

BS in Computer Science: Animation (693223) MAP Sheet

Physical and Mathematical Sciences, Computer Science

For students entering the degree program during the 2018-2019 curricular year.

This is a limited-enrollment program requiring departmental admissions approval. Please see the department office for information regarding requirements for admission to this emphasis.

Application deadline: April 15 and October 15 after completing the prerequisite courses listed below.



University Core and Graduation Requirements				Suggested Sequence of Courses			
University Core Requirements:				FRESHMAN YEAR			
Requirements	#Classes	Hours	Classes	1st Semester		JUNIOR YEAR	
Religion Cornerstones				<u>1st Semester</u>		<u>5th Semester</u>	
Teachings and Doctrine of The Book of Mormon	1	2.0	REL A 275	C S 142	3.0	ENGL 316	3.0
Jesus Christ and the Everlasting Gospel	1	2.0	REL A 250	CSANM 150	1.5	C S 324	3.0
Foundations of the Restoration	1	2.0	REL C 225	First-year Writing or American Heritage	3.0	C S 312	3.0
The Eternal Family	1	2.0	REL C 200	MATH 112	4.0	MATH 313	3.0
The Individual and Society				Religion Cornerstone course		Religion elective	
American Heritage	1-2	3-6.0	from approved list	Open elective	2.0	Open elective	2.0
Global and Cultural Awareness	1	3.0	from approved list	Total Hours	15.5	Total Hours	16.0
Skills				<u>2nd Semester</u>		<u>6th Semester</u>	
First Year Writing	1	3.0	from approved list	First-year Writing or American Heritage	3.0	CSANM 354	3.0
Advanced Written and Oral Communications	1	3.0	ENGL 316*	C S 235	3.0	C S 355	3.0
Quantitative Reasoning	1	4.0	MATH 112* or 113*	C S 224	3.0	C S 340	3.0
Languages of Learning (Math or Language)	1	4.0	MATH 112* or 113*	MATH 113	4.0	Civilization 2 (ARTHC 202)	3.0
Arts, Letters, and Sciences				Religion Cornerstone course		Global and Cultural Awareness	
Civilization 1	1	3.0	from approved list	Total Hours	15.0	Total Hours	15.0
Civilization 2	1	3.0	ARTHC 202* or from approved list	SOPHOMORE YEAR			
Arts	1	3.0	TMA 102*	<u>3rd Semester</u>			
Letters	1	3.0	from approved list	C S 236	3.0	Computer Science Elective	3.0
Biological Science	1	3-4.0	from approved list	TMA 102	3.0	CSANM 450R or CSANM 459R	3.0
Physical Science	1	3.0	CS 312*	PHSCS 121	3.0	C S 455	3.0
Social Science	1	3.0	from approved list	Civilization 1	3.0	Letters	3.0
Core Enrichment: Electives				Religion Cornerstone course		Religion Elective	
Religion Electives	3-4	6.0	from approved list	Open elective	1.0	Total Hours	14.0
Open Electives	Variable	Variable	personal choice	Total Hours	15.0	<u>8th Semester</u>	
*THESE CLASSES FILL BOTH UNIVERSITY CORE AND PROGRAM REQUIREMENTS (13–23 hours overlap)				<u>4th Semester</u>			
Graduation Requirements:				C S 240			
Minimum residence hours required		30.0		C S 252	3.0	C S 404	2.0
Minimum hours needed to graduate		120.0		TMA 294	3.0	CSANM Elective	3.0
				STAT 121 or 201		Biological Science	
				Religion Cornerstone course		Social Science	
				Total Hours		15.0	
				Religion Cornerstone course		Religion Elective	
				Total Hours		15.0	
				Note 1: The sequence of courses 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.			
				FOR UNIVERSITY CORE OR PROGRAM QUESTIONS, CONTACT THE ADVISEMENT CENTER.			

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2018-2019 Program Requirements (78.5 - 79.5 Credit Hours)

