

Bachelor of Science in Software Engineering



Updated 7/16/2024

Catalog Year: 2024-2025

Total Degree Credit Hours: 120

<p>I Institutional Priority</p>	<p>2 Classes 5 Credit Hours</p>	<p>Complete the following course: ECON 1000</p>	<p>AND</p>	<p>Complete <u>one</u> course from the following: AMST 1102, ASIA 1102, BLCK 1102, COMM 1100, GWST 1102, LALS 1102, LDRS 2300, PAX 1102, ISD 2700, POLS 2401, RELS 1102</p>
<p>M Mathematics & Quantitative Skills</p>	<p>1 Class 3- 4 Credit Hours</p>	<p>Complete the following course: MATH 1190</p> <p><i>Computing-related Science Majors: Students must take MATH 1113 or higher</i> <i>Computing-related Engineering Majors: Students must take MATH 1190 or higher</i></p>		
<p>P Political Science and U.S. History</p>	<p>2 Classes 6 Credit Hours</p>	<p>Complete the following course: POLS 1101</p>	<p>AND</p>	<p>Complete <u>one</u> course from the following: HIST 2111, HIST 2112</p>
<p>A Arts, Humanities, and Ethics</p>	<p>2 Classes 6 Credit Hours</p>	<p>Select <u>one</u> course from the following: CHIN 1001 or CHIN 1002, ENGL 2110, ENGL 2120, ENGL 2130, ENGL 2140, FREN 1001 or FREN 1002, GRMN 1001 or GRMN 1002, HEBR 1001 or HEBR 1002, ITAL 1001 or ITAL 1002, JAPN 1001 or JAPN 1002, KOR 1001 or KOR 1002, LATN 1001 or LATN 1002, PHIL 2010, PORT 1001 or PORT 1002, RUSS 1001 or RUSS 1002, SPAN 1001 or SPAN 1002, WLC 1002, WLC 2209</p>	<p>AND</p>	<p>Complete <u>one</u> course from the following: ART 1107, DANC 1107, MUSI 1107, TPS 1107</p>
<p>C Communication in Writing</p>	<p>2 Classes 6 Credit Hours</p>	<p>Complete the following course: ENGL 1101</p>	<p>AND</p>	<p>Complete the following course: ENGL 1102</p>
<p>T Technology, Mathematics, and Science</p>	<p>3 Classes 10-12 Credit Hours</p>	<p>Complete the following course: MATH 2202</p> <p><i>Computing-related Science Majors: Students must take MATH 1190 or higher</i> <i>Computing-related Engineering Majors: Students must take MATH 2202</i></p>	<p>AND</p>	<p>Science Majors and Engineering Majors: Select <u>two</u> course pairs from the following (8 Credit Hours) CHEM 1211 and CHEM 1211L CHEM 1212 and CHEM 1212L PHYS 1111 and PHYS 1111L PHYS 1112 and PHYS 1112L PHYS 2211 and PHYS 2211L PHYS 2212 and PHYS 2212L BIOL 1107 and BIOL 1107L BIOL 1108 and BIOL 1108L <i>Please note: Students cannot take both PHYS 1111/L and PHYS 2211/L nor PHYS 1112/L and PHYS 2212/L.</i></p>
<p>S Social Sciences</p>	<p>2 Classes 6 Credit Hours</p>	<p>Complete <u>one</u> course from the following: HIST 1100, HIST 1111, HIST 1112</p>	<p>AND</p>	<p>Complete <u>one</u> course from the following: CRJU 1101, GEOG 1101, PSYC 1101, SOCI 1101, STS 1101, ANTH 1102, ECON 2106</p>

Core Field of Study

	Prerequisites		
CSE 1321/L Programming & Problem Solving I	Lecture and Lab must be taken at the same time	4	
CSE 1322/L Programming & Problem Solving II	Minimum grade of 'B' in CSE 1321/L & (MATH 1113 or 1190 or 2202)*	4	
MATH 2345 Discrete Mathematics <i>or</i> CSE 2300 Discrete Structures for Computing	MATH 1113 or 1190 (MATH 1113 or 1190) & Minimum grade of 'B' in CSE 1321/L	3	
TCOM 2010 Technical Writing	ENGL 1102	3	
STAT 2332 Probability and Data Analysis	MATH 1190	3	
+ 1 hour from Technology, Mathematics, and Sciences (MATH 1190)	MATH 1113	1	

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

* - can be taken before or at the same time

Free Electives (5 credit hours)

Select 5 credit hours of 1000-4000 level coursework from the University Catalog.

