SCHOOL OF COMPUTING UNDERGRAD COURSE OFFERING LIST FOR CS MAJORS Availability subject to change 09.04.2019

Required Core Courses

Course #	Course Name	Credits	Semester	Required Pre-Reqs (C- minimum grade needed)
CS 1030	Foundations of Computer Science	3	Fall/ Spring	Co-Req: Math 1060 or Math 1080
CS 1410	Intro. to Object-Oriented Prog.	4	Fall/ Spring	CS 1030, Co-Req: Math 1210
CS 2100	Discrete Structures	3	Fall/ Spring	CS 1410, Math 1210
CS 2420	Intro. to Algrthms & Data Structures	4	Fall/ Spring	CS 1410
CS 3500	Software Practice	4	Fall/ Spring	CS 2420 & major/minor status
CS 3505	Software Practice II	3	Fall/ Spring	CS 3500 & major status
CS 3810	Computer Organization	4	Fall/ Spring	CS 2420 & major status
CS 4150	Algorithms	3	Fall/ Spring	CS 2100, CS 3500 & major status
CS 4400	Computer Systems	4	Fall/ Spring	CS 3810
*CS 4000	Senior Capstone Design (CS)	3	Fall/ Spring	CS 3505 & (WRTG 3012, 3014, 3015 OR FA 3600) & major status
CS 4500	Senior Capstone Project (CS)	3	Fall/ Spring	CS 4000 & major status

Elective Courses

Course #	Course Name	Credits	Semester	Required Pre-Reqs (C- minimum grade needed)
CS 3020	Research Forum	1	Fall	CS 2420 & major status
CS 3100	Models of Computation	3	Fall	CS 2100 & major status
CS 3190	Foundations of Data Analysis	3	Fall	CS 2100, CS 2420 & Math 2270; Co-Reqs: CS 3130/ECE 3530 or Math 3070
CS 3520	Programming Language Concepts	3	Fall	CS 3500 & major status
CS 3540	Human/ Computer Interaction	3	Fall	CS 2420 & major status
CS 3710	Computer Design Lab	3	Fall	CS 3700, CS 3810 & major status
CS 4190	Programming Challenges	2	Fall	Instructor consent
CS 4230	Parallel Programming	3	Fall	CS 3505 & CS 3810
CS 4540	Web Software Architecture	3	Fall	CS 3500 & major status
CS 4600	Intro Computer Graphics	3	Fall	CS 3500, Math 2270 or 2250 & major status
CS 4640	Image Processing Basics	3	Fall	CS 2420 & major status
CS 5150	Advanced Algorithms	3	Fall	CS 4150 & major status
CS 5310	Robotics	3	Fall	Math 2270 or 2250, Phys 2210 & major status
CS 5340	Natural Language Processing	3	Fall	CS 3505, CS 3100 & major status
CS 5490	Network Security	3	Fall	CS 4480 or instructor consent
CS 5630	Visualization for Data Science	3	Fall	CS 3500 & major status
CS 5710	Digital VLSI Design	4	Fall	CS 3700 & major status
CS 5785	Advanced Embedded Software	3	(every other) Fall	CS 5780 & major status
CS 3011	Industry Forum	1	Spring	CS 2420 & major status
CS 3200	Scientific Computing	3	Spring	CS 1410 & Math 2270
CS 3700	Digital System Design	4	Spring	PHYS 2220 & major status
CS 4300	Artificial Intelligence	3	Spring	CS 3505, CS 4150, CS 3130 & major status
CS 4440	Computer Security	3	Spring	CS 3505 & CS 3810
CS 4470	Compilers	3	(every other) Spring	CS 3100 & CS 4400 & major status
CS 4480	Computer Networks	3	Spring	CS 3500 & major status
CS 5100	Theory of Computation	3	Spring	CS 3100, CS 4150 & major status
CS 5140	Data Mining	3	Spring	CS 3500 & CS 3190
CS 5460	Operating Systems	3	Spring	CS 4400 & major status
CS 5530	Database Systems	3	Spring	CS 3500 & major status
CS 5610	Interactive Comp Graph	3	Spring	CS 4600 & major status
CS 5650	Perception for Graphics	3	Spring	
CS 5720	Analog IC Design	3	Spring	ECE 3110 & major status
CS 5750	Syn/Verif Asyn VLSI Sys	3	Spring	CS 3700 & major status
CS 5780	Embedded Sys Design	4	Spring	CS 3810, CS 4400 or 2000 & major status
CS 5830	VLSI Architecture	3	Spring	CS 3700, CS 3810 & major status
CS 3470	Scripting Language Design/ Implementation	4	Varies	CS 2100 & major status
CS 4010	CS Internship	1-3	Fall/ Spring / Summer	CS 3505 & director approval
CS 4530	Mobile Application Programming	3	Fall/ Spring	CS 3505 & major status (Fall Android/Spring iOS)
CS 5110	Rigorous System Design	3	Varies	CS 3100 & CS 4400
CS 5320	Computer Vision	3	Varies	CS 3505, Math 2270 or 2250 & major status
CS 5350	Machine Learning	3	Fall/ Spring	CS 3500 & CS 3190
CS 5740	Computer Design Digital Circuits	3	Varies	CS 3700 & major status
CS 5745	Testing & Verification Digital Circuits	3	Varies	CS 2420 & major status
CS 5755	Async Circuit Design	3	Varies	CS 3700 & CS 5710 or CS 5780
CS 5789	Embedded Systems & Kinetic Art	3	Varies	CS 2420 & major status

* Students should have four or less CS electives/ required courses left when signing up for this course and should be graduating during the following semester.