<table>
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<tr>
<th>University Core Requirements</th>
<th>Suggested Sequence of Courses</th>
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<td><strong>University Core Requirements:</strong></td>
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<tr>
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<td>1</td>
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<tr>
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<td>1</td>
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<td>The Eternal Family</td>
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<td>Quantitative Reasoning</td>
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<td>Biological Science</td>
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<td>Physical Science</td>
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<td>30.0</td>
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<tr>
<td>Minimum hours needed to graduate</td>
<td>120.0</td>
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</table>

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

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.

Note: No double counting is allowed within the major.

Questions regarding curriculum and career decisions should be directed to Personnel in the College of Physical and Mathematical Sciences Advisement Center will advise regarding core courses and suggested general education.

Note: All hours of credit applied toward a major in computer science must be of C- or better and must be taken within eight years of declaring the computer science major. Any exceptions must be approved by the undergraduate advisor in the Computer Science Department.

Personnel in the College of Physical and Mathematical Sciences Advisement Center will advise regarding core courses and suggested general education.

Note: All hours of credit applied toward a major in computer science must be of C- or better and must be taken within eight years of declaring the computer science major. Any exceptions must be approved by the undergraduate advisor in the Computer Science Department.

**REQUIREMENT 2**

**REQUIREMENT 1**

Note: No double counting is allowed within the major.

**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
- C S 329 - Testing, Analysis, and Verification
- 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.

**OPTION 3.2** Complete up to 12.0 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 412 - Linear Programming and Convex Optimization
- C S 428 - Software Engineering
- C S 431 - Algorithmic Languages and Compilers
- C S 450 - Computer Vision
- C S 452 - Database Modeling Concepts
- 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 479 - (Not currently offered)
- C S 486 - Verification and Validation
- C S 501R - Advanced Topics in Computer Science

You may take up to 3 credit hours.

- C S 513 - Robust Control

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

Note: Up to 3 of the eight elective courses could be from this group.

- C S 493R - Computing Competitions
- C S 495
- C S 494
- C S 493R - Computing Competitions
- C S 498R - Undergraduate Special Projects

You may take up to 6 credit hours.

**REQUIREMENT 4**

Complete Senior Exit Interview with the CS department during your last semester or term.
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
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Brigham Young University
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ADVICEMENT CENTER INFORMATION
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Brigham Young University
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Provo, UT 84602
Telephone: (801) 422-2674