# University Core and Graduation Requirements

## University Core Requirements:

### Requirements | #Classes | Hours | Classes
---|---|---|---
**ReligionCornerstones**
Teachings and Doctrine of The Book of Mormon | 1 | 2.0 | REL A 275
Jesus Christ and 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**
American Heritage | 1-2 | 3-6.0 | ECON 110* and one course from approved list
Global and Cultural Awareness | 1 | 3.0 | from approved list
**Skills**
First Year Writing | 1 | 3.0 | from approved list
Advanced Written and Oral Communications | 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 | 1 | 3.0 | from approved list
Civilization 2 | 1 | 3.0 | from approved list
Arts | 1 | 3.0 | from approved list
Letters | 1 | 3.0 | from approved list
Biological Science | 1 | 3-4.0 | from approved list
Physical Science | 1 | 3.0 | from approved list
Social Science | 1 | 3.0 | from approved list
**Core Enrichment: Electives**
Religion Electives | 3-4 | Variable | from approved list
Open Electives | Variable | Variable | personal choice

*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

<table>
<thead>
<tr>
<th>1st Semester</th>
<th>2nd Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Year Writing</td>
<td>American Heritage</td>
</tr>
<tr>
<td>Social Science</td>
<td>MATH 113 (FWSpSu)</td>
</tr>
<tr>
<td>MATH 112 (FWSpSu)</td>
<td>STAT 121</td>
</tr>
<tr>
<td>STAT 121</td>
<td>Religion Cornerstone course</td>
</tr>
<tr>
<td>Religion Cornerstone course</td>
<td>Total Hours: 15.0</td>
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### SOPHOMORE YEAR

<table>
<thead>
<tr>
<th>3rd Semester</th>
<th>4th Semester</th>
</tr>
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<tbody>
<tr>
<td>STAT 210</td>
<td>STAT 330</td>
</tr>
<tr>
<td>STAT 340</td>
<td>Physical Science</td>
</tr>
<tr>
<td>Global and Cultural Awareness</td>
<td>Requirement 5 elective #1</td>
</tr>
<tr>
<td>Religion Cornerstone course</td>
<td>Requirement 5 elective #2</td>
</tr>
<tr>
<td>Requirement 5 elective #1</td>
<td>Arts</td>
</tr>
<tr>
<td>Requirement 5 elective #2</td>
<td>General Electives</td>
</tr>
<tr>
<td>Total Hours: 14.0</td>
<td>Requirement 5 elective #3</td>
</tr>
</tbody>
</table>

### JUNIOR YEAR

<table>
<thead>
<tr>
<th>5th Semester</th>
<th>6th Semester</th>
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</thead>
<tbody>
<tr>
<td>STAT 124</td>
<td>6th Semester</td>
</tr>
<tr>
<td>STAT 224</td>
<td>Biological Science</td>
</tr>
<tr>
<td>STAT 377</td>
<td>STAT 477</td>
</tr>
<tr>
<td>Advanced Written &amp; Oral Communication</td>
<td>Civilization 2</td>
</tr>
<tr>
<td>Religion Elective</td>
<td>General Elective</td>
</tr>
<tr>
<td>Religion Elective</td>
<td>Total Hours: 15.0</td>
</tr>
</tbody>
</table>

### SENIOR YEAR

<table>
<thead>
<tr>
<th>7th Semester</th>
<th>8th Semester</th>
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</thead>
<tbody>
<tr>
<td>Requirement 5 elective #1</td>
<td>STAT 475</td>
</tr>
<tr>
<td>Requirement 5 elective #2</td>
<td>Requirement 5 elective #3</td>
</tr>
<tr>
<td>Arts</td>
<td>General Electives</td>
</tr>
<tr>
<td>General Electives</td>
<td>Requirement 5 elective #3</td>
</tr>
<tr>
<td>Requirement 5 elective #3</td>
<td>Total Hours: 15.0</td>
</tr>
</tbody>
</table>

### 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.

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BS in Actuarial Science (695224) MAP Sheet
Physical and Mathematical Sciences, Statistics
For students entering the degree program during the 2017-2018 curricular year.
Students must pass one exam of the Society of Actuaries (SOA), usually Exam FM, before declaring an actuarial science major.

