

BS in Computer Science: Software Engineering (693225) MAP Sheet

Physical and Mathematical Sciences, Computer Science

For students entering the degree program during the 2024-2025 curricular year

University Core and Graduation Requirements				Suggested Sequence of Courses			
University Core Requirements:				FRESHMAN YEAR		JUNIOR YEAR	
Requirements	# Classes	Hours	Classes	<u>1st Semester</u>		<u>5th Semester</u>	
Religion Cornerstones				CS 111	3.00	CS 312	3.00
Teachings and Doctrines of the Book of Mormon	1	2.00	REL A 275	CS 191	0.50	CS 340	3.00
Jesus Christ and the Everlasting Gospel	1	2.00	REL A 250	MATH 112	4.00	CS 204	1.00
Foundations of the Restoration	1	2.00	REL C 225	UNIV 101	2.00	GE Arts, Letters, Sciences	3.00
The Eternal Family	1	2.00	REL C 200	American Heritage or First Year Writing	3.00	GE Religion	2.00
BYU Foundations for Student Success				Religion Cornerstone Class	2.00	CS 452	3.00
Foundations for Student Success	1	2.00	UNIV 101	Total Hours:	14.50	Total Hours:	15.00
The Individual and Society				<u>2nd Semester</u>		<u>6th Semester</u>	
American Heritage	1 to 2	3.00-6.00	from approved list	CS 235	3.00	CS 324	3.00
Global and Cultural Awareness	1	3.00	from approved list	CS 202	1.00	GE Religion	2.00
Skills				CS 260	3.00	CS 329	3.00
First Year Writing	1	3.00	from approved list	American Heritage or First Year Writing	3.00	GE Arts, Letters, Sciences	3.00
Advanced Written and Oral Communications	1	3.00	WRTG 316*	MATH 290, 113, or STAT 220	3.00-4.00	WRTG 316	3.00
Quantitative Reasoning	1	4.00	MATH 112*	Religion Cornerstone Course	2.00	Total Hours:	14.00
Languages of Learning (Math of Language)	1	4.00	MATH 112*	Total Hours:	15.00-16.00	SENIOR YEAR	
Arts, Letters and Sciences (Complete 6 of 7)				SOPHMORE YEAR		<u>7th Semester</u>	
Civilization 1	1	3.00	from approved list	<u>3rd Semester</u>		CS Requirement 5 Elective	3.00
Civilization 2	1	3.00	from approved list	CS 203	1.00	CS Requirement 5 Elective	3.00
Arts	1	3.00	from approved list	CS 224	3.00	PHSCS 121	3.00
Letters	1	3.00	from approved list	CS 236	3.00	University Elective	3.00
Biological Science	1	3.00	from approved list	CS 291	0.50	GE Arts, Letters, Sciences	3.00
Physical Science	2	3.00	from approved list	Global and Cultural Awareness	3.00	Total Hours:	15.00
Social Science	1	3.00	from approved list	GE Arts, Letters, Sciences	3.00	<u>8th Semester</u>	
Core Enrichment: Electives				Religion Cornerstone Course	2.00	CS 480	3.00
Religion Electives	3 to 4	6.00	from approved list	Total Hours:	15.50	CS 481	3.00
Open Electives	Variable	Variable	personal choice	<u>4th Semester</u>		CS Requirement 6 Elective	3.00
Graduation Requirements:				CS 240	4.00	CS 404	2.00
Minimum residence hours required		30.00		STAT 121 or 201	3.00	GE Religion	2.00
Minimum hours needed to graduate		120.00		MATH 213	2.00	GE Arts, Letters, Sciences	3.00
				MATH 215	1.00	Total Hours:	16.00
				Religion Cornerstone Class	2.00		
				GE Arts, Letters, Sciences	3.00		
				Total Hours:	15.00		

*These classes fill both university core and program requirements

Program Requirements

Grades below C- are not allowed in major courses.

