BS in STATISTICS: Statistical Science Emphasis (695220) MAP Sheet

Department of Statistics

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

UNIVERSITY CORE AND GRADUATION REQUIREMENTS

UNIVERSITY CORE REQUIREMENTS

Requirements	#Classes	Hours	Classes
Religion Cornerstones			
Teachings and Doctrine, Book of Mormon	1	2.0	Rel A 275
Jesus Christ & the Everlasting Gospel	1	2.0	Rel A 250
Foundations of the Restoration	1	2.0	Rel C 225
The Eternal Family	1	2.0	Rel C 200
The Individual and Society			
Citizenship			
American Heritage	1–2	3–6.0	from approved list
Global & Cultural Awareness	1	3.0	from approved list
Skills			
Effective Communication			
First-Year Writing	1	3.0	from approved list
Adv Written & Oral Communication	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 and 2	2	6.0	from approved list
Arts	1	3.0	from approved list
Letters	1	3.0	from approved list
Scientific Principles & Reasoning			
Biological Science	1–2	3–5.0	from approved list
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

GRADUATION REQUIREMENTS:

Minimum residence hours required	30.0
Minimum hours needed to graduate	120.0

PROGRAM REQUIREMENTS (48 total hours)

No more than 3 hours of credit below C- is allowed in major courses.

Complete the following preparation core courses:

Math	112*	Calculus 1	4.0
Math	113	Calculus 2	4.0

Complete one course from the following:

Stat	121	Principles of Statistics	3.0
Stat	151	Introduction to Bayesian Statistics	3.0
Stat	201	Statistics for Engineers & Scientists	3.0

Note: Students who have passed the AP statistics exam or an introductory statistics course should not take Stat 121.

Complete the following statistics core courses:

Stat	123	Introduction to R Programming	1.5
Stat	124	SAS Base Programming Skills	1.5
Stat	223	Applied R Programming	1.5
Stat	224	Applied SAS Programming	1.5
Stat	230	Analysis of Variance	3.0
Stat	240	Discrete Probability	3.0
Stat	290	Communication of Statistical Results	1.0
Stat	330	Introduction to Regression	3.0
Stat	340	Inference	3.0

Complete the following:

Math	313	Elementary Linear Algebra	3.0
Math	314	Calculus of Several Variables	3.0

Complete 12 credit hours from the following:

C S	142	Introduction to Computer Programming	3.0
IS	515	Spreadsheets for Business Analysis	3.0
IS	520	Spreadsheet Automation	3.0
Math	334	Ordinary Differential Equations	3.0
Math	341	Theory of Analysis 1	3.0
Math	342	Theory of Analysis 2	3.0
Stat	151	Introduction to Bayesian Statistics	3.0
Stat	234	Methods of Survey Sampling	3.0
Stat	274	Theory of Interest	3.0
Stat	377	Statistical Models for Financial Econ	3.0
Stat	381	Statistical Computing	3.0
Stat	435	Nonparametric Statistical Methods	3.0
Stat	437	Applications in Biostatistics	3.0
Stat	451	Applied Bayesian Statistics	3.0
Stat	462	Quality Control & Industrial Statistics	3.0
Stat	431	Experimental Design	3.0
Stat	435	Nonparametric Statistical Methods	3.0
Stat	451	Applied Bayesian Statistics	3.0
Stat	462	Quality Control & Industrial Statistics	3.0
Stat	466	Introduction to Reliability	3.0
Stat	469	Applied Time Series & Forecasting	3.0
Stat	475	Life Contingencies	3.0
Stat	477	Statistical Distributions for Modeling	3.0
Stat	495R	Special Topics in Statistics	3.0V
Stat	496R	Academic Internship: Statistics (3 hours only will be accepted)	9.0V
Stat	497R	Introduction to Statistical Research	3.0V
Stat	531	Experimental Design	3.0
Stat	538	Survival Analysis	3.0

Note: No more than 3 hours of Stat 496R or Stat 497R may be counted toward this requirement.

Recommended Courses:
It is **strongly recommended** that students interested in graduate study in statistics choose electives to prepare for the BYU BS/MS statistics integrated program by meeting with the statistics graduate coordinator.

***THESE CLASSES FILL BOTH UNIVERSITY CORE AND PROGRAM REQUIREMENTS (4 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:
Del T. Scott
223C TMCB
Brigham Young University, Provo, UT 84602
Telephone: (801) 422-7054

BS in STATISTICS: Statistical Science Emphasis (695220)
2016–2017

Suggested Sequence of Courses:

FRESHMAN YEAR

1st Semester	
1st Year Writing or American Heritage	3.0
Math 112 (FWSpSu)	4.0
Stat 121	3.0
Arts	3.0
Religion Cornerstone course	2.0
Total Hours	**15.0**

2nd Semester	
American Heritage or 1st 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
Biological Science	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
Letters	3.0
Religion Cornerstone course	2.0
Total Hours	**15.0**

Department recommendation: Internship during Spring/Summer

JUNIOR YEAR

5th Semester	
Stat 123 or Stat 124	1.5
Stat 223 or Stat 224	1.5
Stat 340	3.0
Adv. Written and Oral Communication	3.0
Civilization 1	3.0
Religion elective	2.0
General elective	1.0
Total Hours	**15.0**

6th Semester	
Statistics elective	3.0
Social Science	3.0
Civilization 2	3.0
Religion elective	2.0
General electives	3.0
Total Hours	**14.0**

Department recommendation: Internship during Spring/Summer

SENIOR YEAR

7th Semester	
Statistics elective	3.0
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Religion elective	2.0
General electives	7.0
Total Hours	**15.0**

8th Semester	
Statistics elective	3.0
General electives	12.0
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.

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.

While the Statistical Science emphasis is designed to prepare students for graduate programs, all students in the Statistical Science emphasis leave BYU with a resourceful, disciplined, and flexible approach to statistics, an enhanced capacity to analyze and interpret data, a broadened perspective on the impact of data in decision-making, and a well-developed capacity for understanding and communicating statistical results.

CAREER OPPORTUNITIES:

The increase of big data and analytics across disciplines is creating new challenges and opportunities for statisticians. The Statistical Science emphasis prepares students to enter competitive graduate programs in statistics. The technical tools statisticians acquire are useful in many areas and for this reason a statistics degree is also excellent preparation for public administration. Recent alumni who did not go to graduate school are working at Adobe, Saks Fifth Avenue, Qualtrics, Milliman, Pariveda Solutions, and the Utah Governor's Office of Planning and Budget.

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 http://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/content/sas-certificate-opportunities.

Internships. Several government agencies offer internship programs suitable for students in the Statistical Science emphasis: the Joint Program in Survey Methodology (www.jpsm.umd.edu/undergraduate/topic/junior-fellow-program), National Institute of Standards and Technology (www.nist.gov/ohrm/staffing/internship-program.cfm), National Institutes of Health—Summer Institute for Training in Biostatistics (www.nhlbi.nih.gov/funding/training/redbook/sibsweb.htm). Local internships are also available at Qualtrics, Utah Transit Authority, Intermountain Healthcare, Adobe Predictive Analytics, and inc.com.

Department of Statistics
223 TMCB
Brigham Young University, Provo, UT 84602
Telephone: (801) 422-4505