## **Bachelor of Science in Computer Science**



Catalog Year: 2016 Total Degree Credit Hours: 120

### **General Education Requirements** (See Degreeworks for Prerequisites)

A-1	ENGL 1101 Composition I	3	
	ENGL 1102 Composition II	3	
A-2	MATH 1112 College Trigonometry or	3	
	MATH 1113 Precalculus		

#### Area A: Essential Skills (9 credit hours)

All Area A courses must be completed within the first 30 credit hours with a grade of C or higher.

B-1	<b>ECON 1000</b> Contemporary Economic Issues		
B-2	COM 1100 Human Communication	3	

Area B: Institutional Options (5 credit hours)
COM 1100 is essential for Computer Science majors.

C-1	ENGL 2110, 2111, 2112, 2120, 2121, 2122,	3	
	<b>2130, 2131, 2132,</b> or <b>2300</b>		
C-2	ART 1107, MUSI 1107, DANC 1107, or TPS	3	
	1107		

Area C: Humanities, Fine Arts, and Ethics (6 cr hrs)
Choose one course from each area.

D-1	MATH 1190 Calculus I	4	
D-2	Group 1: BIOL 1107/L, CHEM 1211/L, or	8	
	PHYS 2211/L		
	Group 2: BIOL 1108/L, CHEM 1212/L, or		
	PHYS 2212/L		

Area D: Science, Math, and Technology (12 cr hrs)
Computer Science majors must complete a Science
sequence. "L" denotes the corresponding Lab course.

E-1	POLS 1101 American Government	3	
E-2	HIST 2111 or 2112 US History	3	
E-3	HIST 1100, 1111, or 1112 World History	3	
E-4	CRJU 1101, GEOG 1101, PSYC 1101, SOCI	3	
	1101, STS 1101, ANTH 1102, or ECON 2100		

#### Area E: Social Sciences (12 credit hours)

Choose one course from each area for E-2, E-3, & E-4.

## **Area F Lower Division Major Requirements**

#### Prerequisites

CSE 1321/L Programming & Problem Solving I	Co-req w/ MATH 1112, 1113, 1190 or CSE 1300	4	
CSE 1322/L Programming & Problem Solving II	Minimum grade of 'B' in CSE 1321/L	4	
MATH 2202 Calculus II	MATH 1190	4	
Science Major Course***  ***STUDENTS MUST COMPLETE AN ADDITIONAL LECTURE/LAB SCIENCE COURSE FROM THE OPTIONS LISTED IN AREA D, BUT IT MUST BE DIFFERENT FROM THE SCIENCES COURSES USED TO MEET THE AREA D SCIENCE SEQUENCE REQUIREMENTS.***	Varies	4	
Carryover credit hour from Area D Math	See Area D Math requirement	1	
Carryover credit hour from Area D Group 2 Science Lab	See Area D Science requirement	1	

CSE 1321/L and CSE 1322/L must have a minimum grade of 'B.'

Upon completing CSE 1322/L with a minimum grade of 'B,' students should request to have their major changed to the fully admitted Computer Science major.

	+:·/[	credit hours
Free E	ectives (5	o creait nours

CSE 1300 is <u>highly recommended</u> for students new to programming.

CSE 1321/L = CS 1301 STATS 1107 = STATS 1401
CSE 1322/L = CS 1302 ccse.kennesaw.edu/advising/courseupdates.php

# **Upper Division Major Courses**

Prerequisites

CS 3305	<b>L</b> Data Structures	CSE 1322/L & MATH 2345	4		All major courses	
CS 3503/L Computer Organization & Architecture CSE 1322/L		CSE 1322/L	4		must have a minimum grade	
<b>CS 3502</b> Operating Systems CS 3503/L & CS 3305/L		CS 3503/L & CS 3305/L	3		of 'C,' except for	
SWE 331	<b>.3</b> Intro to Software Engineering	CSE 1322/L	3		CSE 1321/L and	
CS 3410	Introduction to Database Systems OR <b>CSE 3153</b>	CSE 1322/L	3		CSE 1322/L, which	
CS 4306	Algorithm Analysis	CS 3305/L	3		must have a minimum grade	
CS 4504	Distributed Computing* or	CS 3502	3		of 'B.'	
CS 4720	Internet Programming*	CS 3305/L & (CS 3410/CSE 3153)				
CS 4308	CS 4308 Programming Languages CS 3503/L & CS 3305/L		3		****	
CSE 3801 Professional Practices and Ethics CSE 1322/L		2		*Alternative can be used as a		
CS 4850 Senior Project CS 3502 &S		CS 3502 &SWE 3313	3		Major Elective	
TCOM 2010 Technical Writing ENGL 1102		ENGL 1102	3			
MATH 2345 Discrete Mathematics MATH 1112, 1113, or 1190			3		Potential other	
MATH 3332 Probability and Inference MATH 2202		3		Upper-Level Math courses with		
	Upper Division Math Elective				coordinator	
	MATH 3260 Linear Algebra I	MATH 1190	3		approval.	
Choose	MATH 3261 Numerical Methods I	MATH 3260 & CSE 1321/L	3			
1	MATH 3272 Intro to Linear Programming	MATH 3260	3		Duamaniidhaa	
	Potentially other math courses at the 3000 or 4000 level				Prerequisites	

