



BS in STATISTICS: Biostatistics Emphasis (695233) MAP Sheet

Department of Statistics

For students entering the degree program during the 2016–2017 curricular year.

UNIVERSITY CORE AND GRADUATION REQUIREMENTS				PROGRAM REQUIREMENTS (54-55 total hours)	
UNIVERSITY CORE REQUIREMENTS				No more than three hours of credit below C- is allowed in major courses.	
<u>Requirements</u>	<u>#Classes</u>	<u>Hours</u>	<u>Classes</u>	Complete the following preparation core courses:	Complete 6 credit hours from the following:
Religion Cornerstones				Math 112* Calculus 1	C S 142 Introduction to Computer Programming 3.0
Teachings and Doctrine, Book of Mormon	1	2.0	Rel A 275	Math 113 Calculus 2	Hlth 345 Principles of Epidemiology 3.0
Jesus Christ & the Everlasting Gospel	1	2.0	Rel A 250		IS 515 Spreadsheets for Business Analysis 3.0
Foundations of the Restoration	1	2.0	Rel C 225		IS 520 Bus Programmng & Sprdsht Automtn 3.0
The Eternal Family	1	2.0	Rel C 200		Math 341 Theory of Analysis 1 3.0
The Individual and Society				Complete one course from the following:	Math 342 Theory of Analysis 2 3.0
Citizenship				Stat 121 Principles of Statistics 3.0	Stat 151 Introduction to Bayesian Statistics 3.0
American Heritage	1-2	3-6.0	from approved list	Stat 201 Statistics for Engineers & Scientists 3.0	Stat 234 Methods of Survey Sampling 3.0
Global & Cultural Awareness	1	3.0	from approved list	Note: Students who have passed the AP statistics exam or an introductory statistics course should not take Stat 121.	Stat 274 Theory of Interest 3.0
Skills				Complete the following statistics core courses:	Stat 377 Statistical Models for Financial Econ 3.0
Effective Communication				Stat 123 Introduction to R Programming 1.5	Stat 381 Statistical Computing 3.0
First-Year Writing	1	3.0	from approved list	Stat 124 SAS Base Programming Skills 1.5	Stat 435 Nonparametric Statistical Methods 3.0
Adv Written & Oral Communication	1	3.0	from approved list	Stat 223 Applied R Programming 1.5	Stat 437 Applications in Biostatistics 3.0
Quantitative Reasoning	1	4.0	Math 112*	Stat 224 Applied SAS Programming 1.5	Stat 451 Applied Bayesian Statistics 3.0
Languages of Learning (Math or Language)	1	4.0	Math 112*	Stat 230 Analysis of Variance 3.0	Stat 466 Introduction to Reliability 3.0
Arts, Letters, and Sciences				Stat 240 Discrete Probability 3.0	Stat 469 Applied Time Series & Forecasting 3.0
Civilization 1 and 2	2	6.0	from approved list	Stat 290 Communication of Statistical Results 1.0	Stat 495R Special Topics in Statistics 3.0V
Arts	1	3.0	from approved list	Stat 330 Introduction to Regression 3.0	Stat 496R Academic Internship: Statistics 9.0V
Letters	1	3.0	from approved list	Stat 340 Inference 3.0	Stat 497R Introduction to Statistical Research 3.0V
Scientific Principles & Reasoning				Complete the following:	Stat 531 Experimental Design 3.0
Biological Science	2	5.0	MMBio 240* & PDBio 120*	Math 313 Elementary Linear Algebra 3.0	Stat 538 Survival Analysis 3.0
Physical Science	1-2	3-7.0	from approved list	Math 314 Calculus of Several Variables 3.0	Note: No more than 3 credit hours of Stat 496R or Stat 497R may be counted toward this requirement.
Social Science	1	3.0	from approved list	Complete one course from the following:	Recommended Courses:
Core Enrichment: Electives				Chem 105 General College Chemistry 4.0	It is strongly recommended that students interested in graduate study in biostatistics include Math 341 and 342 in their elective lists.
Religion Electives	3-4	6.0	from approved list	Chem 111 Principles of Chemistry 3.0	
Open Electives	Variable	Variable	personal choice	Complete the following:	
GRADUATION REQUIREMENTS:				MMBio 240* Molecular Biology 3.0	
Minimum residence hours required		30.0		PDBio 120* Science of Biology 2.0	
Minimum hours needed to graduate		120.0		Complete one course from the following:	
				Bio 350 Ecology 3.0	
				PDBio305 Human Physiology (with lab) 4.0	
				PWS 340 Genetics 3.0	

***THESE CLASSES FILL BOTH UNIVERSITY CORE AND PROGRAM REQUIREMENTS (9 hours overlap)**

FOR UNIVERSITY CORE OR PROGRAM QUESTIONS CONTACT THE ADVISEMENT CENTER

Physical and Mathematical Sciences College Advisement Center

N-181 ESC

Brigham Young University, Provo, UT 84602

Telephone: (801) 422-2674

FACULTY ADVISOR:

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223C TMCB

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Suggested Sequence of Courses:

FRESHMAN YEAR

1st Semester

1 st Year Writing or American Heritage	3.0
Math 112* (FWSpSu)	4.0
PDBio 120	2.0
Stat 121	3.0
Religion Cornerstone course	2.0
General electives	1.0
Total Hours	15.0

2nd Semester

American Heritage or 1 st Year Writing	3.0
Math 113 (FWSpSu)	4.0
Stat 230	3.0
Religion Cornerstone course	2.0
Phy S 100	3.0
Total Hours	15.0

SOPHOMORE YEAR

3rd Semester

Math 313 (FWSpSu)	3.0
Stat 240	3.0
Global and Cultural Awareness	3.0
Civilization 1	3.0
Religion Cornerstone course	2.0
General electives	1.0
Total Hours	15.0

4th Semester

Math 314 (FWSpSu)	3.0
Stat 123 or Stat 124	1.5
Stat 223 or Stat 224	1.5
Stat 290	1.0
Stat 330	3.0
Religion Cornerstone course	2.0
Civilization 2	3.0
Total Hours	15.0

Note 1: 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 2: 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 3: Students *must* have the statistics core completed before their senior year in order to graduate within four years.

Department recommendation: Internship during Spring/Summer

JUNIOR YEAR

5th Semester

Chem 105	4.0
Stat 123 or Stat 124	1.5
Stat 223 or Stat 224	1.5
Stat 340	3.0
Advanced Written and Oral Communication	3.0
Religion elective	2.0
Total Hours	15.0

6th Semester

Statistics elective	3.0
MMBio 240	3.0
Letters	3.0
Religion elective	2.0
General electives	4.0
Total Hours	15.0

Department recommendation: Internship during Spring/Summer

SENIOR YEAR

7th Semester

Statistics elective	3.0
Bio 350 or PDBio 305 or PWS 340	2-4.0
Arts	3.0
Religion elective	2.0
General electives	3-5.0
Total Hours	15.0

8th Semester

Social Science	3.0
General electives	12.0
Total Hours	15.0

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 students to take part in basic and clinical research during medical or dental school and residency.

ADVISING:

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 support.sas.com/certify/creds/index.html.

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, 424) are eligible to receive a certificate jointly issued by SAS and BYU which can be listed on a resume. More information is available at statistics.byu.edu/sas-certificate-opportunities.

Internships. The National Institutes of Health support a Summer Institute for Training in Biostatistics at nine university biostatistics programs. Program/application information is found at www.nhlbi.nih.gov/funding/training/redbook/sibsweb.htm.

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