**University Core Requirements:**

<table>
<thead>
<tr>
<th>Requirements</th>
<th>#Classes</th>
<th>Hours</th>
<th>Classes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Religion Cornerstones</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teachings and Doctrine of The Book of Mormon</td>
<td>1</td>
<td>2.0</td>
<td>from approved list</td>
</tr>
<tr>
<td>Jesus Christ and the Everlasting Gospel</td>
<td>1</td>
<td>2.0</td>
<td>from approved list</td>
</tr>
<tr>
<td>Foundations of the Restoration</td>
<td>1</td>
<td>2.0</td>
<td>REL C 225</td>
</tr>
<tr>
<td>The Eternal Family</td>
<td>1</td>
<td>2.0</td>
<td>from approved list</td>
</tr>
<tr>
<td>The Individual and Society</td>
<td></td>
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</tr>
<tr>
<td>American Heritage</td>
<td>1-2</td>
<td>3-6.0</td>
<td>from approved list</td>
</tr>
<tr>
<td>Global and Cultural Awareness</td>
<td>1</td>
<td>3.0</td>
<td>from approved list</td>
</tr>
<tr>
<td>Skills</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>First Year Writing</td>
<td>1</td>
<td>3.0</td>
<td>from approved list</td>
</tr>
<tr>
<td>Advanced Written and Oral Communications</td>
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<td>3.0</td>
<td>from approved list</td>
</tr>
<tr>
<td>Quantitative Reasoning</td>
<td>1</td>
<td>4.0</td>
<td>MATH 112*</td>
</tr>
<tr>
<td>Languages of Learning (Math or Language)</td>
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<td>4.0</td>
<td>MATH 112*</td>
</tr>
<tr>
<td>Arts, Letters, and Sciences</td>
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</tr>
<tr>
<td>Civilization 1</td>
<td>1</td>
<td>3.0</td>
<td>from approved list</td>
</tr>
<tr>
<td>Civilization 2</td>
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<td>3.0</td>
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<tr>
<td>Arts</td>
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<tr>
<td>Letters</td>
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<tr>
<td>Biological Science</td>
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<tr>
<td>Physical Science</td>
<td>1-2</td>
<td>3-7.0</td>
<td>from approved list</td>
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<tr>
<td>Social Science</td>
<td>1</td>
<td>3.0</td>
<td>from approved list</td>
</tr>
<tr>
<td>Core Enrichment: Electives</td>
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<tr>
<td>Religion Electives</td>
<td>3-4</td>
<td>6.0</td>
<td>from approved list</td>
</tr>
<tr>
<td>Open Electives</td>
<td>Variable</td>
<td>Variable</td>
<td>personal choice</td>
</tr>
</tbody>
</table>

*These classes fill both University Core and Program Requirements (7 hours overlap).

**Graduation Requirements:**

- Minimum residence hours required: 30.0
- Minimum hours needed to graduate: 120.0

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**Suggested Sequence of Courses**

### FRESHMAN YEAR

**1st Semester**
- 1st Year Writing: 3.0
- Social Science: 3.0
- MATH 112 (FWSpSu): 4.0
- STAT 121: 3.0
- STAT 130: 0.5
- Religion Cornerstone course: 2.0
- Total Hours: 15.5

**2nd Semester**
- American Heritage: 3.0
- MATH 113 (FWSpSu): 4.0
- STAT 230: 3.0
- Physical Science: 3.0
- Religion Cornerstone course: 2.0
- Open Electives: 4.0
- Total Hours: 15.0

### SOPHOMORE YEAR

**3rd Semester**
- MATH 213: 2.0
- MATH 215: 1.0
- STAT 250: 3.0
- Civilization 1: 3.0
- Global and Cultural Awareness: 3.0
- Religion Cornerstone course: 2.0
- Open Electives: 4.0
- Total Hours: 14.0

**4th Semester**
- STAT 240: 3.0
- STAT 330: 3.0
- Civilization 2: 3.0
- Religion Cornerstone course: 2.0
- Open Electives: 4.0
- Total Hours: 15.0

**JUNIOR YEAR**

**5th Semester**
- Requirement 4 Elective #1: 1.5
- Requirement 4 Elective #2: 1.5
- Advanced Written and Oral Communication: 3.0
- Biological Science: 3.0
- Religion Elective: 2.0
- Open Electives: 2.0
- Total Hours: 16.0

**6th Semester**
- Requirement 5 Elective #1: 3.0
- Requirement 6 Elective #1: 3.0
- Letters: 3.0
- Religion Elective: 2.0
- Open Electives: 4.0
- Total Hours: 15.0

**SENIOR YEAR**

**7th Semester**
- Requirement 5 Elective #2: 3.0
- Requirement 6 Elective #2: 3.0
- Arts: 3.0
- Religion Elective: 2.0
- Open Electives: 4.0
- Total Hours: 15.0

**8th Semester**
- Requirement 6 Elective #3: 3.0
- Requirement 6 Elective #4: 3.0
- Requirement 6 Elective #5: 3.0
- Open Electives: 6.0
- Total Hours: 15.0

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**Note 1:** Students should take STAT 130 the semester they declare themselves as a Statistics Major.

