### University Core Requirements:

<table>
<thead>
<tr>
<th>Requirements</th>
<th>#Classes</th>
<th>Hours</th>
<th>Classes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Religion Cornerstones</td>
<td></td>
<td></td>
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</tr>
<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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<tr>
<td>Foundations of the Restoration</td>
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<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>The Individual and Society</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>
</tr>
<tr>
<td>Skills</td>
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<tr>
<td>First Year Writing</td>
<td>1</td>
<td>3.0</td>
<td>from approved list</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&quot; or 113&quot;</td>
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<tr>
<td>Languages of Learning (Math or Language)</td>
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<td>4.0</td>
<td>MATH 112&quot; or 113&quot;</td>
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<td>Arts, Letters, and Sciences</td>
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<tr>
<td>Civilization 1</td>
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<tr>
<td>Civilization 2</td>
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<tr>
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<tr>
<td>Letters</td>
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<tr>
<td>Physical Science</td>
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<tr>
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<td>Core Enrichment: Electives</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
- MATH 213: 1.0
- 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
- Social Science: 3.0
- Civilization 2: 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 CS elective: 3.0
- WRTG 316: 3.0
- Arts: 3.0
- General education courses, university requirements, and/or general electives: 2.0
- Religion Elective: 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)
#### 2020-2021 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 3.0
- 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 404 - Ethics and Computers in Society 2.0
- C S 452 - Database Modeling Concepts 3.0
- C S 472 - Introduction to Machine Learning 3.0
- C S 474 - Introduction to Deep Learning 3.0

**REQUIREMENT 2** Complete 4 courses
- MATH 112 - Calculus 1 4.0
- MATH 113 - Calculus 2 4.0
- PHSCS 121 - Introduction to Newtonian Mechanics 3.0
- WRTG 316 - Technical Communication 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 1 course
- ECON 388 - Introduction to Econometrics 3.0

**REQUIREMENT 6** Complete 3.0 hours from the following course(s)
- C S 412 - Linear Programming and Convex Optimization 3.0
- ECON 378 - Statistics for Economists 3.0
- ECON 388 - Introduction to Econometrics 3.0
- ECON 488 - Applied Econometrics 3.0
- ECON 588 - Advanced Econometrics 3.0
- LING 581 - Natural Language Processing 3.0
- MATH 314 - Calculus of Several Variables 3.0
- MATH 413 - Advanced Linear Algebra 3.0
- STAT 240 - Probability and Inference 1 3.0
- STAT 251 - Introduction to Bayesian Statistics 3.0

**REQUIREMENT 7** Complete 12.0 hours from the following course(s)
- **NOTE:** C S 452/463, THE DATA SCIENCE CAPSTONE COURSES, ARE STRONGLY RECOMMENDED.
  - C S 252 - Introduction to Computational Theory 3.0
  - C S 260 - Web Programming 3.0
  - C S 269 - Testing, Analysis, and Verification 3.0
  - C S 330 - Concepts of Programming Languages 3.0
  - C S 340 - Software Design 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 3.0
    - You may take up to 12 credit hours.
  - 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 482 - Data Science Capstone 1 3.0
  - C S 483 - Data Science Capstone 2 3.0
  - C S 486 - Verification and Validation 3.0
  - C S 497R - Undergraduate Research 3.0
    - You may take this course up to 1 time.

**REQUIREMENT 8** Complete 6.0 hours from the following course(s)
- C S 412 - Linear Programming and Convex Optimization 3.0
- ECON 378 - Statistics for Economists 3.0
- ECON 388 - Introduction to Econometrics 3.0
- ECON 488 - Applied Econometrics 3.0
- LING 581 - Natural Language Processing 3.0
- MATH 314 - Calculus of Several Variables 3.0
- MATH 413 - Advanced Linear Algebra 3.0
- STAT 240 - Probability and Inference 1 3.0
- STAT 251 - Introduction to Bayesian Statistics 3.0

**REQUIREMENT 9** Complete Senior Exit Interview with the Computer Science department during last semester or term.

**Note:** Students can take C S 401R or C S 501R more than once.

**Note:** Total hours for C S 497R across all requirements cannot exceed 6.0.

**REQUIREMENT 10** Complete 3.0 hours from the following course(s)
- C S 252 - Introduction to Computational Theory 3.0
- C S 260 - Web Programming 3.0
- C S 269 - Testing, Analysis, and Verification 3.0
- C S 330 - Concepts of Programming Languages 3.0
- C S 340 - Software Design 3.0
- C S 345 - Operating Systems Design 3.0

**REQUIREMENT 11** Complete 1 course
- MATH 355 - Interactive Graphics and Image Processing 3.0
- C S 356 - Designing the User Experience 3.0
- C S 401R - Topics in Computer Science 3.0
  - You may take up to 3 credit hours.
- C S 412 - Linear Programming and Convex Optimization 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 482 - Data Science Capstone 1 3.0
- C S 483 - Data Science Capstone 2 3.0
- C S 486 - Verification and Validation 3.0
- C S 497R - Undergraduate Research 3.0
  - You may take this course up to 1 time.
- C S 501R - Advanced Topics in Computer Science 3.0
  - You may take up to 3 credit hours.
- ECON 378 - Statistics for Economists 3.0
- ECON 388 - Introduction to Econometrics 3.0
- ECON 488 - Applied Econometrics 3.0
- LING 581 - Natural Language Processing 3.0
- MATH 314 - Calculus of Several Variables 3.0
- MATH 413 - Advanced Linear Algebra 3.0
- STAT 240 - Probability and Inference 1 3.0
- STAT 251 - Introduction to Bayesian Statistics 3.0
- STAT 340 - Probability and Inference 1 3.0

**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.
BS in Computer Science: Data Science (693224)
2020-2021

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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