Major Requirements

	Prerequisites		
Math/Science Electives (8 hours total) Make an appointment with a CCSE Academic Advisor to discuss the course options for this requirement	Varies	4	
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CSE 3153 Database Systems	CSE 1322/L	3	
CSE 3801 Professional Practices and Ethics	CSE 1322/L	2	
CS 3305 Data Structures	(MATH 2345 or CSE 2300) & (CSE 1322/L or MTRE 2610 or CPE 3000)	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	
SWE 3623 Software Systems Requirements	CPE 3000 or (SWE 3313 & (MATH 2345 or CSE 2300))	3	
SWE 3633 Software Architecture and Design	SWE 3313 or CPE 3000	3	
SWE 3643 Software Testing & Quality Assurance	SWE 3313 or CPE 3000	3	
SWE 4324 User-Centered Design	SWE 3313	3	
SWE 4663 Software Project Management	SWE 3313 & STAT 2332	3	
SWE 4713 SWE Application Domain	SWE 3623, SWE 3643© & SWE 4663©	3	
SWE 4724 Software Engineering Capstone Project	SWE 3623, SWE 3643© & SWE 4663©	4	
+ 2 hours from Technology, Mathematics, and Sciences	See IMPACTS requirements	2	

All major courses must have a minimum grade of 'C,' except for MTRE 2610, CPE 3000, CSE 1321/L and CSE 1322/L, which must have a minimum grade of 'B.'

(MATH 2345/CSE 2300) denotes either course will complete the 2nd part of the prerequisite requirement.

© = concurrent permitted

Upper Level Electives (Choose 2 courses, one from List 1 and one from List 1 or 2)

List 1 (Choose 1 or 2 courses)

Prerequisites

Course	Prerequisites	Credits	
SWE 3683 Embedded Systems Analysis & Design	CS 3305	3	
SWE 4633 Cloud Software Development	CS 3305	3	
SWE 4723 Undergraduate Research Methods	SWE 3313 or instructor permission	3	
SWE 4743 Object-Oriented Development	CS 3305	3	
SWE 4783 User Interaction Engineering	SWE 3313 or SWE 4324	3	
SWE 4490 Special Topics	Varies	3	
SWE 4803 Independent Study	Varies	3	
CS 4720 Internet Programming	CS 3305 & (CS 3410 or CSE 3153)	3	
CS 4524 Cloud Computing	CS 4504	3	
CS 4514 Real-Time Systems	CS 3502	3	
CS 4612 Software Security	CS 3502 & CS 3626	3	
CS 4632 Modeling & Simulation	CS 3305	3	
CS 4712 User Interface Engineering	CSE 1322/L	3	
CS 4308 Concepts of Programming Languages ^	CS 3305 & CS 3503	3	
CSE 4983 CSE Computing Science Internship	Department Permission	3	

Each SWE-prefix elective will be offered at least once every 2 years, including summer (online and F2F)

^ = Offered Fall and Spring Semesters Online

CS 4720 will need a registration override if you took CSE 3153.

List 2 (Choose 0 or 1 courses)

Prerequisites

Course	Prerequisites	Credits	
CS 4504 Parallel & Distributed Computing ^	CS 3305 & 3503, CS 3502 ©	3	
CS 4523 Programming Massively Parallel Processors	CS 3305 & CS 3502	3	
CS 4622 Computer Networks	CS 3503 & CS 3622	3	
CS 4722 Computer Graphics and Multimedia	CS 3305	3	
CS 4732 Machine Vision	CS 3642	3	
IT 4823 Info Security Admin & Privacy ^	(CSE 2300 or MATH 2345) and (CS 3503 or IT 3123)	3	
IT, CS, CGDD 4000 level course	Program Coordinator Approval	3	