Data Science Track In Math BS

Nov 01, 2023

What

is this all about?

We would like to raise math majors' awareness of the Data Science Track that was established by the math department a few years ago.

is Data Science?

Data Science is a somewhat loosely defined term that typically refers to an interdisciplinary field employing techniques from math, computer science and engineering to extract knowledge from data and apply that knowledge to facilitate (automated) actions/decision making.

Why

should we care?

Due to technological advances, these days almost every industry is inundated with data that has the potential to lead to significant (application specific) improvements. However, there is a shortage of specialists capable of handling all those data. Hence, knowing data science substantially improves your marketability.

How

do I go about learning data science?

Math department has established a Data Science Track which specifies coursework needed to complete the track. The coursework also teaches you foundational subjects underlying some of the data science methodology.

BS in Mathematics, Data Science Track

Lower division: PHYS 170/170L, PHYS 272/272L, MATH 244 or 253A

Upper division math: MATH 301, 307 or 311, 321, 331, 407, **442 or 475**, 471, and 472

ICS courses: ICS 211, 235, and 435

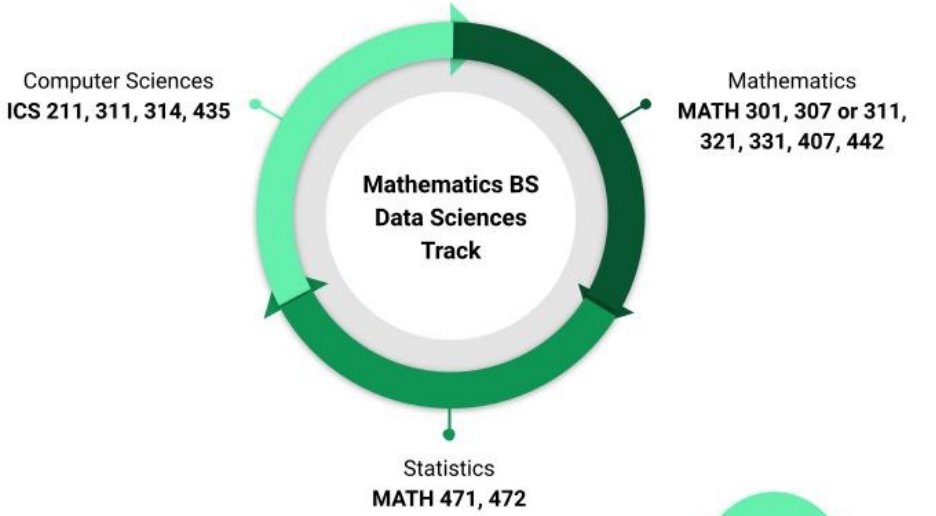
Recommended: ICS 484, ICS 311

Additional requirements: 6 credit hours in writing-intensive mathematics courses, 6 credit hours in courses numbered above 400, Students must also complete MATH 480

Recent changes to the data science track are highlighted in boldface.

Sample path through track

Year 1		Year 2		Year 3		Year 4	
Fall		Fall		Fall		Fall	
MATH 241 or **251A** (FQ)	4	**MATH 243** or **253A**	3	**MATH 407**	3	**MATH Elective 300+**	3
ICS 111	4	**MATH 321**	3	**CHEM 161**	3	**MATH 471**	3
FW	3	**PHYS 170** (DP)	4	**CHEM 161L**	1	**ICS 235**	3
FG (A/B/C)	3	**PHYS 170L** (DY)	1	**MATH Elective 300 +**	3	Elective 300+	3
DA/DH/DL	3	HSL 101	3	DS	3	DS	3
				HSL 201	3		
Spring		Spring		Spring		Spring	
MATH 242 or **252A**	4	**MATH 244** or **253A**	3	**MATH 442 or MATH 475**	3	**ICS 435**	3
MATH 301	3	**MATH 311** or **307**	3	**MATH 331**	4	**MATH 472**	3
ICS 211	4	**PHYS 272**	3	**CHEM 162**	3	**MATH 480**	2
FG (A/B/C)	3	**PHYS 272L**	1	**CHEM 162L**	1	DB	3
		DA/DH/DL	3	HSL 202	3	Elective 300+	3
		HSL 102	3				



DATA SCIENCES MATHEMATICS

Interdisciplinary
Modeling
Discrete Math
Graph Theory
Machine Learning
Visualisation

Mathematics = Foundations of Data Sciences

A solid understanding of the mathematical machinery behind the algorithms provides an edge among data sciences peers!

Math 472- Statistical Inference

Mathematical foundations and techniques of statistical analysis are crucial for the interpretation of data. This course will provide students with a foundation in the basic topics of the theory of statistics such as point estimation, confidence intervals, hypothesis testing, and regression.

Prerequisites - Math 471, or consent.

Sample syllabus

Questions ??