



BS in COMPUTER SCIENCE: Animation Emphasis (693223) MAP Sheet

Department of Computer Science

For students entering the degree program during the 2009–2010 curricular year.

UNIVERSITY CORE AND GRADUATION REQUIREMENTS				PROGRAM REQUIREMENTS (79-80.0 total hours)					
UNIVERSITY CORE REQUIREMENTS (48.5 hours minimum)				No D credit is allowed in major courses					
Requirements				Complete the following:					
Doctrinal Foundation	#Classes	Hours	Classes	C S 124	Introduction to Computer Systems	3.0	C S 452	Database Modeling Concepts	3.0
Book of Mormon	2	4.0	Rel A 121/H and 122/H	C S 142	Introduction to Computer Programming	3.0	C S 456	Introduction to User Interface Software	3.0
New Testament	1	2.0	Rel A 211/H or 212/H	C S 235	Data Structures and Algorithms	3.0	C S 460	Computer Communications and Networking	3.0
Doctrine and Covenants	1	2.0	Rel C 324/H or 325/H	C S 236	Discrete Structures	3.0	C S 462	Large-Scale Distributed System Design	3.0
The Individual and Society				C S 240	Advanced Programming Concepts	3.0	C S 465	Computer Security	3.0
Wellness	1 or 3	1.5–2.0	from approved list	C S 252	Introduction to Computational Theory	3.0	C S 470	Introduction to Artificial Intelligence	3.0
Citizenship				C S 312	Algorithm Analysis	3.0	C S 476	Introduction to Data Mining	3.0
American Heritage	1–2	3–6.0	from approved list	C S 340	Software Design and Testing	3.0	C S 478	Intro Neural Networks & Machine Learning	3.0
Global & Cultural Awareness	1	3.0	from approved list	C S 345	Operating Systems Design	3.0	C S 486	Verification and Validation	3.0
Skills				C S 404	Ethics and Computers in Society	2.0	Ec En 425	Real-Time Operating Systems	4.0
Effective Communication				C S 455	Computer Graphics	3.0	Complete one additional course from the following:		
First-Year Writing	1	3.0	from approved list	Engr 316*	Technical Writing	3.0	C S 360	Internet Programming	3.0
Adv Written & Oral Communication	1	3.0	Engr 316*	Indes 251	2D Animation Fundamentals	2.0	C S 401R	Topics in Computer Science	3.0V
Quantitative Reasoning	0–1	0–4.0	Math 112* or 113*	Indes 255	Computer Graphics	2.0	C S 412	Modeling and Optimization	3.0
Languages of Learning (Math or Language)	1	4.0	Math 112* or 113*	Indes 455	Shader Programmer	2.0	C S 418	Bioinformatics	3.0
Arts, Letters, and Sciences				Math 112*	Calculus 1	4.0	C S 428	Software Engineering	3.0
Civilization 1	1	3.0	Mfg 201* or from approved list	Math 113*	Calculus 2	4.0	C S 431	Algorithmic Languages and Compilers	3.0
Civilization 2	1	3.0	ArtHc 202* or from approved list	Math 313	Elementary Linear Algebra	3.0	C S 450	Intro to Digital Signal & Image Processing	3.0
Arts	1	3.0	TMA 102*	Phscs 121*	Principles of Physics 1	3.0	C S 452	Database Modeling Concepts	3.0
Letters	1	3.0	from approved list	Stat 221	Principles of Statistics	3.0	C S 456	Introduction to User Interface Software	3.0
Scientific Principles & Reasoning				Note: Students who are wishing for a more advanced experience and are prepared, complete Stat 331, 332, or 441; for details see an advisor.			C S 460	Computer Communications & Networking	3.0
Biological Science	2	5.0	from approved list	TMA 102*	Introduction to Film	3.0	C S 462	Large-Scale Distributed System Design	3.0
Physical Science	2	6.0	Phscs 121* and one course from approved list	TMA 294	History of Animation	3.0	C S 465	Computer Security	3.0
Social Science	1	3.0	from approved list	VAStu 101	Intro to Drawing and Aesthetic Topics	3.0	C S 470	Introduction to Artificial Intelligence	3.0
Core Enrichment: Electives				Complete two courses from the following:			C S 476	Introduction to Data Mining	3.0
Religion Electives	3–4	6.0	from approved list	C S 360	Internet Programming	3.0	C S 478	Intro Neural Networks & Machine Learning	3.0
Open Electives	Variable	Variable	personal choice	C S 401R	Topics in Computer Science	3.0V	C S 486	Verification and Validation	3.0
GRADUATION REQUIREMENTS:				C S 412	Modeling and Optimization	3.0	C S 486	Verification and Validation	3.0
Minimum residence hours required		30.0		C S 418	Bioinformatics	3.0	C S 501R	Advanced Topics in Computer Science	3.0V
Minimum hours needed to graduate		120.0		C S 428	Software Engineering	3.0	C S 557	Computer-Aided Geometric Design	3.0
				C S 431	Algorithmic Languages & Compilers	3.0	C S 579	Natural Language Processing	3.0
				C S 450	Intro to Digital Signal & Image Processing	3.0	C S 598R	Special Projects	3.0V
				Note: If C S 401R is chosen, it must be taken for three hours.			EC En 425	Real-Time Operating Systems	4.0
							Indes 450	Animation Studio	3.0
							Indes 452	Animation Studio	3.0
							Note: If either C S 501R or 598R is chosen, it must be taken for three hours.		
							Complete one course from the following:		
							Arthc 111	Introduction to Art History	3.0
							Arthc 202*	World Civilization Since 1500	3.0
							Mfg 201*	History of Creativity 1	3.0
							SFL 102	Introduction to Interiors	3.0

