

SCHOOL OF COMPUTING UNDERGRAD COURSE OFFERING LIST FOR DS MAJORS

Availability subject to change

Updated: June 02, 2020

<i>Required CORE Courses</i>				
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 Programming	4	Fall/Spring	CS 1030; Co-Req: MATH 1310
CS 2100	Discrete Structures	3	Fall/Spring	CS 1410, MATH 1310
CS 2420	Intro. to Algorithms & Data Structures	4	Fall/Spring	CS 1410
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
DS 2500	Data Wrangling	4	Spring	CS 1410
DS 3190	Foundations of Data Analysis	3	Fall	CS 2100, CS 2420, MATH 2270 & Full Major Status; Co-Req: MATH 3070
DS 3390	Ethics in Data Science	3	Fall	Full Major Status
DS 4140	Data Mining	3	Spring	CS 3500, CS 3130, MATH 2270; Co-Req: CS 4150
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
*DS 4800	Senior Capstone Design	3	Fall/Spring	WRWG 3014 OR 3015 & Full Major Status
*DS 4850	Senior Capstone Project	3	Fall/Spring	DS 4800 & Full Major Status
MATH 1310	Engineering Calculus I	4	Fall/Spring	MATH 1050 & 1060, OR 1080, OR AP AB SCORE OF 4+
MATH 1320	Engineering Calculus II	4	Fall/Spring/Summer	MATH 1310 OR AP BC SCORE OF 4+
MATH 2270	Linear Algebra	4	Fall/Spring/Summer	MATH 2220 & CS Major OR 1320 OR 2210
MATH 3070	Applied Statistics I	4	Fall/Spring/Summer	MATH 2220 OR 1311 OR 1320 OR 1321 OR AP BC SCORE OF 4+
MATH 3080	Applied Statistics II	3	Spring	MATH 3070
<i>Elective - Data Analysis Breadth (choose 3)</i>				
Course #	Course Name	Credits	Semester	Required Pre-Reqs (C minimum grade needed)
CS 3540	Human/ Computer Interaction	3	Fall	CS 2420 & Full Major Status
CS 4300	Artificial Intelligence	3	Spring	CS 3505, 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, CS 3100 & Full Major Status
CS 5635	Visualization for Scientific Data	3	Spring	CS 3505 & CS 3200 OR CS 6210 OR MATH 5600
MATH 5010	Introduction to Probability	3	Fall/Spring/Summer	MATH 1320 & 2310 OR 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>				
Course #	Course Name	Credits	Semester	Required Pre-Reqs (C minimum grade needed)
ATMOS 3000	Professional Development in Atmospheric Sciences	2	Fall	
ATMOS 5340	Environmental Programming & Statistics	3	Fall	MATH 1210 OR 1310 OR 1311
ATMOS 5400	The Climate System	3	Fall	MATH 1050
ECON 5190	Health Economics	3	Spring	
GEOG 3400	Population Geography	4	Fall	WRWG 2010
GEOG 4140	Adv Methods in Geographic Info Systems	4	Spring/Summer	GEOG 3100
GEOG 5150	Spatial Data Design GIS	4	Fall	GEOG 4140
GEO 3070	Mineralogy & Petrology for Engineers	2	(every other) Fall	GEO 1100
GEO 4060	Structural Geology and Tectonics	4		GEO 3100
LING 4020	Introduction to Syntax	3	Fall/Spring	LING 1069 (HF) OR LING 1200 (HF) OR ENGL 1200 (HF)
LING 5300	Introduction to Computational Linguistics	3	(every other) Spring	LING 1069 (HF) OR LING 1200 (HF) OR ENGL 1200 (HF); Co-Req: LING 4020
BME 6770	Genomic Signal Processing	3	Spring	Graduate Status OR Instructor Consent
BMI 6015	Applied Machine Learning in BMI	3	Fall	

* 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.