**Note 2:** 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 3:** Students are encouraged to complete an average of 15 credit hours each semester or 30 credit hours each year, including spring and/or summer terms, to reach the 120 credit minimum needed to graduate. Taking fewer credits substantially increases the number of semesters to graduate.

**Note 4:** Students must have the statistics core completed before their senior year in order to graduate within four years.

**Note 5:** Open elective credits can be classes of your choosing, classes for a minor, or credits that have already been earned through AP classes, transfer credits, etc.
No more than three hours of credit below C- is allowed in major courses.

**REQUIREMENT 1** Complete 2 courses
STAT 121 - Principles of Statistics 3.0
STAT 130 - Introduction to the Department of Statistics 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 3.0 hours from the following course(s)
STAT 124 - SAS Base Programming Skills 1.5
STAT 125 - Introduction to Operating Systems, Linux/Unix, and Shell Prog 1.5
STAT 226 - SQL 1.5
STAT 234 - Methods of Survey Sampling 3.0
STAT 251 - Introduction to Bayesian Statistics 3.0
STAT 274 - Theory of Interest 3.0
STAT 377 - Statistical Models for Financial Economics 3.0
STAT 381 - Statistical Computing 3.0
STAT 420 - Big Data Science 1 3.0
STAT 421 - Big Data Science 2 3.0
STAT 426 - Data Science Methods and Applications in Statistics 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 and Industrial Statistics 3.0
STAT 466 - Introduction to Reliability 3.0
STAT 469 - Analysis of Correlated Data 3.0
STAT 475 - Life Contingencies 3.0
STAT 477 - Statistical Distributions for Actuarial Modeling and Data Analy 3.0
STAT 495R - Special Topics in Statistics 3.0
STAT 496 - Applications in Biostatistics 3.0
STAT 497R - Introduction to Statistical Research 3.0

**REQUIREMENT 5** Complete 6.0 hours from the following course(s)
STAT 381 - Statistical Computing 3.0
STAT 420 - Big Data Science 1 3.0
STAT 421 - Big Data Science 2 3.0
STAT 426 - Data Science Methods and Applications in Statistics 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 and Industrial Statistics 3.0
STAT 466 - Introduction to Reliability 3.0
STAT 469 - Analysis of Correlated Data 3.0
STAT 475 - Life Contingencies 3.0
STAT 477 - Statistical Distributions for Actuarial Modeling and Data Analy 3.0
STAT 495R - Special Topics in Statistics 3.0
STAT 496 - Applications in Biostatistics 3.0
STAT 497R - Introduction to Statistical Research 3.0

**NOTE:** COURSES USED IN REQUIREMENTS 4 AND 5 WILL NOT DOUBLE COUNT HERE.

**COURSE DETAILS:**
- Survival Analysis
- Experimental Design
- Statistical Distributions for Actuarial Modeling and Data Analytics
- Life Contingencies
- Analysis of Correlated Data
- Introduction to Reliability
- Quality Control and Industrial Statistics
- Applied Bayesian Statistics
- Applications in Biostatistics
- Data Science Methods and Applications in Statistics
- Big Data Science
- Statistical Computing
- Introduction to Operating Systems, Linux/Unix, and Shell Programming
- Calculus of Several Variables
- SQL
- Applied SAS Programming
- Statistical Models for Financial Economics
- ASQ Certified Quality Process Analyst (CQPA).

**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.

**CERTIFICATION:**
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/cqapacertification-competitive-edge.html. Highly motivated students may also prepare on their own with the materials and practice exams through ce.byu.edu/cw/prodev/.
BS in Statistics: Applied Statistics & Analytics (695234)
2021-2022


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

INTERNSHIPS:

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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FACULTY ADVISOR:
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Brigham Young University, Provo, UT 84602
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Physical and Mathematical Sciences College Advisement Center
Brigham Young University
N-181 ESC
Provo, UT 84602
Telephone: (801) 422-2674