### University Core and Graduation Requirements

#### University Core Requirements:

<table>
<thead>
<tr>
<th>Requirements</th>
<th>#Classes</th>
<th>Hours</th>
<th>Classes</th>
</tr>
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<tbody>
<tr>
<td>Religion Cornerstones</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>2.0</td>
<td>REL A 250</td>
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<td>Foundations of the Restoration</td>
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<td>2.0</td>
<td>REL C 225</td>
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<tr>
<td>The Eternal Family</td>
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<td>REL C 200</td>
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<td>The Individual and Society</td>
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<tr>
<td>American Heritage</td>
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<td>3.0-6.0</td>
<td>from approved list</td>
</tr>
<tr>
<td>Global and Cultural Awareness</td>
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<td>3.0</td>
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<tr>
<td>Skills</td>
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<tr>
<td>First Year Writing</td>
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<td>Advanced Written and Oral Communications</td>
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<tr>
<td>Quantitative Reasoning</td>
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<td>Languages of Learning (Math or Language)</td>
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<td>Arts, Letters, and Sciences</td>
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<td>Civilization 1</td>
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<td>Civilization 2</td>
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<td>Core Enrichment: Electives</td>
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<td>Religion Electives</td>
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<td>Open Electives</td>
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<td>personal choice</td>
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#### Graduation Requirements:

| Minimum residence hours required   | 30.0     |
| Minimum hours needed to graduate   | 120.0    |
BS in Computer Science: Software Engineering (693225)  
2019-2020 Program Requirements (74 - 76 Credit Hours)

Grades below C- are not allowed in major courses.

**REQUIREMENT 1** Complete 16 courses

**CORE COURSES:**
- C S 142 - Introduction to Computer Programming 3.0
- C S 202 - Software Engineering Lab 1 1.0
- C S 203 - Software Engineering Lab 2 1.0
- C S 204 - Software Engineering Lab 3 1.0
- C S 224 - Introduction to Computer Systems 3.0
- C S 235 - Data Structures and Algorithms 3.0
- C S 236 - Discrete Structures 3.0
- C S 240 - Advanced Programming Concepts 4.0
- C S 312 - Algorithm Design and Analysis 3.0
- C S 324 - Systems Programming 3.0
- C S 329 - Testing, Analysis, and Verification 3.0
- C S 340 - Software Design and Testing 3.0
- C S 404 - Ethics and Computers in Society 2.0
- C S 452 - Database Modeling Concepts 3.0
- C S 494 - Capstone 1 3.0
- C S 495 - Capstone 2 3.0

**Note:** Students should complete the sections of C S 494 and 495 designated for the Software Engineering emphasis.

**REQUIREMENT 2** Complete 4 courses

**SUPPORTING COURSES:**
- ENGL 316 - Technical Communication 3.0
- MATH 112 - Calculus 1 4.0
- MATH 113 - Calculus 2 4.0
- PHSCS 121 - Introduction to Newtonian Mechanics 3.0

**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 2.0
  - MATH 215 - Computational Linear Algebra 1.0

**REQUIREMENT 4** Complete 1 course

- STAT 121 - Principles of Statistics 3.0
- STAT 201 - Statistics for Engineers and Scientists 3.0

**REQUIREMENT 5** Complete 2 courses

- C S 260 - Web Programming 3.0
- C S 330 - Concepts of Programming Languages 3.0
- C S 345 - Operating Systems Design 3.0
- C S 356 - Designing the User Experience 3.0
- C S 453 - Fundamentals of Information Retrieval 3.0
- C S 456 - Introduction to User Interface Software 3.0
- C S 460 - Computer Communications and Networking 3.0
- C S 462 - Large-Scale Distributed System Design 3.0
- C S 465 - Computer Security 3.0
- C S 486 - Verification and Validation 3.0

**REQUIREMENT 6** Complete 2 courses

- C S 252 - Introduction to Computational Theory 3.0
- C S 260 - Web Programming 3.0
- C S 330 - Concepts of Programming Languages 3.0
- C S 345 - Operating Systems Design 3.0
- C S 355 - Interactive Graphics and Image Processing 3.0
- C S 356 - Designing the User Experience 3.0
- C S 401R - Topics in Computer Science 3.0v
  - You may take up to 3 credit hours.
- C S 405 - Creating and Managing a Software Business 3.0
- C S 412 - Linear Programming and Convex Optimization 3.0
- C S 418 - Bioinformatics 3.0
- C S 450 - Computer Vision 3.0
- C S 453 - Fundamentals of Information Retrieval 3.0
- C S 455 - Computer Graphics 3.0
- C S 456 - Introduction to User Interface Software 3.0
- C S 460 - Computer Communications and Networking 3.0
- C S 462 - Large-Scale Distributed System Design 3.0
- C S 465 - Computer Security 3.0
- C S 470 - Introduction to Artificial Intelligence 3.0
- C S 472 - Introduction to Machine Learning 3.0
- C S 474 - Introduction to Deep Learning 3.0
- C S 486 - Verification and Validation 3.0
  - You may take up to 3 credit hours.
- C S 493R - Undergraduate Research 3.0
  - You may take up to 3 credit hours.
- C S 498R - Undergraduate Special Projects 3.0v
  - You may take up to 3 credit hours.
- C S 501R - Advanced Topics in Computer Science 3.0v
  - You may take up to 3 credit hours.
- C S 513 - Robust Control 3.0
- EC EN 424 - Computer Systems 4.0
- EC EN 425 - Real-Time Operating Systems 4.0
- IT&C 567 - Cybersecurity and Penetration Testing 3.0
- MATH 411 - Numerical Methods 3.0
- MATH 431 - Probability Theory 3.0
- MATH 485 - Mathematical Cryptography 3.0

**Note:** If C S 493R, C S 498R, or C S 501R is chosen, it must be taken for 3 credit hours.

**REQUIREMENT 7**
- Complete Senior Exit interview with the C S department during last semester or term.

**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**

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