BS in Statistics: Biostatistics (695233) 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	PDBIO 120* recommended
Physical Science	1-2	3-7.0	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 (9 hours overlap)

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
Biological Science	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
Religion Cornerstone course	2.0
Physical Science	3.0
Total Hours	**15.0**

SOPHOMORE YEAR

3rd Semester

MATH 213	2.0
MATH 215	1.0
STAT 250	3.0
Global and Cultural Awareness	3.0
Civilization 1	3.0
Religion Cornerstone course	2.0
Total Hours	**14.0**

4th Semester

MATH 314	3.0
STAT 240	3.0
STAT 330	3.0
Religion Cornerstone course	2.0
Civilization 2	3.0
Total Hours	**14.0**

JUNIOR YEAR

5th Semester

Requirement 7 Elective #1	3.0
Physical Science	3.0
STAT 340	3.0
Advanced Written and Oral Communication	3.0
Requirement 4 Elective	3.0
Total Hours	**15.0**

6th Semester

STAT 437 or STAT 538	3.0
Requirement 8 Elective	3.0
Letters	3.0
Religion elective	2.0
Open Electives	4.0
Total Hours	**15.0**

Department recommendation: Internship during Spring/Summer

SENIOR YEAR

7th Semester

Requirement 7 Elective #2	3.0
Requirement 9 Elective #1	3.0
Arts	3.0
Religion Elective	2.0
Open Electives	5.0
Total Hours	**16.0**

8th Semester

Requirement 9 Elective #2	3.0
Social Science	3.0
Open Electives	7.5
Religion Elective	2.0
Total Hours	**15.5**

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: STAT 538 isn't taught every year.

Note 6: 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 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 3 hours
STAT 437 - Applications in Biostatistics 3.0
STAT 538 - Survival Analysis 3.0
Requirement 7 — Complete 6 hours
Note: If taken above, STAT 437 and 538 will not double count here.
BIO 350 - Ecology 3.0
CELL 120 - Science of Biology 3.0
CELL 305 - Human Physiology 4.0
CHEM 105 - Gen College Chem 1+Lab Integr 4.0
CHEM 111 - Principles of Chemistry 1 4.0
HLTH 345 - Principles of Epidemiology 3.0
MMBIO 240 - Molecular Biology 3.0
PWS 340 - Genetics 3.0
STAT 437 - Applications in Biostatistics 3.0
STAT 538 - Survival Analysis 3.0
Requirement 8 — Complete 3 hours
Note: Courses used anywhere above will not double count here.
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 Analysis 3.0
STAT 381 - Statistical Computing 3.0
STAT 386 - Data Science Process 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 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 531 - Experimental Design 3.0
STAT 538 - Survival Analysis 3.0
Requirement 9 — Complete 6 hours
Note: Courses used anywhere above will not double count here. Note: No more than 3.0 credit hours of any combination of Stat 496R and Stat 497R may be counted toward this requirement. Note: It is strongly recommended that students interested in graduate study in biostatistics complete Math 341 and 342.
HLTH 345 - Principles of Epidemiology 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 Analysis 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 once* 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

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.

The Biostatistics emphasis prepares students to engage in work to advance public health, biology, and medicine. It prepares students for graduate programs in statistics, biostatistics, epidemiology, public health, bioinformatics, and for health sciences professional programs. The Biostatistics emphasis includes the mathematics courses required for graduate study in statistics and biostatistics together with a selection of biology and chemistry courses.

CAREER OPPORTUNITIES:

The increase of big data and analytics in personalized medicine, genomics, and bioinformatics is creating new challenges and opportunities for biostatisticians. Students with undergraduate degrees in biostatistics are well-prepared to apply for graduate programs in statistics and biostatistics but they also stand out as applicants to medical and dental schools and residencies. Statistical training prepares these BS in Statistics: Biostatistics (695233)2023-2024 students to take part in basic and clinical research during medical or dental school and residency.

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 Brigham Young University 2152 WVB Provo, UT 84602 Telephone: (801) 422-4505 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