

BS Mathematical Sciences

Mathematical Data Science- Computational Data Science and Analytics Track (Fall 2025)

This undergraduate major in Mathematical Data Science – Computational Data Science& Analytics Track 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 track emphasizes on integration of core data analytics with advanced computing skills. It covers a core of programming courses but complemented by Math and Statistics courses that make graduates 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

Complete all of the following with a grade of “C” or better

Year 1 and 2 (21 credits)

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
MAD 2104	Discrete Mathematics	MAC 1105 or appropriate placement score	F, S, SS	3
MAS 3105	Linear Algebra	MAC 2312	F, S, SS	3
COP 2047	Python Programming I	None	F,S	3

AND complete one lecture with corresponding lab with a grade of “C” or better (4-5 credits):

BSC 2010	General Biology I	Co-requisite: BSC 2010L	F, S, SS	3
BSC 2010L	General Biology I Lab	Co-requisite: BSC 2010	F, S, SS	1
BSC 2011	General Biology II	Co-requisite: BSC 2011L	F, S, SS	3
BSC 2011L	General Biology II Lab	Co-requisite: BSC 2011	F, S, SS	1
		“C” grade or higher in MAC 1105 or appropriate placement score (if no prior coursework in Math/Chem)		
CHM 1045	General Chemistry I	Co-requisite: CHM 1045L	F, S, SS	3
CHM 1045L	General Chemistry I Lab	Co-requisite: CHM 1045	F, S, SS	1
		Prerequisite: CHM 1045		
CHM 1046	General Chemistry II	Co-requisite: CHM 1046L	F, S, SS	3
CHM 1046L	General Chemistry II Lab	Co-requisite: CHM 1046	F, S, SS	1
		Pre- or Co-requisite: MAC 2311		
PHY 2048	Physics W/Calculus I	Co-requisite: PHY 2048L	F, S, SS	4
PHY 2048L	General Physics Lab I	Co-requisite: PHY 2048	F, S, SS	1
		Pre- or Co-requisite: MAC 2312		
		Prerequisite: PHY 2048		
PHY 2049	Physics W/Calculus II	Co-requisite: PHY 2049L	F, S, SS	4
PHY 2049L	General Physics Lab II	Co-requisite: PHY 2049	F, S, SS	1
GLY 1010	Physical Geology	N/A	F, S, SS	3
GLY 1010L	Physical Geology Lab	N/A	F, S, SS	1

Year 3 Fall (13 credits)

Course	Description	Pre-requisites	Term offered	Units
MAS 4107	Linear Algebra II	MAS 3105 and Permission of the Instructor.	F	3
MAS 4107L	Linear Algebra II Lab	MAS 3105 and Permission of the Instructor. Corequisite: MAP 4107	F	1
STA 4321	Introduction to Mathematical Statistics I	MAC2313	F	3
CAP 2757	Introduction to Data Science	COP 2047	F,S	3
COP 3410	Computational Thinking	COP 2047 or COP 2210 or COP 2250 or Advisor's Permission	F,S	3

Year 3 Spring (10 credits)

Course	Description	Pre-requisites	Term offered	Units
MAP 4202	Optimization	MAS 4107 and MAC 2313. Corequisite: MAP 4202L	S	3
MAP 4202L	Optimization Lab	Corequisite: MAP 4202	S	1
STA 4322	Introduction to Mathematical Statistics II	STA4321	S	3
COP 3045	Python Programming II	COP 2047 or COP 2210 or COP 2250 Corequisite: COP 3410	F, S, SS	3

Year 4 Fall (9 credits)

Course	Description	Pre-requisites	Term offered	Units
MAP 2302	Differential Equations	MAC 2312	F, S, SS	3
STA 4234	Introduction to Regression Analysis	STA3112 or STA3123 or STA3164	F	3
COP 3538	Data Structures Fundamentals	COP 3410 and COP 3045	F, S, SS	3

Year 4 Spring (8 credits)

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

For more information on these requirements, please visit:

<https://transfer.fiu.edu/transfer-101/guides-resources/graduation-requirements/index.html>