<p>Grades below C- are not allowed in major courses.</p> <p>REQUIREMENT 1 Complete 3 courses</p> <p>PREREQUISITE COURSES:</p> <p>C S 142 - Introduction to Computer Programming 3.0</p> <p>C S 235 - Data Structures and Algorithms 3.0</p> <p>CSANM 150 - Introduction to Three-Dimensional Computer Graphics 1.5</p> <p>Be admitted to the program.</p> <p>REQUIREMENT 2 Complete 10 courses</p> <p>COMPLETE THE FOLLOWING AFTER BEING ADMITTED TO THE PROGRAM:</p> <p>C S 224 - Introduction to Computer Systems 3.0</p> <p>C S 236 - Discrete Structures 3.0</p> <p>C S 240 - Advanced Programming Concepts 4.0</p> <p>C S 252 - Introduction to Computational Theory 3.0</p> <p>C S 312 - Algorithm Design and Analysis 3.0</p> <p>C S 324 - Systems Programming 3.0</p> <p>C S 340 - Software Design and Testing 3.0</p> <p>C S 355 - Introduction to Graphics and Image Processing 3.0</p> <p>C S 404 - Ethics and Computers in Society 2.0</p> <p>C S 455 - Computer Graphics 3.0</p> <p>REQUIREMENT 3 Complete 8 courses</p> <p>SUPPORTING COURSES:</p> <p>CSANM 354 - Shader Programming 3.0</p> <p>*ENGL 316 - Technical Communication 3.0</p> <p>MATH 112 - Calculus 1 4.0</p> <p>MATH 113 - Calculus 2 4.0</p> <p>MATH 313 - Elementary Linear Algebra 3.0</p> <p>PHSCS 121 - Introduction to Newtonian Mechanics 3.0</p> <p>*TMA 102 - Introduction to Film 3.0</p> <p>TMA 294 - History of Animation 3.0</p> <p>REQUIREMENT 4 Complete 1 course</p> <p>CSANM 450R - Advanced Senior Film Production 1 3.0</p> <p><i>You may take this course up to 2 times.</i></p> <p>CSANM 459R - Interactive Animation Technology 3.0</p> <p><i>You may take this course up to 2 times.</i></p> <p>REQUIREMENT 5 Complete 1 course</p> <p>STAT 121 - Principles of Statistics 3.0</p> <p>STAT 201 - Statistics for Engineers and Scientists 3.0</p> <p>REQUIREMENT 6 Complete 1 course</p> <p>NOTE: IF C S 401R IS CHOSEN, IT MUST BE TAKEN FOR THREE HOURS.</p>	<p>C S 260 - Web Programming 3.0</p> <p>C S 330 - Concepts of Programming Languages 3.0</p> <p>C S 345 - Operating Systems Design 3.0</p> <p>C S 356 - Designing the User Experience 3.0</p> <p>C S 401R - Topics in Computer Science 3.0v</p> <p><i>You may take up to 3 credit hours.</i></p> <p>C S 412 - Linear Programming and Convex Optimization 3.0</p> <p>C S 418 - Bioinformatics 3.0</p> <p>C S 428 - Software Engineering 3.0</p> <p>C S 431 - Algorithmic Languages and Compilers 3.0</p> <p>C S 450 - Computer Vision 3.0</p> <p>C S 452 - Database Modeling Concepts 3.0</p> <p>C S 453 - Fundamentals of Information Retrieval 3.0</p> <p>C S 456 - Introduction to User Interface Software 3.0</p> <p>C S 460 - Computer Communications and Networking 3.0</p> <p>C S 462 - Large-Scale Distributed System Design 3.0</p> <p>C S 465 - Computer Security 3.0</p> <p>C S 470 - Introduction to Artificial Intelligence 3.0</p> <p>C S 478 - Tools for Machine Learning 3.0</p> <p>C S 479 - (Not currently offered)</p> <p>C S 484 - Parallel Processing 3.0</p> <p>C S 486 - Verification and Validation 3.0</p> <p>EC EN 425 - Real-Time Operating Systems 4.0</p> <p>REQUIREMENT 7 Complete 1 course</p> <p>NOTE: IF C S 401R, C S 498R, OR C S 501R IS CHOSEN, IT MUST BE TAKEN FOR THREE HOURS.</p> <p>C S 401R - Topics in Computer Science 3.0v</p> <p><i>You may take up to 3 credit hours.</i></p> <p>C S 412 - Linear Programming and Convex Optimization 3.0</p> <p>C S 418 - Bioinformatics 3.0</p> <p>C S 428 - Software Engineering 3.0</p> <p>C S 431 - Algorithmic Languages and Compilers 3.0</p> <p>C S 450 - Computer Vision 3.0</p> <p>C S 452 - Database Modeling Concepts 3.0</p> <p>C S 453 - Fundamentals of Information Retrieval 3.0</p> <p>C S 456 - Introduction to User Interface Software 3.0</p> <p>C S 460 - Computer Communications and Networking 3.0</p> <p>C S 462 - Large-Scale Distributed System Design 3.0</p> <p>C S 465 - Computer Security 3.0</p> <p>C S 470 - Introduction to Artificial Intelligence 3.0</p>	<p>C S 478 - Tools for Machine Learning 3.0</p> <p>C S 479 - (Not currently offered)</p> <p>C S 484 - Parallel Processing 3.0</p> <p>C S 486 - Verification and Validation 3.0</p> <p>C S 498R - Undergraduate Special Projects 3.0v</p> <p><i>You may take up to 3 credit hours.</i></p> <p>C S 500 - (C S-Chem-Geol-Math-MthEd-Phscs-Stat) Business Career Essen 1.5</p> <p>C S 501R - Advanced Topics in Computer Science 3.0v</p> <p><i>You may take up to 3 credit hours.</i></p> <p>C S 513 - Robust Control 3.0</p> <p>C S 557 - (Not currently offered)</p> <p>CSANM 351R - Lighting for Three-Dimensional Graphics 3.0</p> <p>CSANM 355 - Photography for Animation 3.0</p> <p>CSANM 452R - Advanced Senior Film Production 2 3.0</p> <p>CSANM 458 - Three-Dimensional Visual Effects 3.0</p> <p>EC EN 425 - Real-Time Operating Systems 4.0</p> <p>REQUIREMENT 8 Complete 1 course</p> <p>ARTHC 111 - Introduction to Art History 3.0</p> <p>ARTHC 202 - World Civilization Since 1500 3.0</p> <p>TECH 201 - (Not currently offered)</p> <p>REQUIREMENT 9</p> <p>Complete Senior Exit interview with the CS department during your last semester or term.</p> <p>THE DISCIPLINE</p> <p>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.</p> <p>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.</p> <p>The BS curriculum is accredited by the Computing Accreditation</p>
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2018-2019

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