**REQUIREMENT 1** Complete 2 courses

- STAT 121 - Principles of Statistics 3.0
- STAT 274 - Theory of Interest 3.0

**PREPARATION CORE COURSES:**

- *MATH 112 - Calculus 1 4.0
- MATH 113 - Calculus 2 4.0

**REQUIREMENT 3** Complete 8 courses

**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 330 - Introduction to Regression 3.0
- STAT 340 - Inference 3.0

**REQUIREMENT 4** Complete 6.0 hours from the following course(s)

- STAT 377 - Statistical Models for Financial Economics 3.0
- STAT 475 - Life Contingencies 3.0
- STAT 477 - Statistical Distributions for Actuarial Modeling and Data Analysis 3.0

**REQUIREMENT 5** Complete 9.0 hours from the following course(s)

- ACC 200 - Principles of Accounting 3.0
- ECON 380 - Intermediate Price Theory 1 3.0
- ECON 381 - Intermediate Macroeconomics 3.0
- ECON 382 - Intermediate Price Theory 2 3.0
- ECON 388 - Introduction to Econometrics 3.0
- ECON 450 - Financial Economics 3.0
- ECON 588 - Advanced Econometrics 3.0
- FIN 201 - Principles of Finance 3.0
- IS 515 - Spreadsheets for Business Analysis 3.0
- IS 520 - Business Programming and Spreadsheet Automation 3.0
- STAT 234 - Methods of Survey Sampling 3.0
- STAT 251 - Introduction to Bayesian Statistics 3.0
- STAT 277 - 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 435 - Nonparametric Statistical Methods 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 - Applied Time Series and Forecasting 3.0
- STAT 475 - Life Contingencies 3.0
- STAT 495R - Special Topics in Statistics 3.0
- STAT 496R - Academic Internship: Statistics 3.0
- STAT 497R - Introduction to Statistical Research 3.0
- STAT 499J - Independent Study 3.0
- STAT 520 - Principles of Statistics 3.0
- STAT 531 - Experimental Design 3.0

**RECOMMENDED COURSES:**

- It is recommended that students take Econ 110 and Fin 201 to complete the Society of Actuaries Economics and Corporate Finance VEEs. Additionally, IS 515 and IS 520 are exceptionally valuable in the daily work of an actuary.

**THE DISCIPLINE:**

An actuary is a statistician who analyzes the financial consequences of risk. Actuaries use statistics, mathematics, and financial theory to study uncertain future events, especially those of concern to insurance and pension programs. They evaluate the likelihood of those events and design creative ways to reduce the likelihood and decrease the impact of adverse events that do occur. Their work designing and managing programs that control risk requires a combination of strong analytical skills, business knowledge, and understanding of human behavior.

**CAREER OPPORTUNITIES:**

Actuaries enjoy excellent job security, high incomes, and a low-stress work environment. Careers in actuarial science are consistently ranked among the top three professions. Competent actuaries are highly recruited and can have many professional opportunities. Actuaries are employed across a wide variety of industries and typically become established in one of the following career tracks: enterprise risk management, quantitative finance and investment, life insurance, health insurance, and retirement benefits. By focusing on development of data analysis skills, actuaries can also easily transition to business analytics settings.

**ACTUARIAL EXAMS:**

Actuaries are required to demonstrate their proficiency by passing a series of competency exams offered by one or more of the principal actuarial societies. It typically takes 6-10 years to pass all of the exams; virtually all actuarial interns are required to have passed at least one of these exams as a condition for employment. The BYU Actuarial Science degree provides students with the opportunity to study significant portions of the material covered in the first five exams offered by the Society of Actuaries and accepted by the Casualty Actuarial Society (the two major actuarial societies in the United States).

The correspondence between the actuarial exams and available BYU course work is roughly as follows:

- **Exam P:** Stat 240, 340, 372 (full coverage)
- **Exam FM:** Stat 274 (full coverage)
- **Exam MFE:** Stat 377 (about 90% coverage)
- **Exam C:** Stat 240, 340, 477 (about 90% coverage)

In addition to the exams the societies accept the following sets of courses for the Validation by Educational Experience (VEE) credit:

- Applied Statistical Methods VEE:
  - Stat 330 (has Stat 230 prereq.)
  - Corp Finance VEE: Fin 201
  - Economics VEE: Econ 110

**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, 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 http://statistics.byu.edu/content/sas-certificate-opportunities.

INTERNSHIPS

The department maintains a list of companies that have hired BYU Actuarial Science students as interns in the last three years at: http://statistics.byu.edu/content/actuarial-company-database.

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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