### 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>
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<tr>
<td>Teachings and Doctrine of The Book of Mormon</td>
<td>1</td>
<td>2.0</td>
<td>REL A 275</td>
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<tr>
<td>Jesus Christ and the Everlasting Gospel</td>
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<td>REL A 250</td>
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<td>Foundations of the Restoration</td>
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<td>REL C 225</td>
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<td>The Eternal Family</td>
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<td>REL C 200</td>
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<tr>
<td><strong>The Individual and Society</strong></td>
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<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>
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<td>3.0</td>
<td>from approved list</td>
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<tr>
<td><strong>Skills</strong></td>
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<tr>
<td>First Year Writing</td>
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<td>3.0</td>
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<tr>
<td>Advanced Written and Oral Communications</td>
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<td>3.0</td>
<td>WRTG 316</td>
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<tr>
<td>Quantitative Reasoning</td>
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<td>4.0</td>
<td>MATH 112* or 113*</td>
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<td>Languages of Learning (Math or Language)</td>
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<td>4.0</td>
<td>MATH 112* or 113*</td>
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<td><strong>Arts, Letters, and Sciences</strong></td>
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<tr>
<td>Civilization 1</td>
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<td>Civilization 2</td>
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<tr>
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<td>Physical Science</td>
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<td>Social Science</td>
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<td><strong>Core Enrichment: Electives</strong></td>
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<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>

#### Graduation Requirements:

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

### Suggested Sequence of Courses

#### FRESHMAN YEAR

1st Semester
- C S 111: 3.0
- First-year Writing or American Heritage: 3.0
- MATH 112: 4.0
- Religion Cornerstone course: 2.0
- General education, university requirements, and/or general electives: 3.0
**Total Hours:** 15.0

2nd Semester
- C S 202: 1.0
- C S 235: 3.0
- PHSCS 121 or C S elective: 3.0
- First-year Writing or American Heritage: 3.0
- MATH 113: 4.0
- Religion Cornerstone course: 2.0
**Total Hours:** 16.0

#### SOPHOMORE YEAR

3rd Semester
- C S 203: 1.0
- C S 224: 3.0
- C S 236: 3.0
- Biological Science: 3.0
- Civilization 1: 3.0
- Religion Cornerstone course: 2.0
**Total Hours:** 15.0

4th Semester
- C S 240: 4.0
- C S 260 or C S elective: 3.0
- MATH 213: 2.0
- MATH 215: 1.0
- Civilization 2: 3.0
- Religion Cornerstone course: 2.0
**Total Hours:** 15.0

#### JUNIOR YEAR

5th Semester
- C S 204: 1.0
- C S 322: 3.0
- C S 324: 3.0
- Social Science: 3.0
- STAT 121, STAT 201, or MATH 431: 3.0
- Religion Elective: 2.0

6th Semester
- C S 329: 3.0
- C S 340: 3.0
- C S 452: 3.0
- Letters: 3.0
- Religion Elective: 2.0
**Total Hours:** 14.0

#### SENIOR YEAR

7th Semester
- C S 480: 3.0
- C S Elective: 3.0
- WRTG 316: 3.0
- Arts: 3.0
- Religion Elective: 2.0
- General education, university requirements, and/or general electives: 2.0

8th Semester
- C S 481: 3.0
- C S Elective: 3.0
- C S Elective: 3.0
- C S Elective: 3.0
- C S 404: 2.0
- Global and Cultural Awareness: 3.0
**Total Hours:** 14.0
## BS in Computer Science: Software Engineering (693225)

### 2022-2023 Program Requirements (74 - 76 Credit Hours)

**Grades below C- are not allowed in major courses.**

### REQUIREMENT 1
Complete 16 courses

#### CORE COURSES:
- CS 111 - Introduction to Computer Science
- CS 202 - Software Engineering Lab 1
- CS 203 - Software Engineering Lab 2
- CS 204 - Software Engineering Lab 3
- CS 224 - Introduction to Computer Systems
- CS 235 - Data Structures and Algorithms
- CS 236 - Discrete Structures
- CS 240 - Advanced Programming Concepts
- CS 312 - Algorithm Design and Analysis
- CS 324 - Systems Programming
- CS 329 - Testing, Analysis, and Verification
- CS 340 - Software Design
- CS 404 - Ethics and Computers in Society
- CS 452 - Database Modeling Concepts
- CS 480 - Software Engineering Capstone 1
- CS 481 - Software Engineering Capstone 2

### REQUIREMENT 2
Complete 4 courses

#### SUPPORTING COURSES:
- PHSCS 121 - Introduction to Newtonian Mechanics
- WRTG 316 - Technical Communication

### REQUIREMENT 3
Complete 1 option

#### OPTION 3.1
Complete 1 course

- MATH 313 - (Not currently offered)

#### OPTION 3.2
Complete 2 courses

- MATH 213 - Elementary Linear Algebra
- MATH 215 - Computational Linear Algebra

### REQUIREMENT 4
Complete 1 course

- STAT 121 - Principles of Statistics
- STAT 201 - Statistics for Engineers and Scientists

### REQUIREMENT 5
Complete 2 courses

- CS 260 - Web Programming
- CS 330 - Concepts of Programming Languages
- CS 345 - Operating Systems Design
- CS 356 - Designing the User Experience
- CS 453 - Fundamentals of Information Retrieval
- C S 456 - Introduction to User Interface Software
- C S 460 - Computer Communications and Networking
- C S 462 - Large-Scale Distributed System Design
- C S 465 - Computer Security
- C S 486 - Verification and Validation

### REQUIREMENT 6
Complete 2 courses

#### COURSES WILL NOT DOUBLE COUNT BETWEEN REQUIREMENT 5 AND REQUIREMENT 6.

- C S 252 - Introduction to Computational Theory
- C S 260 - Web Programming
- C S 330 - Concepts of Programming Languages
- C S 345 - Operating Systems Design
- C S 355 - Interactive Graphics and Image Processing
- C S 356 - Designing the User Experience
- C S 393 - Advanced Algorithms and Problem Solving
- C S 401R - Topics in Computer Science
- You may take up to 3 credit hours.

- C S 405 - Creating and Managing a Software Business
- C S 412 - Linear Programming and Convex Optimization
- C S 450 - Computer Vision
- C S 453 - Fundamentals of Information Retrieval
- C S 455 - Computer Graphics
- C S 456 - Introduction to User Interface Software
- C S 460 - Computer Communications and Networking
- C S 462 - Large-Scale Distributed System Design
- C S 465 - Computer Security
- C S 470 - Introduction to Artificial Intelligence
- C S 471 - Voice User Interfaces
- C S 472 - Introduction to Machine Learning
- C S 474 - Introduction to Deep Learning
- C S 486 - Verification and Validation
- C S 493R - Computing Competitions
- You may take up to 1 credit hour.

- C S 497R - Undergraduate Research
- You may take up to 3 credit hours.

### REQUIREMENT 7
Complete 1 option

- IT&C 567 - Advanced Operating Systems

### MAP DISCLAIMER

While every reasonable effort is made to ensure accuracy, there are some student populations who could have exceptions to listed requirements. Please refer to the university catalog and your college advisement center/department for complete guidelines.

### DEPARTMENT INFORMATION

**Computer Science Department**

Brigham Young University

3361 Talmage Building

Provo, UT 84602

Telephone: (801) 422-3027

### ADVISEMENT CENTER INFORMATION

**Physical and Mathematical Sciences College Advisement Center**

Brigham Young University

N-181 ESC

Provo, UT 84602

Telephone: (801) 422-2674