Bachelor of Science in Data Science
Curriculum Map

B=Beginner; I=Intermediate; A=Advanced

	1.1	1.2	1.3	2.1	2.2	2.3	3.1	3.2	3.3	4.1	4.2	4.3	5.1	5.2	5.3
GE Foundation Freshman Seminar 1											I	I		I	I
GE Foundation Freshman Seminar 2											A	A		A	A
GE - Foundation Armenian Lang / Lit 1											I	I		I	
GE - Foundation Armenian Lang / Lit 2											A	A		A	
GE - Foundation Armenian History 1														I	
GE - Foundation Armenian History 2														A	
GE - AH (3 courses)										B	I	B		I	
GE - SS (3 courses)										B				I	
GE - QS (3 courses)										B				I	B
ENGS 101 Calculus: Single Variable	B										B				
ENGS 102 Calculus: Multi Variable	I										I				
ENGS 103 Linear Algebra and Ordinary Differential Equations	I	I									I				
CS 111 Discrete Math	B	B													
CS 107 Probability	B	B									I				
CS 108 Statistics 1	I	I			I					B	I				
DS *** Statistics 2	A	A	I		B			B		I	I				
ENGS 211 - Numerical Methods	I		I		I	B				A	A	A	B		A
CS 110 Introduction to Computer Science	B		B									A	I		
DS 120 Programming for Data Science			B										A		
DS 115 Data Structures/Algorithms in Data Science			B										A		
DS 205 Databases and Distributed Systems			A		A	B	B	I		A			A	A	A
DS *** Data Visualization	I	I		A	I				I				A		
CS 251 Machine Learning		A	A	A	A	A	A	A		A	I				A
CS 246 Artificial Intelligence		A	A		A	A	A	A		A	A				A
DS 150 Physics and Chemistry in Life science				A			B				I				I
DS *** Business Intelligence		I			I	I	I	I	I	A					A
DS *** Time Series Forecasting		A		A		I	A	A							
DS *** Analytics for Decision Making		I		B		I	I	A	B						

	1.1	1.2	1.3	2.1	2.2	2.3	3.1	3.2	3.3	4.1	4.2	4.3	5.1	5.2	5.3
DS *** Intro to Bioinformatics		I		B	I	I	B	I		A					A
DS *** Computational Biology			A		I	I	I	A		A					
DS *** Systems Biology						I	I	A		A					
CS 296 Capstone							A	A	A	A	A	A	A	A	A

Student Learning Outcomes:

1.1 Use concepts and methods of mathematical disciplines relevant to data analytics and statistical modeling
1.2 Utilize statistical concepts of data analysis, data collection, modeling, and inference
1.3. Employ algorithmic problem-solving skills to the problem at hand, including defining clear requirements to a problem, decomposing the problem, using efficient strategies to arrive at an algorithmic solution, and implementing solutions through programming in a suitable high-level language
2.1. Visualize, curate, and prepare data for use with a variety of statistical methods and models and recognize how the quality of the data and the means of data collection may affect conclusions
2.2. Use and adapt statistical software packages and scalable computing infrastructure to formulate problems, identify and gather relevant existing data, and analyze the data to provide insights
2.3. Utilize contemporary computing technologies, such as machine learning, AI, parallel and distributed computing, to solve practical problems characterized by large-scale data
3.1 Apply modern data science methods to one or more domains of application (e.g. business analytics, finance, biotechnology, and public health)
3.2 Pursue graduate studies or gain employment that requires expertise in data science and analytical reasoning
3.3 Demonstrate professional and ethical responsibility in areas such as citation and data ownership, security and sensitivity of data, consequences and privacy concerns of data analysis, and the professionalism of transparency and reproducibility
4.2 Think critically and creatively, conceptualizing real-world problems from different perspectives.
4.3 Work productively in diverse teams and solve problems collaboratively.
5.1 Use common software and information technology to pursue inquiry relevant to their academic and professional fields, and personal interests.
5.2 Weigh evidence and arguments, and appreciate and engage in diverse modes of inquiry characteristic of historical, cultural, political, economic, and quantitative disciplines.
5.3 Properly document and synthesize existing scholarship and data, keep current with developments, conduct independent research, and discover and learn new
material on their own.