BS in Statistics: Data Science (695236) MAP Sheet

Physical and Mathematical Sciences, Statistics

For students entering the degree program during the 2023-2024 curricular year.

University Core and Graduation Requirements

University Core Requirements:

Requirements	#Classes	Hours	Classes
Religion Cornerstones			
Teachings and Doctrine of The Book of Mormon	1	2.0	from approved list
Jesus Christ and the Everlasting Gospel	1	2.0	from approved list
Foundations of the Restoration	1	2.0	REL C 225
The Eternal Family	1	2.0	from approved list
The Individual and Society			
American Heritage	1-2	3-6.0	from approved list
Global and Cultural Awareness	1	3.0	from approved list
Skills			
First Year Writing	1	3.0	from approved list
Advanced Written and Oral Communications	1	3.0	from approved list
Quantitative Reasoning	1	4.0	MATH 112*
Languages of Learning (Math or Language)	1	4.0	MATH 112*
Arts, Letters, and Sciences			
Civilization 1	1	3.0	from approved list
Civilization 2	1	3.0	from approved list
Arts	1	3.0	from approved list
Letters	1	3.0	from approved list
Biological Science	1	3.0	from approved list
Physical Science	1	3.0	from approved list
Social Science	1	3.0	from approved list
Core Enrichment: Electives			
Religion Electives	3-4	6.0	from approved list
Open Electives	Variable	Variable	personal choice

*THESE CLASSES FILL BOTH UNIVERSITY CORE AND PROGRAM REQUIREMENTS

Graduation Requirements:

Minimum residence hours required	30.0
Minimum hours needed to graduate	120.0

Suggested Sequence of Courses

FRESHMAN YEAR

1st Semester

First-year Writing	3.0
MATH 112	4.0
STAT 121	3.0
STAT 130	0.5
Arts	3.0
Religion Cornerstone course	2.0
Total Hours	**15.5**

2nd Semester

American Heritage	3.0
MATH 113	4.0
STAT 230	3.0
Physical Science	3.0
Religion Cornerstone course	2.0
Total Hours	**15.0**

SOPHOMORE YEAR

3rd Semester

C S 111	3.0
MATH 213	2.0
MATH 215	1.0
STAT 250	3.0
Global and Cultural Awareness	3.0
Religion Cornerstone course	2.0
Total Hours	**14.0**

4th Semester

C S 235	3.0
STAT 240	3.0
STAT 330	3.0
Letters	3.0
Religion Cornerstone course	2.0
Total Hours	**14.0**

JUNIOR YEAR

5th Semester

STAT 251	3.0
Requirement 4 Elective	3.0
STAT 340	3.0
Global and Cultural Awareness	3.0
Civilization 1	3.0
Total Hours	**15.0**

6th Semester

Requirement 7 Elective #1	3.0
Requirement 8 Elective #1	3.0
Adv. Written and Oral Communication	3.0
Civilization 2	3.0
Religion elective	2.0
Total Hours	**14.0**

SENIOR YEAR

7th Semester

Requirement 5.1	3.0
Requirement 8 Elective #2	3.0
Social Science	3.0
Religion Elective	2.0
Open Electives	5.0
Total Hours	**16.0**

8th Semester

Requirement 5.2	3.0
Religion Elective	2.0
Open Electives	11.5
Total Hours	**16.50**

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.

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

Department of Statistics 2152 WVB Brigham Young University, Provo, UT 84602 Telephone: (801) 422-4505 BS in Statistics: Data Science (695236)2023-2024 Faculty Advisor: Del T. Scott 2152B WVB Brigham Young University, Provo, UT 84602 Telephone: (801) 422-7054
ADVISEMENT CENTER INFORMATION FOR UNIVERSITY CORE OR PROGRAM QUESTIONS, CONTACT THE ADVISEMENT CENTER.

Physical and Mathematical Sciences College Advisement Center
Brigham Young University N-181 ESC Provo, UT 84602 Telephone: (801) 422-2674