Oral Communication	3.0
Civilization 1	1	3.0	from approved list	Religion Cornerstone course	2.0	Civilization 2	3.0
Civilization 2	1	3.0	from approved list	Total Hours	15.0	General Electives	1.0
Arts	1	3.0	from approved list	SOPHOMORE YEAR		Religion Elective	2.0
Letters	1	3.0	from approved list	<u>3rd Semester</u>		Total Hours	15.0
Biological Science	1	3.0	from approved list	C S 142	3.0	SENIOR YEAR	
Physical Science	1	3.0	from approved list	STAT 123	1.5	<u>7th Semester</u>	
Social Science	1	3.0	from approved list	STAT 240	3.0	STAT 420	3.0
Core Enrichment: Electives				Biological Science	3.0	Statistics Elective 3	3.0
Religion Electives	3-4	6.0	from approved list	Global and Cultural Awareness	3.0	General Electives	7.0
Open Electives	Variable	Variable	personal choice	Religion Cornerstone course	2.0	Religion Elective	2.0
*THESE CLASSES FILL BOTH UNIVERSITY CORE AND PROGRAM REQUIREMENTS				Total Hours	15.5	Total Hours	15.0
Graduation Requirements:				<u>4th Semester</u>		<u>8th Semester</u>	
Minimum residence hours required		30.0		C S 235	3.0	STAT 421	3.0
Minimum hours needed to graduate		120.0		STAT 125	1.5	General Electives	12.0
				STAT 223	1.5	Total Hours	15.0
				STAT 330	3.0		
				Letters	3.0		
				General Elective	1.0		
				Religion Cornerstone course	2.0		
				Total Hours	15.0		
				Note 1: Students should take STAT 130 the semester he/she declares himself/herself 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, which could include spring and/or summer terms. Taking fewer credits substantially increases the cost and 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.			

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2020-2021 Program Requirements (52 Credit Hours)

