

BS in Statistics: Biostatistics (695233) 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			
University Core Requirements:				FRESHMAN YEAR		JUNIOR YEAR	
Requirements	# Classes	Hours	Classes	<u>1st Semester</u>		<u>5th Semester</u>	
Religion Cornerstones				First Year Writing	3.00	Stat 340	3.00
Teachings and Doctrines of the Book of Mormon	1	2.00	REL A 275	MATH 112	4.00	Requirement 4 Elective	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	WRGT 316	3.00
The Eternal Family	1	2.00	REL C 200	UNIV 101	2.00	GE Religion	2.00
BYU Foundations for Student Success				Religion Cornerstone Class	2.00	Open Elective	2.00
Foundations for Student Success	1	2.00	UNIV 101	Total Hours:	14.50	Total Hours:	16.00
The Individual and Society				<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 437 or STAT 538	3.00
Global and Cultural Awareness	1	3.00	from approved list	MATH 113	4.00	Requirement 8 Elective	3.00
Skills				STAT 230	3.00	Global and Cultural Awareness	4.00
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	from approved list	Religion Cornerstone Class	2.00	GE Religion	2.00
Quantitative Reasoning	1	4.00	MATH 112*	Total Hours:	15.00	Total Hours:	15.00
Languages of Learning (Math of Language)	1	4.00	MATH 112*	Department recommendation: Internship Spring/Summer			
Arts, Letters and Sciences (Complete 6 of 7)				SOPHMORE YEAR			
Civilization 1	1	3.00	from approved list	<u>3rd Semester</u>		<u>7th Semester</u>	
Civilization 2	1	3.00	from approved list	Req 7 Elect 1 (Cell 120 recommended)	3.00	Requirement 9 Elective 1	3.00
Arts	1	3.00	from approved list	MATH 213	2.00	Requirement 7 Elective 2	3.00
Letters	1	3.00	from approved list	MATH 215	1.00	GE Religion	2.00
Biological Science	1	3.00	Cell 120* recommended	STAT 250	3.00	Open Elective	4.00
Physical Science	2	3.00-7.00	from approved list	GE Arts, Letters, Sciences	3.00	GE Arts, Letters, Sciences	3.00
Social Science	1	3.00	from approved list	Religion Cornerstone Class	2.00	Total Hours:	15.00
Core Enrichment: Electives				4th Semester			
Religion Electives	3 to 4	6.00	from approved list	MATH 314	3.00	<u>8th Semester</u>	
Open Electives	Variable	Variable	personal choice	STAT 240	3.00	Requirement 9 Elective 2	3.00
Graduation Requirements:				STAT 330	3.00	Open Electives	11.50
Minimum residence hours required		30.00		GE Arts, Letters, Sciences	3.00	Total Hours	14.50
Minimum hours needed to graduate		120.00		Religion Cornerstone Class	2.00		
				Open Electives	2.00		
				Total Hours:	16.00		
*These classes fill both university core and 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 up to 3.0 credit hours*
 STAT 496R - Academic Internship - *You may take up to 3.0 credit hours*
 STAT 497R - Intro to Research - *You may take up to 3.0 credit hours*
 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

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