



BS in STATISTICS: Applied Statistics and Analytics Emphasis (695234) MAP Sheet

Department of Statistics

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

UNIVERSITY CORE AND GRADUATION REQUIREMENTS				PROGRAM REQUIREMENTS (48 total hours)		
UNIVERSITY CORE REQUIREMENTS				No more than three hours of credit below C- is allowed in major courses.		
				(Continued from previous column.)		
<u>Requirements</u>	<u>#Classes</u>	<u>Hours</u>	<u>Classes</u>	Complete the following preparation core courses:	Stat 377 Statistical Models for Financial Econ	3.0
Religion Cornerstones				Math 112* Calculus 1	Stat 381 Statistical Computing	3.0
Teachings and Doctrine, Book of Mormon	1	2.0	Rel A 275	Math 113 Calculus 2	Stat 435 Nonparametric Statistical Methods	3.0
Jesus Christ & the Everlasting Gospel	1	2.0	Rel A 250		Stat 437 Applications in Biostatistics	3.0
Foundations of the Restoration	1	2.0	Rel C 225		Stat 451 Applied Bayesian Statistics	3.0
The Eternal Family	1	2.0	Rel C 200		Stat 462 Quality Control & Industrial Statistics	3.0
The Individual and Society				Complete one course from the following:	Stat 466 Introduction to Reliability	3.0
Citizenship				Stat 121 Principles of Statistics	Stat 469 Applied Time Series & Forecasting	3.0
American Heritage	1–2	3–6.0	Econ 110* and one course from approved list	Stat 151 Introduction to Bayesian Statistics	Stat 475 Life Contingencies	3.0
Global & Cultural Awareness	1	3.0	from approved list	Stat 201 Statistics for Engineers & Scientists	Stat 477 Statistical Distributions for Modeling	3.0
Skills				Note: Students who have passed the AP statistics exam or an introductory statistics course should not take Stat 121.	Stat 495R Special Topics in Statistics	3.0V
Effective Communication				Complete the following statistics core courses:	Stat 496R Academic Internship: Statistics	9.0V
First-Year Writing	1	3.0	from approved list	Stat 123 Introduction to R Programming	Stat 497R Introduction to Statistical Research	3.0V
Adv Written & Oral Communication	1	3.0	from approved list	Stat 124 SAS Base Programming Skills	Stat 531 Experimental Design	3.0
Quantitative Reasoning	1	4.0	Math 112*	Stat 223 Applied R Programming	Stat 538 Survival Analysis	3.0
Languages of Learning (Math or Language)	1	4.0	Math 112*	Stat 224 Applied SAS Programming		
Arts, Letters, and Sciences				Stat 230 Analysis of Variance	Note: No more than 3 credit hours of Stat 496R or Stat 497R may be counted toward this requirement.	
Civilization 1 and 2	2	6.0	from approved list	Stat 240 Discrete Probability		
Arts	1	3.0	from approved list	Stat 290 Communication of Statistical Results		
Letters	1	3.0	from approved list	Stat 330 Introduction to Regression		
Scientific Principles & Reasoning				Stat 340 Inference		
Biological Science	1–2	3–5.0	from approved list	Complete the following:		
Physical Science	1–2	3–7.0	from approved list	Econ 110* Economic Principles and Problems	3.0	
Social Science	1	3.0	Econ 110*	Complete 15 credit hours from the following:		
Core Enrichment: Electives				C S 142 Introduction to Computer Programming	3.0	
Religion Electives	3–4	6.0	from approved list	IS 515 Spreadsheets for Business Analysis	3.0	
Open Electives	Variable	Variable	personal choice	IS 520 Bus Prgrmmng & Sprdsht Automtn	3.0	
GRADUATION REQUIREMENTS:				Math 313 Elementary Linear Algebra	3.0	
Minimum residence hours required		30.0		Math 314 Calculus of Several Variables	3.0	
Minimum hours needed to graduate		120.0		Stat 151 Introduction to Bayesian Statistics	3.0	
				Stat 234 Methods of Survey Sampling	3.0	
				Stat 274 Theory of Interest	3.0	
				(Continued in next column.)		

***THESE CLASSES FILL BOTH UNIVERSITY CORE AND PROGRAM REQUIREMENTS (7 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

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Suggested Sequence of Courses:

FRESHMAN YEAR

1st Semester

1 st Year Writing or American Heritage	3.0
Econ 110 (FWSpSu)	3.0
Math 112 (FWSpSu)	4.0
Stat 121	3.0
Religion Cornerstone course	2.0
Total Hours	15.0

2nd Semester

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

SOPHOMORE YEAR

3rd Semester

Stat 240	3.0
Biological Science	3.0
Civilization 1	3.0
Global and Cultural Awareness	3.0
Religion Cornerstone course	2.0
General electives	1.0
Total Hours	15.0

4th Semester

Stat 123 or Stat 124	1.5
Stat 223 or Stat 224	1.5
Stat 290	1.0
Stat 330	3.0
Civilization 2	3.0
Religion Cornerstone course	2.0
General electives	3.0
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
Advanced Written and Oral Communication	3.0
Religion elective	2.0
General electives	4.0
Total Hours	15.0

6th Semester

Statistics elective	3.0
Letters	3.0
Religion elective	2.0
General electives	7.0
Total Hours	15.0

Department recommendation: Internship during Spring/Summer

SENIOR YEAR

7th Semester

Statistics elective	3.0
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Arts	3.0
Religion elective	2.0
General electives	4.0
Total Hours	15.0

8th Semester

Statistics elective	3.0
Statistics elective	3.0
General electives	9.0
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.

Statisticians in business find information in big data and design experiments to model, predict, and optimize business outcomes. Students who are quantitatively oriented and interested in business, government, and health are well prepared by this emphasis. The Applied Statistics and Analytics emphasis includes a greater number of statistical analysis and data management courses and fewer of the mathematics courses required for graduate study in statistics.

CAREER OPPORTUNITIES:

Typical employment upon graduation would include statisticians in government agencies (for example, the U.S. Census Bureau), database administrators focusing on SAS programming, and entry-level analysts involved in collecting, analyzing, and reporting results (for example, in market research). A feature of this emphasis is the large number of electives that allow students to customize their preparation toward the professional area of their interest or the emerging fields of analytics and data science. Students can deepen their expertise in experimental design, regression modeling, Bayesian inference, computing and big data, survey sampling, quality control, reliability and survival analysis.

ADVISING:

ASQ Certified Quality Process Analyst (CQPA). Students interested in employment as quality analysts should take Stat 462 to prepare for certification by the ASQ as described in asq.org/higher-education/why-quality/cqpa-certification-competitive-edge.html. Highly motivated students may also prepare on their own with the materials and practice exams through ce.byu.edu/cw/prodev/.

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 Applied Statistics and Analytics emphasis: the Joint Program in Survey Methodology (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.

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