BS Mathematical Sciences
Mathematical Data Science Major- **Fall 2023**

This undergraduate major is designed to help prepare Math/Stat students for careers in Data Science, a field rapidly expanding in the private sector. Because computer programming and machine learning are among the primary components of Data Science, most data scientists currently have been trained as computer scientists. This major will cover a core of programming courses, but complemented by Math and Statistics courses that will make our graduate a useful complementary part of a data science team working in the private sector.

Course Availability: This is when courses are typically offered and is subject to change:
F (Fall), S (Spring), SS (Summer) F = Fall, S = Spring, SS = Summer

Common Prerequisites
Complete all of the following with a grade of "C" or better

Course	Description	Pre-requisites	Term offered	Units
MAC 2311	Calculus I	Grade of "C" or higher in MAC 1147 or MAC 1140 + MAC 1114 (or placement score without prior coursework)	F, S, SS	4
MAC 2312	Calculus II	MAC 2311	F, S, SS	4
MAC 2313	Multivariable Calculus	MAC 2312	F, S, SS	4
MAP 2302	Differential Equations	MAC 2312	F, S, SS	3
COP 2210	Intro to Programming	MAC 1140 or MAC 1147 or MAC 2233 or MAC 2311, or Advisor's Permission	F, S, SS	4

Year 1 and 2 (25 credits)
Complete all of the following with a grade of "C" or better

Course	Description	Pre-requisites	Term offered	Units
MAC2311	Calculus I	Grade of "C" or higher in MAC 1147 or MAC 1140 + MAC 1114 (or placement score without prior coursework)	F, S, SS	4
MAC2312	Calculus II	MAC 2311	F, S, SS	4
MAC2313	Multivariable Calculus	MAC 2312	F, S, SS	4
MAD 2104	Discrete Mathematics	MAC 1105 or appropriate placement score	F, S, SS	3
COP 2210	Computer Programming I	MAC 1140 or MAC 1147 or MAC 2233 or MAC 2311, or Advisor's Permission	F, S, SS	4
CAP2752	Fundamentals of Data Science	Permission of the instructor	F,S	3
MAS 3105	Linear Algebra	MAC 2312	F, S, SS	3

Year 3 Fall (10 credits)
Complete all of the following with a grade of "C" or better

Course	Description	Pre-requisites	Term offered	Units
COP 3337	Computer Programming II	COP 2210 or EEL 2880	F, S, SS	3
STA 4321	Mathematical Statistics I	MAC 2313	F	3
MAS 4107	Linear Algebra II	MAS 3105 or Permission of the Instructor and MAP 4107L	F	3
MAS 4107L	Linear Algebra II Lab	MAS 3105 or Permission of the Instructor Co-requisite: MAS 4107	F	1

Year 3 Spring (10 credits)
Complete all of the following with a grade of "C" or better

Course	Description	Pre-requisites	Term offered	Units
COP 3530	Data Structures	COP 3337 and MAD 2104 or COT 3100	F, S, SS	3
STA 4322	Mathematical Statistics II	STA 4321	S	3
MAP 4202	Optimization	MAS 4107 and MAC 2313. Corequisite: MAP 4202L	S	3
MAP 4202L	Optimization Lab	Corequisite: MAP 4202	S	1

Year 4 Fall (9 credits)
Complete all of the following with a grade of "C" or better

Course	Description	Pre-requisites	Term offered	Units
MAP2302	Ordinary Differential Equations 3	MAC 2312	F, S, SS	3
STA 4234	Introduction to Regression Analysis	STA 3112 or 3123 or 3164 Department will also accept STA 4322 as a pre-requisite	Currently S	3
COP 4710	Database Management	COP 3337, co-req COP 3530	F, S, SS	3

Year 4 Spring (8 credits)
Complete all of the following with a grade of "C" or better

Course	Description	Pre-requisites	Term offered	Units
STA 4362	Mathematical Machine Learning	STA 4322, STA 4234, MAP 4202/L, COP 3337. Corequisite: STA 4362L	S	3
STA 4362L	Mathematical Machine Learning Lab	Corequisite: STA 4362	S	1
MAP 4950C	Senior Design Project	MAP 4202 and either COP 4710, or two from MAD 3512, MAD3301, MAP 3253 Corequisite STA 4362	S	4

Graduation Requirements:

University Core Curriculum (UCC)	120 credit hours required for graduation
Minimum of a 2.0 GPA	Foreign Language requirement (FLENT/FLEX)
45 credits of Upper Division hours (3000-4000 level)	Global Learning (GL) requirement
Civics Literacy Requirement	

Updated September 2023