## University Core and Graduation 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>
<td></td>
</tr>
<tr>
<td>Teachings and Doctrine of The Book of Mormon</td>
<td>1</td>
<td>2.0</td>
<td>REL A 275</td>
</tr>
<tr>
<td>Jesus Christ and the Everlasting Gospel</td>
<td>1</td>
<td>2.0</td>
<td>REL A 250</td>
</tr>
<tr>
<td>Foundations of the Restoration</td>
<td>1</td>
<td>2.0</td>
<td>REL C 225</td>
</tr>
<tr>
<td>The Eternal Family</td>
<td>1</td>
<td>2.0</td>
<td>REL C 200</td>
</tr>
<tr>
<td>Global and Cultural Awareness</td>
<td>1</td>
<td>3.0</td>
<td>from approved list</td>
</tr>
<tr>
<td>First-Year Writing</td>
<td>1</td>
<td>3.0</td>
<td>WRTG 316*</td>
</tr>
<tr>
<td>American Heritage</td>
<td>1</td>
<td>3.0</td>
<td>from approved list</td>
</tr>
<tr>
<td>English Composition</td>
<td>1</td>
<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* or 113*</td>
</tr>
<tr>
<td>Civilization: Arts</td>
<td>1</td>
<td>3.0</td>
<td>from approved list</td>
</tr>
<tr>
<td>Civilization: Literature</td>
<td>1</td>
<td>3.0</td>
<td>from approved list</td>
</tr>
<tr>
<td>Elephants: Biological Science</td>
<td>1</td>
<td>3-4.0</td>
<td>from approved list</td>
</tr>
<tr>
<td>Social Science</td>
<td>1</td>
<td>3.0</td>
<td>from approved list</td>
</tr>
<tr>
<td>Core Enrichment: Electives</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Religion Electives</td>
<td>3-4</td>
<td>6.0</td>
<td>from approved list</td>
</tr>
<tr>
<td>Open Electives</td>
<td>Variable</td>
<td>Variable</td>
<td>personal choice</td>
</tr>
</tbody>
</table>

*THESE CLASSES FILL BOTH UNIVERSITY CORE AND PROGRAM REQUIREMENTS (13 hours overlap)

## Graduation Requirements:

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

---

### Suggested Sequence of Courses

#### FRESHMAN YEAR

<table>
<thead>
<tr>
<th>1st Semester</th>
<th>6th Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>C S 142</td>
<td>C S 332</td>
</tr>
<tr>
<td>First-Year Writing or American Heritage</td>
<td>C S 340</td>
</tr>
<tr>
<td>MATH 112</td>
<td>C S 324</td>
</tr>
<tr>
<td>General Education courses, university requirements, and/or general electives</td>
<td>WRTG 316</td>
</tr>
<tr>
<td>Religion Cornerstone course</td>
<td>Religion elective</td>
</tr>
<tr>
<td><strong>Total Hours</strong></td>
<td><strong>Total Hours</strong></td>
</tr>
<tr>
<td>15.0</td>
<td>16.0</td>
</tr>
</tbody>
</table>

#### 2nd Semester

| C S 236 |
| Computer Science Elective |
| American Heritage or First-Year Writing |
| MATH 113 |
| C S 404 |
| Religion Cornerstone course |
| **Religion Elective** |
| **Total Hours** |
| 15.0 |

#### SOPHOMORE YEAR

<table>
<thead>
<tr>
<th>3rd Semester</th>
<th>7th Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>C S 236</td>
<td>C S/MATH/Science Elective</td>
</tr>
<tr>
<td>C S 224</td>
<td>Computer Science Elective</td>
</tr>
<tr>
<td>STAT 221 or STAT 201 or MATH 431</td>
<td>Computer Science Elective</td>
</tr>
<tr>
<td>Civilization 1</td>
<td>Computer Science Elective</td>
</tr>
<tr>
<td>Religion Cornerstone course</td>
<td>Arts</td>
</tr>
<tr>
<td><strong>Total Hours</strong></td>
<td><strong>Total Hours</strong></td>
</tr>
<tr>
<td>14.0</td>
<td>14.0</td>
</tr>
</tbody>
</table>

