

SCHOOL OF COMPUTING UNDERGRAD COURSE OFFERING LIST FOR DS MAJORS <i>Availability subject to change Updated: 09/27/2022</i>				
Course #	Course Name	Credits	Semester	Required Pre-Reqs (C minimum grade needed)
<i>Pre-Major Courses</i>				
CS 1400	Introduction to Computer Programming	4	Fall/Spring	Co-requisite: MATH 1050
CS 1410	Intro. to Object-Oriented Programming	4	Fall/Spring	CS 1400; Co-Req: MATH 1060
CS 1420	Accelerated Object-Oriented Programming	4	Fall/Spring	Co-requisite: MATH 1060
CS 2420	Intro. to Algorithms & Data Structures	4	Fall/Spring	CS 1400 & 1410 OR CS 1420
<i>Analytical Foundations</i>				
CS 2100	Discrete Structures	3	Fall/Spring	CS 1410 OR CS 1420 & Math 1210
MATH 2270	Linear Algebra	4	Fall/Spring/Summer	MATH 1220 (w/B) OR MATH 1320 OR MATH 2210
MATH 3070	Applied Statistics I	4	Fall/Spring/Summer	MATH 1220 OR MATH 1320 OR MATH 2210
MATH 3080	Applied Statistics II	3	Spring	MATH 3070
DS 3190	Foundations of Data Analysis	3	Fall	CS 2100, CS 2420, MATH 2270 & Full Major Status; Co-Req: CS 3130 OR MATH 3070
<i>Computing Foundations</i>				
DS 2500	Data Wrangling	4	Spring	CS 1410 OR CS 1420
CS 3500	Software Practice	4	Fall/Spring	CS 2420 & Full Major Status
CS 4150	Algorithms	3	Fall/Spring	CS 2100, CS 3500 & Full Major Status
<i>Core Data Science</i>				
DS 3390	Ethics in Data Science	3	Fall	CS 2420 & Full Major Status
DS 4140	Data Mining	3	Spring	CS 3500 and DS 3190 and Full Major Status
DS 4350	Machine Learning	3	Fall/Spring	CS 3500 & DS 3190
DS 4530	Database Systems	3	Spring	CS 3500 & Full Major Status
DS 4630	Visualization for Data Science	3	Fall	CS 3500 & Full Major Status
<i>Data Analysis Breadth</i>				
CS 3540	Designing Human-Centered Experiences	3	Fall	CS 2420 & Full Major Status
CS 4300	Artificial Intelligence	3	Fall	CS 3500 & CS 4150 & CS 3130 & Full Major Status
CS 4640	Image Processing Basics	3	Fall	CS 2420 & Full Major Status
CS 5150	Advanced Algorithms	3	Fall	CS 4150 & Full Major Status
CS 5340	Natural Language Processing	3	Fall	CS 3505 & Full Major Status
CS 5635	Visualization for Scientific Data	3	Varies	CS 3500 & Math 1220
MATH 5010	Intro to Probability	3	Fall/Spring/Summer	MATH 2210 OR MATH 2310 OR MATH 3140
MATH 5040	Stochastic Processes 1	3	Fall	MATH 5010
MATH 5080	Statistical Inference 1	3	Fall/Spring	MATH 5010
MATH 5090	Statistical Inference 2	3	Fall/Spring	MATH 5080
MATH 5770	Optimization	3	Fall	MATH 2270
CS 6190, CS 6530 and CS 6640 also accepted		3	Varies	Instructor Consent
<i>Capstone Requirements</i>				
*DS 4800	Senior Capstone Design	3	Fall/Spring	WRTG 3014 OR 3015 & Full Major Status
*DS 4850	Senior Capstone Project	3	Fall/Spring	DS 4800 & Full Major Status
* Students should take DS 4800 their 2nd to last semester and DS 4850 their last semester.				
Note: there may be classes not on this list which could be approved to count toward the DS degree.				