Requirement 1 — Complete 19 Courses

Core courses:

C S 111 - Intro to Computer Science 3.0
C S 191 - Exploring CS 0.5
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 - Computer Systems 3.0
C S 235 - Data Structures 3.0
C S 236 - Discrete Structure 3.0
C S 240 - Adv Software Construction 4.0
C S 260 - Web Programming 3.0
C S 291 - Careers in CS 0.5
C S 312 - Algorithm Design & Analysis 3.0
C S 324 - Systems Programming 3.0
C S 329 - Test, Analysis, & Verification 3.0
C S 340 - Software Design 3.0
C S 404 - Ethics & Computers in Society 2.0
C S 452 - Database Modeling Concepts 3.0
C S 480 - Soft Eng Capstone 1 3.0
C S 481 - Soft Eng Capstone 2 3.0

Requirement 2 — Complete 4 Courses

MATH 112 - Calculus 14.0
MATH 213 - Elementary Linear Algebra 2.0
MATH 215 - Computational Linear Algebra 1.0
PHSCS 121 - Intro to Newtonian Mechanics 3.0
WRTG 316 - Technical Communication 3.0

Requirement 3 — Complete 1 of 2 Courses

STAT 121 - Intro to Stat Data Analysis 3.0
STAT 201 - Stat for Engineers & Scientist 3.0

Requirement 4 — Complete 1 of 3 Courses

MATH 113 - Calculus 2 4.0
MATH 290 - Fundamentals of Mathematics 3.0
STAT 220 - Stat Modeling for Data Science 3.0

Requirement 5 — Complete 2 of 11 Courses

C S 256 - Introduction to HCI 3.0
C S 270 - Intro to Machine Learning 3.0
C S 330 - Concepts of Programng Lang 3.0
C S 345 - Operating Systems Design 3.0
C S 356 - Advanced Techniques in HCI 3.0
C S 453 - Fund of Information Retrieval 3.0
C S 456 - Mobile and Ubiquitous HCI 3.0
C S 460 - Comp Comms & Networking 3.0
C S 462 - Distributed System Design 3.0
C S 465 - Computer Security 3.0
C S 473 - Advanced Machine Learning 3.0
C S 486 - Verification and Validation 3.0

Requirement 6 — Complete 3 hours

Courses will not double count between Requirement 5 and Requirement 6.

C S 252 - Intro to Computational Theory 3.0
C S 256 - Introduction to HCI 3.0
C S 270 - Intro to Machine Learning 3.0
C S 330 - Concepts of Programng Lang 3.0
C S 345 - Operating Systems Design 3.0
C S 355 - Graphics and Image Processing 3.0
C S 356 - Advanced Techniques in HCI 3.0
C S 393 - Adv Algorithms & Probl Solving 3.0
C S 401R - Topics in Computer Science - *You may take up to 3.0 credit hours 1.0v*
C S 405 - Software Business 3.0
C S 412 - Linear Prog/Conv Optimization 3.0
C S 450 - Computer Vision 3.0
C S 453 - Fund of Information Retrieval 3.0

C S 455 - Computer Graphics 3.0
C S 456 - Mobile and Ubiquitous HCI 3.0
C S 460 - Comp Comms & Networking 3.0
C S 462 - Distributed System Design 3.0
C S 465 - Computer Security 3.0
C S 466 - Blockchain Technologies 3.0
C S 470 - Intro Artificial Intelligence 3.0
C S 471 - Voice Interfaces 3.0
C S 473 - Advanced Machine Learning 3.0
C S 474 - Deep Learning 3.0
C S 479 - Intro to Machine Translation 3.0
C S 486 - Verification and Validation 3.0
C S 493R - Computing Competitions - *You may take up to 3.0 credit hours 3.0*
C S 497R - Undergraduate Research - *You may take up to 6.0 credit hours 3.0*
C S 498R - Undergraduate Special Projects - *You may take up to 3.0 credit hours 1.0v*
C S 501R - Adv Topics in Computer Sci - *You may take up to 3.0 credit hours 1.0v*
C S 513 - Robust Control 3.0
C S 556 - Inter Soft Systems - *This course is no longer available for registration and will count only if you completed it while it was offered. Please see your college advisement center for possible substitutions. 3.0*
C S 574 - Transformers for NLP 3.0
C S 575 - Intro to Network Science 3.0
C S 580 - Theory of Predictive Modeling 3.0
EC EN 424 - Computer Systems 4.0
EC EN 425 - Real-Time Operating Systems 4.0
IT&C 567 - Cybersecurity & Pen Test 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 — Obtain confirmation from your advisement center that you have completed the following:

Complete Senior Exit interview with the C S department during last semester or term.

Note: Math 112, Math 113, Phscs 121, WRTG 316, and C S 312 can be used to fill both General Education and program requirements. Advanced Writing and Oral Communication: WRTG 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.

DEPARTMENT INFORMATION

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ADVISEMENT CENTER INFORMATION

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