

SCHOOL OF COMPUTING UNDERGRAD COURSE OFFERING LIST FOR **DS** MAJORS

Availability subject to change

02.01.2021

<i>Pre-major Courses</i>				
<b>Course #</b>	<b>Course Name</b>	<b>Credits</b>	<b>Semester</b>	<b>Required Pre-Reqs (C minimum grade needed)</b>
CS 1030	Foundations of Computer Science	3	Fall/ Spring	Co-Req: Math 1060 or Math 1080
CS 1400	Introduction to Computer Programming	3	Fall/ Spring	Co-Req: Math 1060 or Math 1080
CS 1410	Intro to Object-Oriented Programming	4	Fall/ Spring	CS 1400; Co-Req: Math 1210
CS 1420	Accelerated Intro to Object-Oriented Programming	4	Fall/ Spring	Co-Req: Math 1210
CS 2100	Discrete Structures	3	Fall/ Spring	CS 1410 or CS 1420 & Math 1210
CS 2420	Intro to Algorithms & Data Structures	4	Fall/ Spring	CS 1400 & CS 1410 or CS 1420
<i>Required Core Courses</i>				
<b>Course #</b>	<b>Course Name</b>	<b>Credits</b>	<b>Semester</b>	<b>Required Pre-Reqs (C minimum grade needed)</b>
DS 2500	Data Wrangling	4	Spring	CS 1410
CS 3190	Foundations of Data Analysis	3	Fall	CS 2100, CS 2420 & Math 2270; Co-Reqs: CS 3130/ECE 3530 or Math 3070
CS 3500	Software Practice	4	Fall/Spring	CS 2420 & major status
CS 4150	Algorithms	3	Fall/Spring	CS 2100, CS 3500 & major status
CS 3390	Ethics in Data Science	3	Fall	Major status
CS 5140	Data Mining	3	Spring	CS 3500, CS 3190 & major status
CS 5350	Machine Learning	3	Fall/Spring	CS 3500 & CS 3190
CS 5530	Database Systems	3	Spring	CS 3500 & major status
CS 5630	Visualization for Data Science	3	Fall	CS 3500 & major status
*CS 4000	Senior Capstone Design (CS)	3	Fall/Spring	CS 3505 & (WRTG 3012, 3014, or 3015) & major status
CS 4500	Senior Capstone Project (CS)	3	Fall/Spring	CS 4000 & major status
<i>Elective - Data Analysis Breadth (choose 3)</i>				
<b>Course #</b>	<b>Course Name</b>	<b>Credits</b>	<b>Semester</b>	<b>Required Pre-Reqs (C minimum grade needed)</b>
CS 3540	Human/Computer Interaction	3	Fall	CS 2420 & major status
CS 4300	Artificial Intelligence	3	Spring	CS 3505, CS 4150, CS 3130 & major status
CS 4640	Image Processing Basics	3	Fall	CS 2420 & major status
CS 5150	Advanced Algorithms	3	Fall	CS 4150 & major status
CS 5340	Natural Language Processing	3	Fall	CS 3505, CS 3100 & major status
CS 5635	Visualization for Scientific Data	3	Varies	CS 3500 & Math 1220
Math 5010	Introduction to Probability	3	Fall/Spring/Summer	Math 2210 or 1260 or 1321 or 3140
Math 5040	Stochastic Processes and Simulation I	3	Fall	Math 5010
Math 5080	Statistical Inference I	3	Fall/Spring	Math 5010
Math 5090	Statistical Inference II	3	Fall/Spring	Math 5080
Math 5770	Intro to Optimization	3	Fall	Math 2270
<i>Elective - Data Domain (choose 3)</i>				
<b>-See Data Domain Elective Sheet-</b>				

\* Students should take CS 4000 their 2nd to last semester and CS 4500 their last semester.

**[Click here for Data Domain courses](#)**