## University Core and Graduation Requirements

### University Core Requirements:

<table>
<thead>
<tr>
<th>Requirements</th>
<th>#Classes</th>
<th>Hours</th>
<th>Classes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Religion Cornerstones</strong></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>
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<tr>
<td>Foundations of the Restoration</td>
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<td>2.0</td>
<td>REL C 225</td>
</tr>
<tr>
<td>The Eternal Family</td>
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<td>from approved list</td>
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<tr>
<td><strong>The Individual and Society</strong></td>
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<td></td>
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</tr>
<tr>
<td>American Heritage</td>
<td>1-2</td>
<td>3.0</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><strong>Skills</strong></td>
<td></td>
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<tr>
<td>First Year Writing</td>
<td>1</td>
<td>3.0</td>
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</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><strong>Arts, Letters, and Sciences</strong></td>
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<td></td>
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<tr>
<td>Civilization 1</td>
<td>1</td>
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<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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<td>3.0</td>
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<tr>
<td>Biological Science</td>
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<tr>
<td>Physical Science</td>
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<tr>
<td>Social Science</td>
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<td><strong>Core Enrichment: Electives</strong></td>
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<tr>
<td>Religion Electives</td>
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<tr>
<td>Open Electives</td>
<td>Variable</td>
<td>Variable</td>
<td>personal choice</td>
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</tbody>
</table>

*THESE CLASSES FILL BOTH UNIVERSITY CORE AND PROGRAM REQUIREMENTS*

### 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**

- **First-year Writing**
  - 3.0
- **MATH 112**
  - 4.0
- **STAT 121**
  - 3.0
- **STAT 130**
  - 0.5
- **Arts**
  - 3.0
- **Religion Cornerstone course**
  - 2.0
- **Total Hours**
  - 15.5

**2nd Semester**

- **American Heritage**
  - 3.0
- **MATH 113**
  - 4.0
- **STAT 230**
  - 3.0
- **Physical Science**
  - 3.0
- **Religion Cornerstone course**
  - 2.0
- **Adv. Written and Oral Communication**
  - 3.0
- **Civilization 1**
  - 3.0
- **Religion elective**
  - 2.0
- **Total Hours**
  - 15.0

### SOPHOMORE YEAR

**3rd Semester**

- **C S 142**
  - 3.0
- **MATH 213**
  - 2.0
- **MATH 215**
  - 1.0
- **STAT 250**
  - 3.0
- **Global and Cultural Awareness**
  - 3.0
- **Civilization 2**
  - 3.0
- **Religion elective**
  - 2.0
- **Total Hours**
  - 14.0

**4th Semester**

- **C S 235**
  - 3.0
- **STAT 240**
  - 3.0
- **STAT 330**
  - 3.0
- **Letters**
  - 3.0
- **Religion Cornerstone course**
  - 2.0
- **Total Hours**
  - 14.0

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.
BS in Statistics: Data Science (695236)
2022-2023 Program Requirements (53.5 Credit Hours)

**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 - Statistical Modeling 1 3.0
- STAT 240 - Probability and Inference 1 3.0
- STAT 250 - Applied R Programming 3.0
- STAT 330 - Statistical Modeling 2 3.0
- STAT 340 - Probability and Inference 2 3.0

**MATHEMATICAL FOUNDATION COURSES:**
- 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)
- CS 235 - Business Programming and Spreadsheet Automation 3.0
- IS 520 - Data Science Ecosystems 3.0
- STAT 286 - Data Science Ecosystems 3.0

**REQUIREMENT 5** Complete 1 option

**OPTION 5.1** Complete 2 courses
- STAT 483 - Data Science Capstone 1 3.0
- STAT 485 - Data Science Capstone 2 3.0

**OPTION 5.2** Complete 2 courses
- STAT 386 - Data Science Process 3.0
- STAT 486 - Machine Learning 3.0

**REQUIREMENT 6** Complete 2 courses
- CS 110 - How to Program 3.0
- CS 111 - Introduction to Computer Science 3.0
- CS 235 - Data Structures and Algorithms 3.0

**REQUIREMENT 7** Complete 3.0 hours from the following course(s)

**COURSES TAKEN IN ANY OF THE REQUIREMENTS ABOVE WILL NOT DOUBLE COUNT HERE.**
- STAT 469 - Analysis of Correlated Data 3.0
- STAT 495R - Special Topics in Statistics 3.0
- STAT 511 - Experimental Design 3.0
- STAT 538 - Survival Analysis 3.0

**REQUIREMENT 8** Complete 6.0 hours from the following course(s)

**COURSES TAKEN IN ANY OF THE REQUIREMENTS ABOVE WILL NOT DOUBLE COUNT HERE. NO MORE THAN 3.0 HOURS OF ANY COMBINATION OF STAT 496R AND STAT 497R CAN BE USED FOR THIS REQUIREMENT.**
- MATH 112 - Calculus 1 3.0
- MATH 113 - Calculus 2 4.0
- MATH 213 - Elementary Linear Algebra 2.0
- MATH 215 - Computational Linear Algebra 1.0
- MATH 213 - Elementary Linear Algebra 2.0
- MATH 215 - Computational Linear Algebra 1.0

**REQUIREMENT 9** Complete 3.0 hours from the following course(s)
- CS 386 - Introduction to Data Science 3.0
- STAT 497R - Introduction to Statistical Research 3.0
- STAT 495R - Special Topics in Statistics 3.0

**REQUIREMENT 10** Complete 3.0 hours from the following course(s)
- CS 386 - Introduction to Data Science 3.0
- STAT 497R - Introduction to Statistical Research 3.0
- STAT 495R - Special Topics in Statistics 3.0

**THE DISCIPLINE:**

Statisticians apply sophisticated methods to increasingly massive data sets to discover insights into important business, government, environmental, 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.

The Data Science emphasis is designed to help students develop skills that are needed to work on a data science team. These skills include programming, facility with data structures and algorithms, statistical methods, and experience working with real world big data problems. Students with a Data Science emphasis leave BYU with a multi-faceted, disciplined, and flexible approach to data, a rich vocabulary for working with others in data-focused disciplines, and a well-developed capacity for understanding and communicating statistical results.

**CAREER OPPORTUNITIES:**

The increase of data science and analytics across disciplines is creating new opportunities for statisticians. The Data Science emphasis prepares students to get entry-level jobs on data science teams in the private and public sectors. A feature of this emphasis is the development of skills and vocabulary in computer science and programming needed to work with massive datasets and to communicate with others on data-science teams.

**CERTIFICATION:**

- **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 [support.sas.com/certify/creds/index.html](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 [https://statistics.byu.edu/content/sas-certificate-opportunities](https://statistics.byu.edu/content/sas-certificate-opportunities).

**INTERNSHIPS:**

Several government agencies offer internship programs suitable for students in the Data Science emphasis: the Joint Program in Survey Methodology ([https://jpsm.umd.edu/undergraduate/junior-fellows-overview](https://jpsm.umd.edu/undergraduate/junior-fellows-overview)), National Institute of Standards and Technology...

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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ADVISEMENT CENTER INFORMATION
FOR UNIVERSITY CORE OR PROGRAM QUESTIONS, CONTACT THE ADVISEMENT CENTER.

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