*THESE CLASSES FILL BOTH UNIVERSITY CORE AND PROGRAM REQUIREMENTS (13-16.0 hours overlap)

FOR UNIVERSITY CORE OR PROGRAM QUESTIONS CONTACT THE ADVISEMENT CENTER

Physical and Mathematical Sciences College Advisement Center

N-179 ESC

Brigham Young University, Provo, UT 84602

Telephone: (801) 422-6270

FACULTY ADVISOR:

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2009–2010

Suggested Sequence of Courses:

FRESHMAN YEAR

1st Semester

C S 142 (FWSpSu)	3.0
1 st Year Writing	3.0
or A Htg 100	(3.0)
TMA 102	3.0
Math 112 (FWSpSu)	4.0
Rel A 121 (FWSpSu)	2.0
Total Hours	15.0

2nd Semester

C S 124 (FWSpSu)	3.0
C S 235 (FWSpSu)	3.0
A Htg 100	3.0
or 1 st Year Writing	(3.0)
Math 113 (FWSpSu)	4.0
Rel A 122 (FWSpSu)	2.0
Total Hours	15.0

SOPHOMORE YEAR

3rd Semester

C S 236 (FWSpSu)	3.0
VAStu 101	3.0
HEPE 129 (Wellness)	2.0
Phscs 121	3.0
Physical Science (Chem or Geol)	3.0
Rel A 211 or 212 (FWSpSu)	2.0
Total Hours	16.0

4th Semester

C S 240 (FWSu)	3.0
C S 252 (FWSp)	3.0
TMA 294	3.0
Stat 221 (FWSpSu)	3.0
Rel C 324 or 325	2.0
Total Hours	14.0

JUNIOR YEAR

5th Semester

C S 312 (FWSp)	3.0
C S 340 (FWSu)	3.0
Engl 316 (FWSpSu)	3.0
Math 313 (FWSp)	3.0
InDes 251	2.0
Religion Elective	2.0
Total Hours	16.0

6th Semester

C S 345 (FWSu)	3.0
Art History Pool Elective	3.0
Civilization 2 (ArtHC 202)	3.0
(if taken as art pool elective, take general elective)	
InDes 255	2.0
Computer Science Elective	3.0
Religion Elective	2.0
Total Hours	16.0

SENIOR YEAR

7th Semester

Civilization 1 (Mfg 201)	3.0
InDes 455	2.0
C S 455 (FWSp)	3.0
Letters	3.0
Religion Elective	2.0
Bio 100 (Biological Science)	3.0
Total Hours	16.0

8th Semester

C S 404 (FW)	2.0
Computer Science Elective	3.0
Computer Science Elective	3.0
Global and Cultural Awareness	3.0
Social Science	3.0
Total Hours	15.0

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.

For more information on careers in your major, please refer to *From Major to Career*, a publication which is located in all college advisement centers.

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.

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