

Bachelor of Science in Computer Science



Updated 4/21/2021

Catalog Year: 2021

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 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	AADS/AMST/ASIA/GWST/LALS/PAX/RELS 1102, COM 1100, FL 1002, LDRS 2300, PERS 2700, or POLS 2401	3	

Area B: Institutional Options (5 credit hours)

Choose 1 course from B-2. COM 1100 is recommended.

C-1	ENGL 2110, 2120, 2130, 2300, or PHIL 2010	3	
C-2	ART 1107, MUSI 1107, DANC 1107, or 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	BIOL 1107/L, BIOL 1108/L, CHEM 1211/L, CHEM 1212/L, PHYS 1111/L, PHYS 2211/L, PHYS 1112/L or PHYS 2212/L	8	

Area D: Science, Math, and Technology (12 cr hrs)

Choose any two 4 credit hour science courses. A sequence is not necessary. "L" denotes the corresponding Lab course. Students **may not** take both PHYS 1111/L and PHYS 2211/L or PHYS 1112/L and PHYS 2212/L. PHYS 2211/L and 2212/L are recommended.

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 1101, STS 1101, ANTH 1102, or ECON 2106	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	Lecture & Lab must be taken concurrently	4	
CSE 1322/L Programming & Problem Solving II	Min. grade of 'B' in CSE 1321/L & MATH 1113/1190/2202*	4	
MATH 2202 Calculus II	MATH 1190	4	
MATH 2345 Discrete Mathematics	MATH 1113 or 1190	3	
TCOM 2010 Technical Writing	ENGL 1102	3	

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

*Concurrent prerequisite

Free Electives (5 credit hours)

CSE 1300 is highly recommended for students who are new to programming and have available free elective credits to complete.

Upper Division Major Courses

Prerequisites

Course	Prerequisites	Credits	
CS 3305 Data Structures	MATH 2345 & CSE 1322/L	3	
CS 3503 Computer Organization & Architecture	CSE 1322/L	3	
CS 3502 Operating Systems	CS 3503 & CS 3305	3	
SWE 3313 Intro to Software Engineering	CSE 1322/L	3	
CS 3410 Introduction to Database Systems	CSE 1322/L	3	
CS 3622 Fundamentals of Data Communications	CSE 1322/L	3	
CS 4306 Algorithm Analysis	CS 3305	3	
CS 4504 Parallel and Distributed Computing	CS 3305, CS 3503, CS 3502 *	3	
CS 4308 Concepts of Programming Languages	CS 3503 & CS 3305	3	
CSE 3801 Professional Practices and Ethics	CSE 1322/L	2	
CS 4850 Senior Project	CS 3502 & SWE 3313	3	
STAT 2332 Probability and Data Analysis	MATH 1190	3	
MATH 3260 Linear Algebra I	MATH 1190	3	

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

+ 1 hour from MATH 1190
+ 1 hour from the second science lab (C or better)

Major Electives OR Concentration (15 credit hours)

Students must complete at least 9 credit hours 'CS' prefix courses. You may mix and match electives OR complete all requirements of one of the listed concentrations. If you aren't doing a concentration, you may still take **CS courses** listed within the concentrations as elective credits.

Choose a concentration

Data Science

Prerequisites

1	CS 4265 Big Data Analytics	CS 3305 & CS 3410	
2	CS 4412 Data Mining	CS 3305 & CS 3410	
3	CS 4422 Information Retrieval	CS 3305 & CS 3410	
4	CS 4522 HPC & Parallel Prog.	CS 4504	
5	Choose 1		
	CS 4524 Cloud Computing	CS 4504	
	CS 4722 Comp. Graphics & Multimedia	CS 3305	
	Additional options below		

Cyber and Network Security

Prerequisites

1	CS 3626 Cryptography	MATH 2345 & CS 3305*	
2	CS 4612 Software Security	CS 3502 & CS 3626	
3	CS 4622 Computer Networks	CS 3503 & CS 3622	
4	CS 4626 Computer & Network Sec.	CS 3626 & CS 4622	
5	Choose 1		
	IT 4823 Information Security Admin	MATH 2345, CSE 3153, & CS 3503	
	IT 4833 Wireless Security	CS 4622	
	IT 4843 Ethical Hacking	CS 4622	
	IT 4853 Computer Forensics	CS 4622	
	IT 4883 Infrastructure Defense	CS 4622	
	Additional options below		

Additional 5th course options for any concentration: CS 4491 Adv. Topics in CS, CS 4492 Research, and CSE 4983 Computing Internship

Artificial Intelligence

Prerequisites

1	CS 3642 Artificial Intelligence	CS 3305	
2	CS 4267 Machine Learning	CS 3642	
3	CS 4732 Machine Vision	CS 3642	
4	CS 4742 Natural Language Processing	CS 3642	
5	Choose 1		
	CS 4277 Deep Learning	CS 3642 & CS 4267*	
	Additional options below		

OR

Choose 5 electives

Course

Prerequisites

CS		
CS		
CS		

You may choose from any CS 3000 or 4000 level course not already required, including concentration courses. All CS courses are 3 hours, except CS 4400 Directed Studies, which can be 1-3 hours. You may choose up to 6 credit hours from the list below.

Prerequisites

SWE 3633 Software Architecture and Design	SWE 3313 or CPE 3000
SWE 3643 Software Testing & Quality Assurance	SWE 3313 or CPE 3000
SWE 3683 Embedded Systems Analysis & Design	CS 3305
SWE 4633 Cloud Software Development	CS 3305
CSE 4983 Computing Internship	Dept. Approval