<p>No more than three hours of credit below C- is allowed in major courses.</p> <p>REQUIREMENT 1 Complete 2 courses</p> <p>STAT 121 - Principles of Statistics 3.0</p> <p>STAT 130 - Introduction to the Department of Statistics 0.5</p> <p>REQUIREMENT 2 Complete 2 courses</p> <p>PREPARATION CORE COURSES:</p> <p>*MATH 112 - Calculus 1 4.0</p> <p>MATH 113 - Calculus 2 4.0</p> <p>REQUIREMENT 3 Complete 6 courses</p> <p>STATISTICS CORE COURSES:</p> <p>STAT 123 - Introduction to R Programming 1.5</p> <p>STAT 223 - Applied R Programming 1.5</p> <p>STAT 230 - Analysis of Variance 3.0</p> <p>STAT 240 - Probability and Inference 1 3.0</p> <p>STAT 330 - Introduction to Regression 3.0</p> <p>STAT 340 - Probability and Inference 2 3.0</p> <p>REQUIREMENT 4 Complete 7 courses</p> <p>C S 142 - Introduction to Computer Programming 3.0</p> <p>C S 235 - Data Structures and Algorithms 3.0</p> <p>STAT 125 - Introduction to Operating Systems, Linux/Unix, and Shell Pro 1.5</p> <p>STAT 126 - Introduction to Python Programming 1.5</p> <p>STAT 226 - SQL 1.5</p> <p>STAT 420 - Big Data Science 1 3.0</p> <p>STAT 421 - Big Data Science 2 3.0</p> <p>REQUIREMENT 5 Complete 6.0 hours from the following course(s)</p> <p>STAT 124 - SAS Base Programming Skills 1.5</p> <p>STAT 224 - Applied SAS Programming 1.5</p> <p>STAT 234 - Methods of Survey Sampling 3.0</p> <p>STAT 251 - Introduction to Bayesian Statistics 3.0</p> <p>STAT 274 - Theory of Interest 3.0</p> <p>STAT 377 - Statistical Models for Financial Economics 3.0</p> <p>STAT 381 - Statistical Computing 3.0</p> <p>STAT 426 - Data Science Methods and Applications in Statistics 3.0</p> <p>STAT 435 - Nonparametric Statistical Methods 3.0</p> <p>STAT 437 - Applications in Biostatistics 3.0</p> <p>STAT 451 - Applied Bayesian Statistics 3.0</p> <p>STAT 462 - Quality Control and Industrial Statistics 3.0</p> <p>STAT 466 - Introduction to Reliability 3.0</p> <p>STAT 469 - Analysis of Correlated Data 3.0</p> <p>STAT 475 - Life Contingencies 3.0</p> <p>STAT 477 - Statistical Distributions for Actuarial Modeling and Data Analy 3.0</p>	<p>STAT 495R - Special Topics in Statistics 3.0v <i>You may take up to 3 credit hours.</i></p> <p>STAT 496R - Academic Internship: Statistics 9.0v <i>You may take up to 3 credit hours.</i></p> <p>STAT 497R - Introduction to Statistical Research 3.0v <i>You may take up to 3 credit hours.</i></p> <p>STAT 531 - Experimental Design 3.0</p> <p>STAT 538 - Survival Analysis 3.0</p> <p>REQUIREMENT 6 Complete 3.0 hours from the following course(s)</p> <p>COURSES TAKEN IN THE REQUIREMENT ABOVE WILL NOT DOUBLE COUNT HERE. NO MORE THAN 3.0 CREDIT HOURS OF STAT 495R, STAT 496R, OR STAT 497R MAY BE COUNTED TOWARD THIS REQUIREMENT.</p> <p>IS 515 - Spreadsheets for Business Analysis 3.0</p> <p>IS 520 - Business Programming and Spreadsheet Automation 3.0</p> <p>MATH 213 - Elementary Linear Algebra 2.0</p> <p>MATH 215 - Computational Linear Algebra 1.0</p> <p>MATH 314 - Calculus of Several Variables 3.0</p> <p>MATH 341 - Theory of Analysis 1 3.0</p> <p>MATH 342 - Theory of Analysis 2 3.0</p> <p>STAT 124 - SAS Base Programming Skills 1.5</p> <p>STAT 224 - Applied SAS Programming 1.5</p> <p>STAT 234 - Methods of Survey Sampling 3.0</p> <p>STAT 251 - Introduction to Bayesian Statistics 3.0</p> <p>STAT 274 - Theory of Interest 3.0</p> <p>STAT 377 - Statistical Models for Financial Economics 3.0</p> <p>STAT 381 - Statistical Computing 3.0</p> <p>STAT 426 - Data Science Methods and Applications in Statistics 3.0</p> <p>STAT 435 - Nonparametric Statistical Methods 3.0</p> <p>STAT 437 - Applications in Biostatistics 3.0</p> <p>STAT 451 - Applied Bayesian Statistics 3.0</p> <p>STAT 462 - Quality Control and Industrial Statistics 3.0</p> <p>STAT 466 - Introduction to Reliability 3.0</p> <p>STAT 469 - Analysis of Correlated Data 3.0</p> <p>STAT 475 - Life Contingencies 3.0</p> <p>STAT 477 - Statistical Distributions for Actuarial Modeling and Data Analy 3.0</p> <p>STAT 495R - Special Topics in Statistics 3.0v <i>You may take up to 3 credit hours.</i></p> <p>STAT 496R - Academic Internship: Statistics 9.0v <i>You may take up to 3 credit hours.</i></p> <p>STAT 497R - Introduction to Statistical Research 3.0v <i>You may take up to 3 credit hours.</i></p> <p>STAT 531 - Experimental Design 3.0</p>	<p>STAT 538 - Survival Analysis 3.0</p> <p>THE DISCIPLINE:</p> <p>Statisticians apply sophisticated methods to increasingly massive data sets to discover insights into important business, government, environmental, 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.</p> <p>The Data Science emphasis is designed to help students develop skills that are needed to work on a data science team. These skills include programming, facility with data structures and algorithms, statistical methods, and experience working with real world big data problems. Students with a Data Science emphasis leave BYU with a multi-faceted, disciplined, and flexible approach to data, a rich vocabulary for working with others in data-focused disciplines, and a well-developed capacity for understanding and communicating statistical results.</p> <p>CAREER OPPORTUNITIES:</p> <p>The increase of data science and analytics across disciplines is creating new opportunities for statisticians. The Data Science emphasis prepares students to get entry-level jobs on data science teams in the private and public sectors. A feature of this emphasis is the development of skills and vocabulary in computer science and programming needed to work with massive datasets and to communicate with others on data-science teams.</p> <p>CERTIFICATION:</p> <p>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.</p>
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2020-2021

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 Data 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.

Physical and Mathematical Sciences College Advisement Center

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