SCHOOL OF COMPUTING UNDERGRAD COURSE OFFERING LIST FOR SD MAJORS Availability subject to change 03.03.2023

Required Core Courses				
Course #	**Course Name**	**Credits**	**Semester**	**Required Pre-Reqs (C- minimum grade needed)**
CS 1400	Introduction to Computer Programming	4	Fall/Spring	Co-Req: Math 1050
CS 1410	Intro to Object-Oriented Programming	4	Fall/Spring	CS 1400, Co-Req: Math 1060
CS 1420	Accelerated Intro to Object-Oriented Prog	4	Fall/Spring	Co-Req: Math 1060
CS 1810	Foundations of SD	3	Spring	none
CS 2420	Intro to Algrithms & Data Structures	4	Fall/Spring	CS 1400 & CS 1410 or CS 1420
DS 2500	Data Wrangling	3	Spring	CS 1400 & CS 1410 or CS 1420
CS 3090	Ethics in Computing	3	Spring	CS 2420 & major status
CS 3500	Software Practice	4	Fall/Spring	CS 2420 & major status
CS 3505	Software Practice II	3	Fall/Spring	CS 3500 & major status
CS 3520	Programming Language Concepts	3	Fall	CS 3500 & major status
CS 3540	Designing Human-Centered Experiences	3	Fall/Spring	CS 2420 & major status
CS 3550	Web Software I (for now CS 4540 will count)	3	Fall	CS 3500 & major status
CS 4011	Professional Development	1	Spring	CS 2420 & major status
CS 4440	Computer Security	3	Fall/Spring	CS 3500 & major status
CS 4530	Mobile Application Programming	3	Varies	CS 3505 & major status
CS 4550	Web Software II	3	Spring	CS 3550 & major status
*CS 4000	Senior Capstone Design (CS)	3	Fall/Spring	CS 3505 & (WRTG 3014, 3015 OR HONOR 3200) & major status
CS 4500	Senior Capstone Project (CS)	3	Fall/Spring	CS 4000 & major status
CS 5530	Database Systems	3	Spring	CS 3500 & major status
CS Elective Courses (3000+ level CS courses)				
Course #	**Course Name**	**Credits**	**Semester**	**Required Pre-Reqs (C- minimum grade needed)**
CS 3100	Models of Computation	3	Fall/Spring	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 3200	Scientific Computing	3	Spring	Math 2270 & major status
CS 3520	Programming Language Concepts	3	Fall	CS 3500 & major status
CS 3700	Digital System Design	4	Spring	PHYS 2220 & major status
CS 3710	Computer Design Lab	3	Fall	CS 3700, CS 3810 & major status
CS 4010	CS Internship	3	Summer	CS 3505 & director approval
CS 4230	Parallel Programming	3	Fall	CS 3505 & CS 3810
CS 4300	Artificial Intelligence	3	Fall	CS 3500, CS 4150, CS 3130 & major status
CS 4470	Compilers	3	(every other) Spring	CS 3100, CS 4400 & major status
CS 4480	Computer Networks	3	Spring	CS 3500 & major status
CS 4560	Web Browser Internals	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 5100	Theory of Computation	3	Spring	CS 3100, CS 4150 & major status
CS 5110	Rigorous System Design	3	Varies	CS 3100 & CS 3500 & CS 4150
CS 5140	Data Mining	3	Spring	CS 3500, CS 3190 & 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 5320	Computer Vision	3	Varies	CS 3505, Math 2270 or 2250 & major status
CS 5340	Natural Language Processing	3	Fall	CS 3505 & major status
CS 5350	Machine Learning	3	Fall/Spring	CS 3500 & CS 3190
CS 5353	Deep Learning	3	Fall	CS 3500 & (MATH 1250 & 1260) or (MATH 1311 & MATH 1321) or MATH 2210
CS 5360	Virtual Reality	3	Fall	CS 3500 & major status
CS 5460	Operating Systems	3	Spring	CS 4400 & major status
CS 5490	Network Security	3	Fall	CS 4480 or instructor consent
CS 5610	Interactive Comp Graph	3	Spring	CS 3500, Math 2270 or 2250 & major status
CS 5630	Visualization for Data Science	3	Fall	CS 3500 & major status
CS 5635	Visualization for Scientific Data	3	Varies	CS 3500 & Math 1220
CS 5710	Digital VLSI Design	4	Fall	CS 3700 & major status
CS 5720	Analog IC Design	3	Spring	ECE 3110 & major status
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 5750	Syn/Verif Asyn VLSI Sys	3	Spring	CS 3700 & major status
CS 5780	Embedded System Design	4	Spring	CS 3810 or CS 4400 & major status
CS 5789	Embedded Systems & Kinetic Art	3	Varies	CS 2420 & major status
CS Elective Courses that will also count for the university Quantitative Intensive (QI) general education requirement				
CS 3100	Models of Computation	3	Fall/Spring	CS 2100 & major status
CS 3130	Engineering Probability & Statistics	3	Fall/Spring	Math 1220 & Major Status
CS 3700	Digital System Design	4	Spring	PHYS 2220 & 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	3	Fall/Spring	CS 3810
Design/Management/Entrepreneurship Options				
Course #	**Course Name**	**Credits**	**Semester**	**Required Pre-Reqs (C- minimum grade needed)**
DES 1630	Rapid Visualization	1.5	none?	none
DES 2615	Intro to Design Thinking	3	Fall/Spring	none
MGT 3000	Principles of Management	3	Fall/Spring	none
ENTP 1020	Entrepreneurship and Startup Methods	3	Fall/Spring/Summer	none
ENGIN 5020	Emerging Tech & Engineer Entrepreneurship	3	Fall	none
ENGIN 5030	Patent Law and Strategy	3	Spring	none
ENGIN 5790	The Business of Entrepreneurship	3	Spring	none
ENGIN 5791	Launching Technology Ventures	3	Fall	none listed, but 2nd half of 2-semester sequence with ENGIN 5790

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