### 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>
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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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<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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</tr>
<tr>
<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><strong>Arts, Letters, and Sciences</strong></td>
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<td>Civilization 1</td>
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<tr>
<td>Civilization 2</td>
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<tr>
<td>Letters</td>
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<tr>
<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 142: 3.0
  - First Year Writing or American Heritage: 3.0
  - MATH 112: 4.0
  - General education courses, university requirements, and/or general electives: 3.0
  - Religion Cornerstone course: 2.0
  - Total Hours: 15.0

- **2nd Semester**
  - C S 235: 3.0
  - PHSCS 121: 3.0
  - First Year Writing or American Heritage: 3.0
  - MATH 113: 4.0
  - Religion Cornerstone course: 2.0
  - Total Hours: 15.0

#### SOPHOMORE YEAR

- **3rd Semester**
  - C S 224: 3.0
  - C S 236: 3.0
  - Biological Science: 3.0
  - STAT 121 or STAT 201 or MATH 431: 3.0
  - Religion Cornerstone course: 2.0
  - Total Hours: 14.0

- **4th Semester**
  - C S 240: 4.0
  - Letters: 3.0
  - Civilization 1: 3.0
  - MATH 213: 2.0
  - Religion Cornerstone course: 2.0
  - Total Hours: 15.0

#### JUNIOR YEAR

- **5th Semester**
  - C S 312: 3.0
  - C S 324: 3.0
  - STAT 330 or ECON 388: 3.0
  - Global and Cultural Awareness: 3.0
  - Total Hours: 15.0

- **6th Semester**
  - C S 472: 3.0
  - C S 452: 3.0
  - DS Elective: 3.0
  - C S Elective: 3.0
  - Religion Elective: 2.0
  - Total Hours: 14.0

#### SENIOR YEAR

- **7th Semester**
  - C S 474: 3.0
  - C S 494 - DS Capstone 1 or C S elective: 3.0
  - ENGL 316: 3.0
  - Arts: 3.0
  - General education courses, university requirements, and/or general electives: 2.0
  - Total Hours: 16.0

- **8th Semester**
  - C S 495 - DS Capstone 2 or C S elective: 3.0
  - C S Elective or DS elective: 3.0
  - C S Elective: 3.0
  - C S 404: 2.0
  - Global and Cultural Awareness: 3.0
  - Religion Elective: 2.0
  - Total Hours: 16.0
### BS in Computer Science: Data Science (693224)
#### 2019-2020 Program Requirements (74 Credit Hours)

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

**REQUIREMENT 1** Complete 11 courses
- C S 142 - Introduction to Computer Programming
- C S 224 - Introduction to Computer Systems
- C S 235 - Data Structures and Algorithms
- C S 236 - Discrete Structures
- C S 240 - Advanced Programming Concepts
- C S 312 - Algorithm Design and Analysis
- C S 324 - Systems Programming
- C S 404 - Ethics and Computers in Society
- C S 452 - Database Modeling Concepts
- C S 472 - Introduction to Machine Learning
- C S 474 - Introduction to Deep Learning

**REQUIREMENT 2** Complete 2 options

#### SUPPORTING COURSES:

**OPTION 2.1** Complete 6 courses
- ENGL 316 - Technical Communication
- MATH 112 - Calculus 1
- MATH 113 - Calculus 2
- MATH 213 - Elementary Linear Algebra
- MATH 215 - Computational Linear Algebra
- PHSCS 121 - Introduction to Newtonian Mechanics

**OPTION 2.2** Complete 1 course
- STAT 121 - Principles of Statistics
- STAT 201 - Statistics for Engineers and Scientists

**REQUIREMENT 3** Complete 1 course
- ECON 388 - Introduction to Econometrics
- STAT 330 - Introduction to Regression

**REQUIREMENT 4** Complete 3.0 hours from the following course(s)
- C S 412 - Linear Programming and Convex Optimization
- ECON 378 - Statistics for Economists
- ECON 388 - Introduction to Econometrics
- ECON 488 - Applied Econometrics
- ECON 588 - Advanced Econometrics
- LING 581 - Natural Language Processing
- MATH 314 - Calculus of Several Variables
- MATH 413 - Advanced Linear Algebra
- STAT 240 - Probability and Inference 1
- STAT 251 - Introduction to Bayesian Statistics
- STAT 340 - Probability and Inference 2

**REQUIREMENT 5** Complete 12.0 hours from the following course(s)

#### NOTE: C S 494/49S, THE CAPSTONE COURSES, ARE STRONGLY RECOMMENDED.
- C S 252 - Introduction to Computational Theory
- C S 329 - Testing, Analysis, and Verification
- C S 330 - Concepts of Programming Languages
- C S 340 - Software Design and Testing
- C S 355 - Operating Systems Design
- C S 355R - Interactive Graphics and Image Processing
- C S 356 - Designing the User Experience
- C S 401R - Topics in Computer Science

*You may take up to 12 credit hours.*

- C S 418 - Bioinformatics
- C S 450 - Computer Vision
- C S 452 - Systems Programming
- 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 486 - Verification and Validation
- C S 494 - Capstone 1
- C S 495 - Capstone 2
- C S 497 - Undergraduate Research

*You may take this course up to 1 time.*

- C S 501R - Advanced Topics in Computer Science

*You may take up to 3 credit hours.*

**REQUIREMENT 6** Complete 6 courses

#### NOTE: COURSES TAKEN TO FULFILL REQUIREMENTS 4 AND 5 CANNOT DOUBLE COUNT HERE.

- C S 252 - Introduction to Computational Theory
- C S 329 - Testing, Analysis, and Verification
- C S 330 - Concepts of Programming Languages
- C S 340 - Software Design and Testing
- C S 345 - Operating Systems Design
- C S 355 - Interactive Graphics and Image Processing
- C S 356 - Designing the User Experience
- C S 401R - Topics in Computer Science

*You may take up to 12 credit hours.*

- C S 418 - Bioinformatics
- C S 450 - Computer Vision
- C S 452 - Systems Programming
- 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 486 - Verification and Validation
- C S 494 - Capstone 1
- C S 495 - Capstone 2
- C S 497 - Undergraduate Research

*You may take this course up to 1 time.*

- C S 501R - Advanced Topics in Computer Science

*You may take up to 3 credit hours.*

- ECON 388 - Introduction to Econometrics
- ECON 488 - Applied Econometrics
- ECON 588 - Advanced Econometrics
- LING 581 - Natural Language Processing
- MATH 314 - Calculus of Several Variables
- MATH 413 - Advanced Linear Algebra
- STAT 240 - Probability and Inference 1
- STAT 251 - Introduction to Bayesian Statistics
- STAT 340 - Probability and Inference 2

**REQUIREMENT 7**

Complete Senior Exit Interview with the Computer Science department during last semester or term.

*Note: Math 112, Math 113, Phscs 121, Engl 316, and C S 312 can be used to fill both General Education and program requirements. Advanced Writing and Oral Communication: Engl 316. Quantitative Reasoning: Math 112 or 113. Languages of Learning: Math 112 or 113. Physical Science: C S 312 or Phscs 121.*
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.

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