#### 4th Semester

| C S 240 | 11th Semester |
| C S 252 | C S/MATH/Science Elective |
| Biological Science | Computer Science Elective |
| MATH 213 | Civilization 2 |
| MATH 215 | Global and Cultural Awareness |
| Religion Cornerstone course | Social Science |
| **Total Hours** | **Total Hours** |
| 15.0 | 15.0 |

---

Note: 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 2: Students are encouraged to complete an average of 15 credit hours each semester or 30 credit hours each year, which could include spring and/or summer terms. Taking fewer credits substantially increases the cost and the number of semesters to graduate.
### BS in Computer Science (693220)
#### 2021-2022 Program Requirements (74 Credit Hours)

Computer science majors, especially those planning graduate work, are advised to acquire a strong background in mathematics, possibly a minor. Personnel in the College of Physical and Mathematical Sciences Advisement Center will advise regarding core courses and suggested general education.

### Requirements

**Requirement 1**
Complete 10 courses

**Core Courses:**
- C S 143 - 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 252 - Introduction to Computational Theory 3.0
- C S 312 - Algorithm Design and Analysis 3.0
- C S 324 - Systems Programming 3.0
- C S 340 - Software Design 3.0
- C S 404 - Ethics and Computers in Society 2.0

**Requirement 2**
Complete 3 options

**Supporting Courses:**

**Option 2.1**
Complete 4 courses
- MATH 112 - Calculus 1 4.0
- MATH 113 - Calculus 2 4.0
- PHYS 121 - Introduction to Newtonian Mechanics 3.0
- *WRTG 116 - Technical Communication 3.0

**Option 2.2**
Complete 1 group

**Group 2.2.1**
Complete 1 course
- MATH 313 - (Not currently offered)

**Group 2.2.2**
Complete 2 courses
- MATH 213 - Elementary Linear Algebra 2.0
- MATH 215 - Computational Linear Algebra 1.0

**Option 2.3**
Complete 1 course
- MATH 431 - Probability Theory 3.0
- STAT 211 - Principles of Statistics 3.0
- STAT 201 - Statistics for Engineers and Scientists 3.0

**Requirement 3**
Complete 24.0 hours from the following option(s)

**Complete a total of 8 courses (24 hours) from the following three groups:**

**Option 3.1**
Complete up to 24.0 hours from the following course(s)

**Complete 12-24 CREDIT HOURS FROM THE FOLLOWING COURSES. A MINIMUM OF 4 OF THE EIGHT ELECTIVE COURSES MUST BE FROM THIS GROUP:**

- C S 260 - Web Programming 3.0
- C S 329 - Testing, Analysis, and Verification 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 393 - Advanced Algorithms and Problem Solving 3.0
- C S 401R - Topics in Computer Science 3.0

You may take up to 3 credit hours.

**Option 3.2**
Complete up to 9.0 hours from the following course(s)

**Complete 12-24 CREDIT HOURS FROM THE FOLLOWING COURSES. A MINIMUM OF 4 OF THE EIGHT ELECTIVE COURSES MUST BE FROM THIS GROUP:**

- C S 474 - Advanced Programming Concepts 3.0
- C S 472 - Discrete Structures 3.0
- C S 471 - Data Structures and Algorithms 3.0
- C S 470 - Introduction to Computational Theory 3.0

You may take up to 3 credit hours.

**Option 3.3**
Complete up to 9.0 hours from the following course(s)

**Complete up to 9.0 CREDIT HOURS FROM THE FOLLOWING COURSES. A MINIMUM OF 4 OF THE EIGHT ELECTIVE COURSES MUST BE FROM THIS GROUP:**

- C S 498R - Undergraduate Special Projects 3.0
- C S 497R - Undergraduate Research 3.0
- C S 495 - Computing Competitions 3.0
- C S 494 - Undergraduate Research 3.0

You may take up to 3 credit hours.

