

BS in Computer Science: Machine Learning (693224) 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	STAT 220, STAT 330, or ECON 388	3.00
Jesus Christ and the Everlasting Gospel	1	2.00	REL A 250	MATH 112	4.00	CS 224	3.00
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	Global and Cultural Awareness	3.00
BYU Foundations for Student Success				Religion Cornerstone Class	2.00	Total Hours:	15.00
Foundations for Student Success	1	2.00	UNIV 101	Total Hours:	14.50	<u>6th Semester</u>	
The Individual and Society				<u>2nd Semester</u>		CS 412 or MATH 552	3.00
American Heritage	1 to 2	3.00-6.00	from approved list	CS 235	3.00	CS Requirement 7 Elective	3.00
Global and Cultural Awareness	1	3.00	from approved list	CS 180	3.00	CS Requirement 8 Elective	3.00
Skills				MATH 290	3.00	GE Arts, Letters, Sciences	3.00
First Year Writing	1	3.00	from approved list	American Heritage or First Year Writing	3.00	Religion Elective	2.00
Advanced Written and Oral Communications	1	3.00	WRTG 316*	Religion Cornerstone Class	2.00	Total Hours:	14.00
Quantitative Reasoning	1	4.00	MATH 112*	Total Hours:	14.00	SENIOR YEAR	
Languages of Learning (Math of Language)	1	4.00	MATH 112*	SOPHMORE YEAR		<u>7th Semester</u>	
Arts, Letters and Sciences (Complete 6 of 7)				<u>3rd Semester</u>		Religion Elective	2.00
Civilization 1	1	3.00	from approved list	CS 236	3.00	Requirement 8 Elective	3.00
Civilization 2	1	3.00	from approved list	STAT 121 or STAT 201	3.00	CS 474	3.00
Arts	1	3.00	from approved list	MATH 213	2.00	CS Requirement 7 Elective	3.00
Letters	1	3.00	from approved list	MATH 215	1.00	WRTG 316	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	GE Arts, Letters, Sciences	3.00	Total Hours:	17.00
Social Science	1	3.00	from approved list	Religion Cornerstone Class	2.00	<u>8th Semester</u>	
Core Enrichment: Electives				Total Hours:	14.50	CS Requirement 9 Elective	3.00
Religion Electives	3 to 4	6.00	from approved list	<u>4th Semester</u>		CS Requirement 9 Elective	3.00
Open Electives	Variable	Variable	personal choice	CS 240	4.00	CS Requirement 9 Elective	3.00
Graduation Requirements:				CS 270	3.00	CS 404	2.00
Minimum residence hours required		30.00		MATH 380	3.00	Religion Elective	2.00
Minimum hours needed to graduate		120.00		Religion Cornerstone Class	3.00	GE Arts, Letters, Sciences	3.00
				GE Arts, Letters, Sciences	2.00	Total Hours:	16.00
				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 10 Courses

C S 111 - Intro to Computer Science 3.0
C S 180 - Intro to Data Science 3.0
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 312 - Algorithm Design & Analysis 3.0
C S 404 - Ethics & Computers in Society 2.0
C S 472 - Intro to Machine Learning 3.0
C S 474 - Deep Learning 3.0

Requirement 2 — Complete 3 Courses

MATH 112 - Calculus 1 4.0
MATH 290- Fundamentals of Mathematics 3.0
MATH 380 - Mathematics of Data Science 3.0

Requirement 3 — Complete 2 Courses

MATH 213 - Elementary Linear Algebra 2.0
MATH 215 - Computational Linear Algebra 1.0

Requirement 4 — Complete 1 of 2 Courses

STAT 121 - Principles of Statistics 3.0
STAT 201 - Stat for Engineers & Scientist 3.0

Requirement 5 — Complete 1 of 3 Courses

ECON 388 - Intro to Econometrics 3.0
STAT 220 - Stat Modeling for Data Science 3.0
STAT 330 - Introduction to Regression 3.0

Requirement 6 — Complete 1 of 2 Courses

C S 412 - Linear Prog/Conv Optimization 3.0
MATH 522 - Methods of Applied Math 2 3.0

Requirement 7 — Complete 2 of 4 Courses

C S 450 - Computer Vision 3.0
C S 470 - Intro Artificial Intelligence 3.0
C S 471 - Voice Interfaces 3.0
C S 479 - Intro to Machine Translation 3.0

Requirement 8 — Complete 6 hours

Option 8.1 — Complete up to 6 hours

C S 482 - Data Science Capstone 1 3.0
C S 483 - Data Science Capstone 2 3.0

Option 8.2 — Complete up to 6 hours

C S 497R - Undergraduate Research - *You may take once 6.0*

If you complete this option you must take two semesters, totaling 6.0 credits

Requirement 9 — Complete 9 hours

Note: Courses taken to fulfill Requirements 6 and 7 cannot double count here

C S 412 - Linear Prog/Conv Optimization 3.0
C S 450 - Computer Vision 3.0
C S 452 - Database Modeling Concepts 3.0
C S 453 - Fund of Information Retrieval 3.0
C S 470 - Intro Artificial Intelligence 3.0
C S 471 - Voice Interfaces 3.0
C S 479 - Intro to Machine Translation 3.0
C S 513 - Robust Control 3.0
C S 575 - Intro to Network Science 3.0
C S 580 - Theory of Predictive Modeling 3.0
ECON 378 - Statistics for Economists 3.0
LING 581 - Natural Lang Processing 3.0
MATH 113 - Calculus 2 4.0
MATH 314 - Calculus of Several Variables 3.0
MATH 413 - Advanced Linear Algebra 3.0
MATH 431 - Probability Theory 3.0
STAT 240 - Probability and Inference 1 3.0

STAT 251 - Intro to Bayesian Statistics 3.0

STAT 340 - Probability and Inference 2 3.0

STAT 386 - Data Science Process 3.0

Requirement 10 — Obtain confirmation from your advisement center that you have completed the following:

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.

DEPARTMENT INFORMATION

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ADVISEMENT CENTER INFORMATION

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