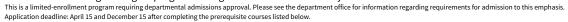# BS in Computer Science: Animation and Games (693223) MAP Sheet

Physical and Mathematical Sciences, Computer Science

For students entering the degree program during the 2021-2022 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 December 15 after completing the prerequisite courses listed below.

University Core and Graduation Requirements				Suggested Sequence of Courses	

University Core Requirements:

Requirements	#Classes	Hours	Classes
Religion Cornerstones			
Teachings and Doctrine of The Book of Mormon	1	2.0	REL A 275
Jesus Christ and the Everlasting Gospel	1	2.0	REL A 250
Foundations of the Restoration	1	2.0	REL C 225
The Eternal Family	1	2.0	REL C 200
The Individual and Society			
American Heritage	1-2	3-6.0	from approved list
Global and Cultural Awareness	1	3.0	from approved list
Skills			
First Year Writing	1	3.0	from approved list
Advanced Written and Oral Communications	1	3.0	WRTG 316*
Quantitative Reasoning	1	4.0	MATH 112* or 113*
Languages of Learning (Math or Language)	1	4.0	MATH 112* or 113*
Arts, Letters, and Sciences			
Civilization 1	1	3.0	from approved list
Civilization 2	1	3.0	ARTHC 202* or from approved list
Arts	1	3.0	from approved list
Letters	1	3.0	from approved list
Biological Science	1	3-4.0	from approved list
Physical Science	1	3.0	CS 312*
Social Science	1	3.0	from approved list
Core Enrichment: Electives			
Religion Electives	3-4	6.0	from approved list
Open Electives	Variable	Variable	personal choice

*THESE CLASSES FILL BOTH UNIVERSITY CORE AND PROGRAM REQUIREMENTS (13–23 hours overlap)

Graduation Requirements:

Minimum residence hours required	30.0
Minimum hours needed to graduate	120.0

FRESHMAN YEAR
1st Semester

C S 142	3.0
STAT 121 or 201	3.0
First-year Writing or American Heritage	3.0
MATH 112	4.0
Religion Cornerstone course	2.0
Total Hours	**15.0**

2nd Semester

First-year Writing or American Heritage	3.0
C S 235	3.0
Physics 121	3.0
MATH 113	4.0
Religion Cornerstone course	2.0
Total Hours	**15.0**

SOPHOMORE YEAR
3rd Semester

C S 236	3.0
CSANM 150	1.5
C S 224	3.0
Civilization 1	3.0
Religion Cornerstone course	2.0
Arts	3.0
Total Hours	**15.5**

4th Semester

C S 240	4.0
C S 252	3.0
MATH 213	2.0
MATH 215	1.0
Social Science	3.0
Religion Cornerstone course	2.0
Total Hours	**15.0**

JUNIOR YEAR
5th Semester

WRTG 316	3.0
C S 324	3.0
C S 312	3.0
CS 355	3.0
Religion elective	2.0
Open elective	1.0
Total Hours	**15.0**

6th Semester

CSANM 354	3.0
C S 455	3.0
C S 340	3.0
Civilization 2 (ARTHC 202)	3.0
Global and Cultural Awareness	3.0
Total Hours	**15.0**

SENIOR YEAR
7th Semester

CS 404	2.0
CSANM 450R or CSANM 459R	3.0
CSANM Elective	3.0
Letters	3.0
Religion Elective	2.0
Open Elective	2.0
Total Hours	**15.0**

8th Semester

Computer Science Elective	3.0
CSANM Elective	3.0
Biological Science	3.0
CSANM Elective	3.0
Religion Elective	2.0
Open Elective	1.0
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.

BS in Computer Science: Animation and Games (693223)
2021-2022 Program Requirements (77 - 80.5 Credit Hours)

Grades below C- are not allowed in major courses.

REQUIREMENT 1 Complete 3 courses
PREREQUISITE COURSES:

C S 142 - Introduction to Computer Programming	3.0
C S 235 - Data Structures and Algorithms	3.0
CSANM 150 - Introduction to Three-Dimensional Computer Graphics	1.5

Be admitted to the program.

REQUIREMENT 2 Complete 10 courses
COMPLETE THE FOLLOWING AFTER BEING ADMITTED TO THE PROGRAM:

C S 224 - Introduction to Computer Systems	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 355 - Interactive Graphics and Image Processing	3.0
C S 404 - Ethics and Computers in Society	2.0
C S 455 - Computer Graphics	3.0

REQUIREMENT 3 Complete 5 courses
SUPPORTING COURSES:

CSANM 354 - Shader Programming	3.0
MATH 112 - Calculus 1	4.0
MATH 113 - Calculus 2	4.0
PHSCS 121 - Introduction to Newtonian Mechanics	3.0
*WRTG 316 - Technical Communication	3.0

REQUIREMENT 4 Complete 1 option

OPTION 4.1 Complete 1 course

MATH 313 - (Not currently offered)	

OPTION 4.2 Complete 2 courses

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

REQUIREMENT 5 Complete 1 course

CSANM 450R - Advanced Senior Film Production 1	3.0
You may take this course up to 2 times.	
CSANM 459R - Video Game Production 1	3.0
You may take this course up to 2 times.	

