

# 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 <i>or</i> MATH 1113 Precalculus	3	

### 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	ECON 1000 Contemporary Economic Issues	2	
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, 2130, 2131, 2132, <i>or</i> 2300	3	
C-2	ART 1107, MUSI 1107, DANC 1107, <i>or</i> TPS 1107	3	

### 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, <i>or</i> PHYS 2211/L	8	
	Group 2: BIOL 1108/L, CHEM 1212/L, <i>or</i> 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 <i>or</i> 2112 US History	3	
E-3	HIST 1100, 1111, <i>or</i> 1112 World History	3	
E-4	CRJU 1101, GEOG 1101, PSYC 1101, SOCI 1101, STS 1101, ANTH 1102, <i>or</i> ECON 2100	3	

### 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 <i>or</i> 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.

## Free Electives (5 credit hours)


CSE 1300 is highly recommended 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](http://ccse.kennesaw.edu/advising/courseupdates.php)

## Upper Division Major Courses

### Prerequisites

<b>CS 3305/L</b> Data Structures	CSE 1322/L & MATH 2345	4	
<b>CS 3503/L</b> Computer Organization & Architecture	CSE 1322/L	4	
<b>CS 3502</b> Operating Systems	CS 3503/L & CS 3305/L	3	
<b>SWE 3313</b> Intro to Software Engineering	CSE 1322/L	3	
<b>CS 3410</b> Introduction to Database Systems OR <b>CSE 3153</b>	CSE 1322/L	3	
<b>CS 4306</b> Algorithm Analysis	CS 3305/L	3	
<b>CS 4504</b> Distributed Computing* <i>or</i>	CS 3502	3	
<b>CS 4720</b> Internet Programming*	CS 3305/L & (CS 3410/CSE 3153)		
<b>CS 4308</b> Programming Languages	CS 3503/L & CS 3305/L	3	
<b>CSE 3801</b> Professional Practices and Ethics	CSE 1322/L	2	
<b>CS 4850</b> Senior Project	CS 3502 & SWE 3313	3	
<b>TCOM 2010</b> Technical Writing	ENGL 1102	3	
<b>MATH 2345</b> Discrete Mathematics	MATH 1112, 1113, or 1190	3	
<b>MATH 3332</b> Probability and Inference	MATH 2202	3	
<b>Upper Division Math Elective</b>			
Choose 1	<b>MATH 3260</b> Linear Algebra I	MATH 1190	3
	<b>MATH 3261</b> Numerical Methods I	MATH 3260 & CSE 1321/L	3
	<b>MATH 3272</b> Intro to Linear Programming	MATH 3260	3
	<b>Potentially other math courses at the 3000 or 4000 level</b>		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.'

\*Alternative can be used as a Major Elective

Potential other Upper-Level Math courses with coordinator approval.

Prerequisites

## Major Electives (Choose any 4 classes)

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