**Note:** If C S 401R or C S 501R is chosen, it must be taken for three hours.

**Option 3.4**
Complete up to 9.0 credit hours from the following courses.

**Complete up to 9.0 CREDIT HOURS FROM THE FOLLOWING COURSES. A MINIMUM OF 4 OF THE EIGHT ELECTIVE COURSES MUST BE FROM THIS GROUP:**

- C S 480 - Software Engineering Capstone 1 3.0
- C S 481 - Software Engineering Capstone 2 3.0
- C S 482 - Data Science Capstone 1 3.0
- C S 483 - Data Science Capstone 2 3.0
- C S 493R - Computing Competitions 3.0

You may take up to 3 credit hours.

**Option 3.5**
Complete up to 9.0 credit hours from the following courses.

**Complete up to 9.0 CREDIT HOURS FROM THE FOLLOWING COURSES. A MINIMUM OF 4 OF THE EIGHT ELECTIVE COURSES MUST BE FROM THIS GROUP:**

- C S 498 - Undergraduate Special Projects 3.0
- C S 497 - Undergraduate Research 3.0
- C S 495 - Computing Competitions 3.0
- C S 494 - Undergraduate Research 3.0

You may take up to 3 credit hours.

**Option 3.6**
Complete up to 9.0 credit hours from the following courses.

**Complete up to 9.0 CREDIT HOURS FROM THE FOLLOWING COURSES. A MINIMUM OF 4 OF THE EIGHT ELECTIVE COURSES MUST BE FROM THIS GROUP:**

- C S 557 - (Not currently offered)

**Note:** If C S 401R or C S 501R is chosen, it must be taken for three hours.

**Option 3.7**
Complete up to 9.0 credit hours from the following courses.

**Complete up to 9.0 CREDIT HOURS FROM THE FOLLOWING COURSES. A MINIMUM OF 4 OF THE EIGHT ELECTIVE COURSES MUST BE FROM THIS GROUP:**

- C S 513 - Robust Control 3.0
- C S 512 - Introduction to Computer Programming 3.0
- C S 511 - Software Design 3.0
- C S 504 - Advanced Programming Concepts 3.0
- C S 503 - Discrete Structures 3.0
- C S 502 - Data Structures and Algorithms 3.0
- C S 501 - Introduction to Computational Theory 3.0

You may take up to 3 credit hours.

**Note:** If C S 401R or C S 501R is chosen, it must be taken for three hours.

**Requirement 4**
Complete Senior Exit Interview with the CS department during your last semester or term.
BS in Computer Science (693220) 2021-2022

THE DISCIPLINE
Computer science touches virtually every area of human endeavor. Software is responsible for everything from the control of kitchen appliances to sophisticated climate models used in predicting future environmental change. Students in computer science learn to approach complex problems in business, science, and entertainment using their strong background in mathematics, algorithms, and data structures.

The degree programs in the Computer Science Department prepare students to be confident software developers and technical problem solvers. The curriculum also trains students for research into new avenues where computers will have a significant impact. The BS curriculum is accredited by the Computing Accreditation Commission of ABET.

CAREER OPPORTUNITIES
Graduates pursue exciting opportunities in graphics, artificial intelligence, software engineering, database design, scientific programming, systems administration, and research at universities and national laboratories.

Students completing the animation emphasis will be prepared for technical positions at animation and game programming studios. Students will learn both the technical and artistic side of creating and implementing digital animations and games.

The bioinformatics emphasis is designed for students who are interested in building software to assist in analyzing biological systems. Students will graduate with a significant background in biology coupled with the software development and analysis skills necessary to implement large bioinformatics applications.

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
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