



# 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				PROGRAM REQUIREMENTS (48 total hours)		
<b>UNIVERSITY CORE REQUIREMENTS</b>				No more than 3 hours of credit below C- is allowed in major courses.		
<u>Requirements</u>	<u>#Classes</u>	<u>Hours</u>	<u>Classes</u>	<b>Complete the following preparation core courses:</b>		
<b>Religion Cornerstones</b>				Math 112* Calculus 1	4.0	<b>Complete 12 credit hours from the following:</b>
Teachings and Doctrine, Book of Mormon	1	2.0	Rel A 275	Math 113 Calculus 2	4.0	C S 142 Introduction to Computer Programming
Jesus Christ & the Everlasting Gospel	1	2.0	Rel A 250	IS 515 Spreadsheets for Business Analysis		
Foundations of the Restoration	1	2.0	Rel C 225	IS 520 Spreadsheet Automation		
The Eternal Family	1	2.0	Rel C 200	Math 334 Ordinary Differential Equations		
<b>The Individual and Society</b>				<b>Complete one course from the following:</b>		
<u>Citizenship</u>				Stat 121 Principles of Statistics	3.0	Math 342 Theory of Analysis 2
American Heritage	1–2	3–6.0	from approved list	Stat 151 Introduction to Bayesian Statistics	3.0	Stat 151 Introduction to Bayesian Statistics
Global & Cultural Awareness	1	3.0	from approved list	Stat 201 Statistics for Engineers & Scientists	3.0	Stat 234 Methods of Survey Sampling
<b>Skills</b>				<b>Note:</b> Students who have passed the AP statistics exam or an introductory statistics course should not take Stat 121.		
<u>Effective Communication</u>				<b>Complete the following statistics core courses:</b>		
First-Year Writing	1	3.0	from approved list	Stat 123 Introduction to R Programming	1.5	Stat 274 Theory of Interest
Adv Written & Oral Communication	1	3.0	from approved list	Stat 124 SAS Base Programming Skills	1.5	Stat 377 Statistical Models for Financial Econ
Quantitative Reasoning	1	4.0	Math 112*	Stat 223 Applied R Programming	1.5	Stat 381 Statistical Computing
Languages of Learning (Math or Language)	1	4.0	Math 112*	Stat 224 Applied SAS Programming	1.5	Stat 435 Nonparametric Statistical Methods
<b>Arts, Letters, and Sciences</b>				Stat 230 Analysis of Variance	3.0	Stat 437 Applications in Biostatistics
Civilization 1 and 2	2	6.0	from approved list	Stat 240 Discrete Probability	3.0	Stat 451 Applied Bayesian Statistics
Arts	1	3.0	from approved list	Stat 290 Communication of Statistical Results	1.0	Stat 462 Quality Control & Industrial Statistics
Letters	1	3.0	from approved list	Stat 330 Introduction to Regression	3.0	Stat 466 Introduction to Reliability
<u>Scientific Principles &amp; Reasoning</u>				Stat 340 Inference	3.0	Stat 469 Applied Time Series & Forecasting
Biological Science	1–2	3–5.0	from approved list	<b>Complete the following:</b>		
Physical Science	1–2	3–7.0	from approved list	Math 313 Elementary Linear Algebra	3.0	Stat 475 Life Contingencies
Social Science	1	3.0	from approved list	Math 314 Calculus of Several Variables	3.0	Stat 477 Statistical Distributions for Modeling
<b>Core Enrichment: Electives</b>				<b>Note:</b> No more than 3 hours of Stat 496R or Stat 497R may be counted toward this requirement.		
Religion Electives	3–4	6.0	from approved list	<b>Recommended Courses:</b>		
Open Electives	Variable	Variable	personal choice	It is <b>strongly recommended</b> 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.		
<b>GRADUATION REQUIREMENTS:</b>						
Minimum residence hours required		30.0				
Minimum hours needed to graduate		120.0				

**\*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

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

**Suggested Sequence of Courses:**

**FRESHMAN YEAR**

1st Semester

1 <sup>st</sup> Year Writing or American Heritage	3.0
Math 112 (FWSpSu)	4.0
Stat 121	3.0
Arts	3.0
Religion Cornerstone course	2.0
<b>Total Hours</b>	<b>15.0</b>

2nd Semester

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

**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
<b>Total Hours</b>	<b>15.0</b>

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
<b>Total Hours</b>	<b>15.0</b>

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
<b>Total Hours</b>	<b>15.0</b>

6th Semester

Statistics elective	3.0
Social Science	3.0
Civilization 2	3.0
Religion elective	2.0
General electives	3.0
<b>Total Hours</b>	<b>14.0</b>

Department recommendation: Internship during Spring/Summer

**SENIOR YEAR**

7th Semester

Statistics elective	3.0
Statistics elective	3.0
Religion elective	2.0
General electives	7.0
<b>Total Hours</b>	<b>15.0</b>

8th Semester

Statistics elective	3.0
General electives	12.0
<b>Total Hours</b>	<b>15.0</b>

**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](http://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](http://www.jpsm.umd.edu/undergraduate/topic/junior-fellow-program)), National Institute of Standards and Technology ([www.nist.gov/ohrm/staffing/internship-program.cfm](http://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](http://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.

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