

# DATA SCIENCE CERTIFICATE

The Certificate in Data Science provides students with the technical skills to extract different types and quantities of data from multiple sources, create visualizations, build and interpret predictive models, and build data products for the information consumer to use under a background of responsible and ethical data management. The certificate is offered through both the Computer Science and Math departments.

Students must consult with a program advisor before applying for admission to the program.

## Course Requirements for the Certificate

The following courses, or their approved transfer equivalents, are required of all candidates for this certificate. A grade of C or higher is required in each course of the certificate program.

Course	Title	Units
<b>Course Requirements</b>		
CSCI 111	Programming and Algorithms I	4
CSCI 211	Programming and Algorithms II	4
CSCI/MATH 385	Introduction to Data Science	3
CSCI/MATH 485	Advanced Topics in Data Science	3
MATH 120	Analytic Geometry and Calculus	4
MATH 121	Analytic Geometry and Calculus	4
MATH 314	Probability and Statistics for Science and Technology	4
MATH 456	Applied Statistical Methods II	3
MATH 490	Data Science Capstone	1-3
Select one of the following:		3
CSCI/MATH 217	Discrete Mathematics	
MATH 235	Elementary Linear Algebra	
Select one of the following:		3-4
BSIS 320	Computational Business Analysis and Programming	
BSIS 460	Data Analytics	
CINS 370	Introduction to Databases	
CSCI 344	Shell Programming	
CSCI 580	Artificial Intelligence	
CSCI 581	Machine Learning	
CSCI 582	Bioinformatics	
MATH 317	Cryptography	
MATH 344	Graph Theory	
MATH 450	Mathematical Statistics	
MATH 461	Numerical Analysis	
MATH 480	Mathematical Modeling	
MINS 335	Database Application Development	
MINS 546	E-Commerce and Cloud Computing in Business	
<b>Total Units</b>		<b>36-39</b>