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

Department of Computer Science

For students entering the degree program during the 2008–2009 curricular year.

UNIVERSITY CORE AND GRADUATION REQUIREMENTS

UNIVERSITY CORE REQUIREMENTS
(48.5 hours minimum)

Requirements	#Classes	Hours	Classes
Doctrinal Foundation			
Book of Mormon	2	4.0	Rel A 121/H *and* 122/H
New Testament	1	2.0	Rel A 211/H *or* 212/H
Doctrine and Covenants	1	2.0	Rel C 324/H *or* 325/H
The Individual and Society			
Wellness	1 or 3	1.5–2.0	from approved list
Citizenship			
American Heritage	1–2	3–6.0	from approved list
Global & Cultural Awareness	1	3.0	from approved list
Skills			
Effective Communication			
First-Year Writing	1	3.0	from approved list
Adv Written & Oral Communication	1	3.0	Engl 316*
Quantitative Reasoning	0–1	0–4.0	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	Mfg 201* or from approved list
Civilization 2	1	3.0	ArtHc 202* or from approved list
Arts	1	3.0	TMA 102*
Letters	1	3.0	from approved list
Scientific Principles & Reasoning			
Biological Science	2	5.0	from approved list
Physical Science	2	6.0	Phscs 121* and one course from approved list
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

GRADUATION REQUIREMENTS:

Minimum residence hours required	30.0
Minimum hours needed to graduate	120.0

PROGRAM REQUIREMENTS (79-80.0 total hours)

No D credit is allowed in major courses

Complete the following:

C S	124	Introduction to Computer Systems	3.0
C S	142	Introduction to Computer Programming	3.0
C S	235	Data Structures and Algorithms	3.0
C S	236	Discrete Structures	3.0
C S	240	Advanced Programming Concepts	3.0
C S	252	Introduction to Computational Theory	3.0
C S	312	Algorithm Analysis	3.0
C S	340	Software Design and Testing	3.0
C S	345	Operating Systems Design	3.0
C S	404	Ethics and Computers in Society	2.0
C S	455	Computer Graphics	3.0

Complete the following supporting courses:

Engl	316*	Technical Writing	3.0
Indes	251	2D Animation Fundamentals	2.0
Indes	255	Computer Graphics	2.0
Indes	455	Shader Programmer	2.0
Math	112*	Calculus 1	4.0
Math	113*	Calculus 2	4.0
Math	343	Elementary Linear Algebra	3.0
Phscs	121*	Principles of Physics 1	3.0
Stat	221	Principles of Statistics	3.0
	Note:	Students who are wishing for a more advanced experience and are prepared, complete Stat 321, 331, 332, or 441; for details see an advisor	
TMA	102*	Introduction to Film	3.0
TMA	294	History of Animation	3.0
VAStu	101	Intro to Drawing and Aesthetic Topics	3.0

Complete two courses from the following:

C S	360	Internet Programing	3.0
C S	401R	Topics in Computer Science	3.0V
C S	412	Modeling and Optimization	3.0
C S	418	Bioinformatics	3.0
C S	428	Software Engineering	3.0
C S	431	Algorithmic Languages & Compilers	3.0
C S	450	Intro to Digital Signal & Image Processing	3.0

Note: If C S 401R is chosen, it must be taken from three hours.

C S	452	Database Modeling Concepts	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	476	Introduction to Data Mining	3.0
C S	478	Intro Neural Networks & Machine Learning	3.0
C S	486	Verification and Validation	3.0
Ec En	425	Real-Time Operating Systems	4.0

Complete one additional course from the following:

C S	360	Internet Programming	3.0
C S	401R	Topics in Computer Science	3.0V
C S	412	Modeling and Optimization	3.0
C S	418	Bioinformatics	3.0
C S	428	Software Engineering	3.0
C S	431	Algorithmic Languages and Compilers	3.0
C S	450	Intro to Digital Signal & Image Processing	3.0
C S	452	Database Modeling Concepts	3.0
C S	456	Introduction to User Interface Software	3.0
C S	460	Computer Communications & 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	476	Introduction to Data Mining	3.0
C S	478	Intro Neural Networks & Machine Learning	3.0
C S	486	Verification and Validation	3.0
C S	501R	Advanced Topics in Computer Science	3.0V
C S	557	Computer-Aided Geometric Design	3.0
C S	579	Natural Language Processing	3.0
C S	598R	Special Projects	3.0V
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 each.

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:
Paul Roper
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BS in COMPUTER SCIENCE: Animation Emphasis (693223)
2008–2009

Suggested Sequence of Courses:

FRESHMAN YEAR

1st Semester	
C S 142 (FWSpSu)	3.0
1st 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 1st 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 343 (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	3.0
Letters	3.0
Religion Elective	2.0
Bio 100 (Biological Science)	3.0
Total Hours	**16.0**

8th Semester	
C S 404	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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