REQUIREMENT 6 Complete 1 course

STAT 121 - Principles of Statistics	3.0
STAT 201 - Statistics for Engineers and Scientists	3.0

REQUIREMENT 7 Complete 1 course
NOTE: IF C S 401R IS CHOSEN, IT MUST BE TAKEN FOR THREE HOURS.

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 356 - Designing the User Experience	3.0
C S 393 - Advanced Algorithms and Problem Solving	3.0
C S 401R - Topics in Computer Science	3.0v
You may take up to 3 credit hours.	
C S 412 - Linear Programming and Convex Optimization	3.0
C S 418 - (Not currently offered)	
C S 428 - Software Engineering	3.0
C S 431 - Algorithmic Languages and Compilers	3.0
C S 450 - Computer Vision	3.0
C S 452 - Database Modeling Concepts	3.0
C S 453 - Fundamentals of Information Retrieval	3.0
C S 456 - Introduction to User Interface Software	3.0
C S 460 - Computer Communications and Networking	3.0
C S 462 - Large-Scale Distributed System Design	3.0
C S 465 - Computer Security	3.0
C S 470 - Introduction to Artificial Intelligence	3.0
C S 471 - Voice User Interfaces	3.0
C S 472 - Introduction to Machine Learning	3.0
C S 474 - Introduction to Deep Learning	3.0
C S 479 - (Not currently offered)	
C S 486 - Verification and Validation	3.0
EC EN 425 - Real-Time Operating Systems	4.0

REQUIREMENT 8 Complete 3 courses
COURSES USED TO FULFILL REQUIREMENT 6 CANNOT BE DOUBLE COUNTED HERE. NOTE: IF C S 401R, C S 498R, OR C S 501R IS CHOSEN, IT MUST BE TAKEN FOR THREE HOURS.

C S 401R - Topics in Computer Science	3.0v
You may take up to 3 credit hours.	
C S 412 - Linear Programming and Convex Optimization	3.0
C S 418 - (Not currently offered)	
C S 428 - Software Engineering	3.0
C S 431 - Algorithmic Languages and Compilers	3.0
C S 450 - Computer Vision	3.0
C S 452 - Database Modeling Concepts	3.0
C S 453 - Fundamentals of Information Retrieval	3.0
C S 456 - Introduction to User Interface Software	3.0
C S 460 - Computer Communications and Networking	3.0
C S 462 - Large-Scale Distributed System Design	3.0
C S 465 - Computer Security	3.0
C S 470 - Introduction to Artificial Intelligence	3.0
C S 471 - Voice User Interfaces	3.0
C S 472 - Introduction to Machine Learning	3.0
C S 474 - Introduction to Deep Learning	3.0
C S 479 - (Not currently offered)	
C S 486 - Verification and Validation	3.0
C S 498R - Undergraduate Special Projects	3.0v
You may take up to 3 credit hours.	
C S 500 - (C S-Chem-Geol-Math-MthEd-Phscs-Stat) Business Career Essent	1.5
C S 501R - Advanced Topics in Computer Science	3.0v
You may take up to 3 credit hours.	
C S 513 - Robust Control	3.0
C S 557 - (Not currently offered)	
CSANM 340 - Introduction to Game Design	2.0
CSANM 342 - Real-time Techniques	3.0
CSANM 351R - Lighting for Three-Dimensional Graphics	3.0
CSANM 355 - Photography for Animation	3.0
CSANM 452R - Advanced Senior Film Production 2	3.0
CSANM 454 - Advanced Shading	3.0
CSANM 458 - Three-Dimensional Visual Effects	3.0
CSANM 460R - Video Game Production 2	3.0
EC EN 425 - Real-Time Operating Systems	4.0

REQUIREMENT 9 Complete 1 course

ARTHC 111 - Introduction to Art History	3.0
ARTHC 202 - World Civilization Since 1500	3.0
TECH 201 - (Not currently offered)	
TMA 294 - History of Animation	3.0

REQUIREMENT 10
Complete Senior Exit interview with the CS department during your last semester or term.

BS in Computer Science: Animation and Games (693223)

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

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ADVISEMENT CENTER INFORMATION

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