

# BS in Statistics: Data Science (696236) 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			
<b>University Core Requirements:</b>				<b>FRESHMAN YEAR</b>		<b>JUNIOR YEAR</b>	
<b>Requirements</b>	<b># Classes</b>	<b>Hours</b>	<b>Classes</b>	<u>1st Semester</u>		<u>5th Semester</u>	
<b>Religion Cornerstones</b>				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	Global and Cultural Awareness	3.00
The Eternal Family	1	2.00	REL C 200	UNIV 101	2.00	GE Religion	2.00
<b>BYU Foundations for Student Success</b>				Religion Cornerstone Class	2.00	Open Elective	2.00
Foundations for Student Success	1	2.00	UNIV 101	<b>Total Hours:</b>	<b>14.50</b>	<b>Total Hours:</b>	<b>16.00</b>
<b>The Individual and Society</b>				<u>2nd Semester</u>		<u>6th Semester</u>	
American Heritage	1 to 2	3.00-6.00	from approved list	American Heritage	3.00	STAT 251	3.00
Global and Cultural Awareness	1	3.00	from approved list	MATH 113	4.00	Requirement 7 Elective	3.00
<b>Skills</b>				STAT 230	3.00	WR TG 316	3.00
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	WR TG 316	Religion Cornerstone Class	2.00	GE Religion	2.00
Quantitative Reasoning	1	4.00	MATH 112*	<b>Total Hours:</b>	<b>15.00</b>	<b>Total Hours:</b>	<b>14.00</b>
Languages of Learning (Math of Language)	1	4.00	MATH 112*	<b>SOPHMORE YEAR</b>			
<b>Arts, Letters and Sciences (Complete 6 of 7)</b>				<u>3rd Semester</u>		<u>7th Semester</u>	
Civilization 1	1	3.00	from approved list	C S 111	3.00	STAT 482 or STAT 386	3.00
Civilization 2	1	3.00	from approved list	MATH 213	2.00	Requirement 8 Elective 1	3.00
Arts	1	3.00	from approved list	MATH 215	1.00	GE Arts, Letters, Sciences	3.00
Letters	1	3.00	from approved list	STAT 250	3.00	GE Religion	2.00
Biological Science	1	3.00-4.00	from approved list	GE Arts, Letters, Sciences	3.00	Open Elective	4.50
Physical Science	2	3.00	from approved list	Religion Cornerstone Class	2.00	<b>Total Hours:</b>	<b>15.50</b>
Social Science	1	3.00	from approved list	Open Electives	2.00	<u>8th Semester</u>	
<b>Core Enrichment: Electives</b>				<b>Total Hours:</b>	<b>16.00</b>	STAT 483 or STAT 486	3.00
Religion Electives	3 to 4	6.00	from approved list	<u>4th Semester</u>		Requirement 8 Elective 2	3.00
Open Electives	Variable	Variable	personal choice	C S 235	3.00	Open Electives	9.00
<b>Graduation Requirements:</b>				STAT 240	3.00	<b>Total Hours</b>	<b>15.00</b>
Minimum residence hours required		30.00		STAT 330	3.00		
Minimum hours needed to graduate		120.00		GE Arts, Letters, Sciences	3.00		
				Religion Cornerstone Class	2.00		
				<b>Total Hours:</b>	<b>14.00</b>		
*These classes fill both university core and program requirements							

## 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 6 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 251 - Introduction to Bayesian Statistics 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 180 - Intro to Data 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 of 2 Options

#### Option 5.1 —Complete 2 Courses

STAT 482 - Data Science Capstone 1 3.0  
STAT 483 - Data Science Capstone 2 3.0

#### Option 5.2 —Complete 2 Courses

STAT 386 - Data Science Process 3.0  
STAT 486 - Machine Learning 3.0

### Requirement 6 —Complete 2 Courses

C S 111 - Intro to Computer Science 3.0  
C S 235 - Data Structures 3.0

### Requirement 7 —Complete 3 hours

**Courses taken in any of the requirements above will not double count here.**

STAT 381 - Statistical Computing 3.0  
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 495R - Special Topics in Statistics - *You may take once 1.0v*  
STAT 531 - Experimental Design 3.0  
STAT 538 - Survival Analysis 3.0

### Requirement 8 —Complete 6 hours

**Courses taken in any of the requirements above will not double count here. No more than 3.0 hours of any combination of STAT 496R and STAT 497R can be used for this requirement.**

IS 515 - Spreadsheets for Bus Analysis 3.0  
IS 520 - Spreadsheet Automation 3.0  
MATH 314 - Calculus of Several Variables 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 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 395R - Special Topics in Applied Stat - *You may take up to 3.0 credit hours 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 495R - Special Topics in Statistics - *You may take up to 3.0 credit hours 1.0v*  
STAT 496R - Academic Internship - *You may take up to 3.0 credit hours 0.5v*  
STAT 497R - Intro to Research - *You may take up to 3.0 credit hours 0.5v*  
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, 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.

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.

## CAREER OPPORTUNITIES:

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.

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

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