



Data Science Major
Curriculum Requirements
Catalog Year 2020-21 to present

FRESHMAN YEAR

<u>First Semester</u>				<u>R</u>	<u>L</u>	<u>C</u>	<u>Second Semester</u>				<u>R</u>	<u>L</u>	<u>C</u>
ENL	101	Critical Writing & Reading I		3	0	3	ENL	102	Critical Writing & Reading II		3	0	3
CIS	180	Object-Oriented Programming I		3	2	4	CIS	181	Object-Oriented Programming II		3	2	4
DSC	101	Intro to Data Science ¹		3	0	3			University Studies ³		3	0	3
MTH	153	Calc for Appl Science Engineering I ²		4	0	4	MTH	154	Calc for Appl Science Engineering II ²		4	0	4
			University Studies ³	3	0	3							
						17							14

SOPHOMORE YEAR

<u>First Semester</u>				<u>R</u>	<u>L</u>	<u>C</u>	<u>Second Semester</u>				<u>R</u>	<u>L</u>	<u>C</u>
MTH	181	Discrete Structures I		3	0	3	MTH	221	Linear Algebra		3	0	3
MTH	231	Elementary Statistics I		3	0	3	MTH	280	Intro to Scientific Computing		3	0	3
DSC	201	Data Analysis & Visualization		3	0	3	CIS	280	Software Specification & Design		3	2	4
			Laboratory Science I ^{4,5}	3	3	4			Laboratory Science II ^{5,6}		3	3	4
			University Studies ³	3	0	3							
						16							14

JUNIOR YEAR

<u>First Semester</u>				<u>R</u>	<u>L</u>	<u>C</u>	<u>Second Semester</u>				<u>R</u>	<u>L</u>	<u>C</u>
CIS	360	Algorithms and Data Structures		3	2	4	MTH	332	Mathematical Statistics		3	0	3
CIS	381	Social & Ethical Aspects of CS ⁸		3	0	3	DSC	301	Matrix Methods for Data Analysis		3	0	3
MTH	331	Probability		3	0	3	CIS	490	Machine Learning ¹⁰		3	0	3
ENL	266	Technical Communications		3	0	3			University Studies ³		3	0	3
			Science Elective ^{5,7}	3	0	3			Free Elective		3	0	3
						16							15

SENIOR YEAR

<u>First Semester</u>				<u>R</u>	<u>L</u>	<u>C</u>	<u>Second Semester</u>				<u>R</u>	<u>L</u>	<u>C</u>
DSC	498	DSC Senior Capstone I		3	0	3	DSC	499	DSC Senior Capstone II		2	0	2
			Technical Elective ⁹	3	0	3			University Studies ³		3	0	3
			Free Elective	3	0	3			Technical Elective ⁹		3	0	3
			Free Elective	3	0	3			Technical Elective ⁹		3	0	3
CIS 430 or		Data Mining & Knowledge Disc.		3	0	3			Free Elective		3	0	2
CIS 452		Database Systems											
						15							13

Total Credits = 120 R = Recitation & Lecture (hours) L = Laboratory (hours) C = Number of Credits

¹This course meets the University Studies Cluster 1E requirement.

²MTH 151 and MTH 152 can substitute for MTH 153 and MTH 154, respectively.

³See University Studies requirements for Clusters 3 and 4.

⁴Must be either PHY 113 or CHM 151/161 or BIO 121/131.

⁵Ideally one of these courses should also meet University Studies Cluster 2A.

⁶Must be a continuation of Laboratory Science I (PHY 114 or CHM 152/162 or BIO 122/132).

⁷Any course in BIO, CHM, MAR, MLS, or PHY.

⁸This course meets the University Studies Cluster 2B requirement.

⁹Must be taken from approved list of courses.

¹⁰Juniors who have taken CIS 360 and MTH331 (or equivalent) are encouraged to take Machine Learning in their Junior year.

Note: Any CIS course that is a prerequisite to another CIS course must be passed with a grade of C or better to satisfy the prerequisite. All MTH courses require a C- or better to meet the requirement.