# Major Electives (Choose any 4 classes)

CS 4265 Big Data Analytics         CS 3305/L & CS 3410         3           CS 4267 Machine Learning         CS 3305/L & CS 3410         3           CS 4270 Intelligent Systems in Bioinformatics         CS 3305/L & CS 3410         3           CS 4322 Mobile Software Development         CS 3305/L & SWE 3313 & CS 3410/CSE 3153         3           CS 4400 Directed Studies         Varies         1-3           CS 4412 Data Mining         CS 3305/L & CS 3410         3           CS 4491 Special Topics         Varies         3           CS 4512 Systems Programming         CS 3502         3           CS 4514 Real-Time Systems         CS 3502         3           CS 4522 HPC & Parallel Programming         CS 3502         3           CS 4523 Programming Massively Parallel Processors         CS 3502         3           CS 4524 Cloud Computing         CS 3502         3           CS 4612 Secure Software Development         CS 3503/L         3           CS 4612 Secure Software Development         CS 3503/L         3           CS 4622 Computer Networks         CS 3503/L         3           CS 4712 User Interface Engineering         CS 1322/L         3           CS 4720 Internet Programming (only counts once)         CS 3305/L & CS 3410/CSE 3153         3           CS 4722	CS 4242 Artificial Intelligence	CS 3305/L	3	
CS 4270 Intelligent Systems in Bioinformatics CS 4322 Mobile Software Development CS 4322 Mobile Software Development CS 4305/L & SWE 3313 & CS 3410/CSE 3153 CS 4400 Directed Studies CS 4412 Data Mining CS 4491 Special Topics CS 4491 Special Topics CS 4512 Systems Programming CS 4512 Systems Programming CS 4514 Real-Time Systems CS 4522 HPC & Parallel Programming CS 4523 Programming Massively Parallel Processors CS 4523 Programming Massively Parallel Processors CS 4524 Cloud Computing CS 4524 Cloud Computing CS 4526 Computer Networks CS 4612 Secure Software Development CS 3503/L 3 CS 4612 Computer Networks CS 3503/L 3 CS 4712 User Interface Engineering CS 4712 User Interface Engineering CS 4720 Internet Programming (only counts once) CS 3305/L 3 CS 4732 Machine Vision CS 4732 Machine Vision CS 4733 Mobile & Casual Game Development CGDD 4003 SWE 3633 Software Architecture and Design SWE 3643 Embedded Systems Analysis & Design CS 3305/L 3 SWE 3635 Embedded Systems Analysis & Design	CS 4265 Big Data Analytics	CS 3305/L & CS 3410	3	
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CS 4400 Directed Studies  CS 4412 Data Mining  CS 4305/L & CS 3410  CS 4491 Special Topics  CS 4512 Systems Programming  CS 3502  CS 4514 Real-Time Systems  CS 3502  CS 4522 HPC & Parallel Programming  CS 3502  CS 4523 Programming Massively Parallel Processors  CS 4524 Cloud Computing  CS 3502  CS 4525  CS 4526 Computer Networks  CS 3502  CS 4527  CS 4612 Secure Software Development  CS 3503/L  CS 4622 Computer Networks  CS 3503/L  CS 4632 Modeling & Simulation  CS 3305/L  CS 4712 User Interface Engineering  CS 4720 Internet Programming (only counts once)  CS 3305/L  CS 4732 Machine Vision  CS 4732 Machine Vision  CS 3305/L	CS 4270 Intelligent Systems in Bioinformatics	CS 3305/L & CS 3410	3	
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CS 4722 Computer Graphics and Multimedia CS 3305/L 3  CS 4732 Machine Vision CS 3305/L 3  CGDD 4203 Mobile & Casual Game Development CGDD 4003 3  SWE 3633 Software Architecture and Design SWE 3313 3  SWE 3643 Software Testing & Quality Assurance SWE 3313 3  SWE 3683 Embedded Systems Analysis & Design CS 3305/L 3	CS 4712 User Interface Engineering	CSE 1322/L	3	
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SWE 3633 Software Architecture and Design SWE 3643 Software Testing & Quality Assurance SWE 3683 Embedded Systems Analysis & Design CS 3305/L 3	CS 4732 Machine Vision	CS 3305/L	3	
SWE 3643 Software Testing & Quality AssuranceSWE 33133SWE 3683 Embedded Systems Analysis & DesignCS 3305/L3	CGDD 4203 Mobile & Casual Game Development	CGDD 4003	3	
SWE 3683 Embedded Systems Analysis & Design CS 3305/L 3	SWE 3633 Software Architecture and Design	SWE 3313	3	
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SWE 4633 Component-Based Software Development CS 3305/L 3	SWE 3683 Embedded Systems Analysis & Design	CS 3305/L	3	
	SWE 4633 Component-Based Software Development	CS 3305/L	3	

All major courses must have a minimum grade of 'C,' except for CSE 1321/L and CSE 1322/L, which must have a minimum grade of 'B.'