DATA SCIENCE, CERTIFICATE OF ACHIEVEMENT

Data Science, with its many applications, is a field of study that draws heavily from the foundational concepts in statistics and machine learning and uses programming to explain or predict outcomes from data. Data Science principles and achievements are omnipresent, dynamic, and ever-changing. The curriculum offered in the Certificate of Achievement is Data Science is designed both for those who are preparing to transfer to a four-year university to complete their Bachelor's in Data Science, Business Administration, Computer Science, Computer Network Systems Engineering, Hospitality Management, Mathematics, Political Science, Philosophy, or a related field as well those who are currently in the work force and would like to get the Certificate to validate skill building. To earn the Certificate of Achievement in Data Science, students must complete between 15 - 16 specified units.

Course ID	Title	Units/ Hours
CORE COURSES: Complete the following courses (9 units)		
CS M10DS	Introduction to Data Science	3
CS M10ML	Cloud Data Science and Machine Learning	2
MATH M15/M15H	Introductory Statistics	4
Choose one of the following Area of Emphases		
Business Administration Emphasis (6 units)		
BUS M30	Introduction to Business	3
BUS M140	Business Information Systems	3
Computer Science Emphasis (6-7 units)		
CS M10DB	Database Management Systems and Applications	3
CS M10P	Introduction to Computer Programming using Python Language	4
OR		
CS M10R	Introduction to R Programming	3
Hospitality Management Emphasis (6 units)		
HOSP M120	Hospitality Cost Control	3
One course from below:		
HOSP M130	Introduction to Food and Beverage Management	3
HOSP M140	Introduction to Hotel Management	3
HOSP M170	Hospitality Supervision and Guest Relations	3
Mathematical Theory Emphasis (6-7 units)		
Select and complete one of the following Math courses:		
MATH M37DS	Probability & Statistics for Data Science	3
MATH M42DS	Mathematics of Machine Learning for Data Science	3
Select and complete one of the following Computer Science courses:		
CS M10P	Introduction to Computer Programming using Python Language	4
CS M10R	Introduction to R Programming	3
Social Sciences Emphasis (7 units)		
PHIL M07	Introduction to Logic	3
POLS M09	Introduction to Political Science Research Methods	3
POLS M122	Independent Study - Political Science	1
OR		
PHIL M122	Independent Study - Philosophy	1

Year 1

Fall Semester		**Units/Hours**
MATH M15 or MATH M15H	Introductory Statistics or Honors: Introductory Statistics	4
and		
CS M10DS	Introduction to Data Science	3
or		
BUS M30	Introduction to Business	3
or		
CS M10DB	Database Management Systems and Applications	3
or		
HOSP M120	Hospitality Cost Control	3
or		
MATH M37DS	Probability & Statistics for Data Science	3
or		
PHIL M07	Introduction to Logic	3
	Units/Hours	**22**
	Total Units/Hours	**22**

Year 1

Spring Semester		**Units/Hours**
CS M10ML	Cloud Data Science and Machine Learning	2
and		
BUS M140	Business Information Systems	3
or		
CS M10P	Introduction to Computer Programming using Python Language (or)	4
and/or		
CS M10R	Introduction to R Programming (or)	3
or		
HOSP M130	Introduction to Food and Beverage Management (or)	3
or		
HOSP M140	Introduction to Hotel Management (or)	3
or		
HOSP M170	Hospitality Supervision and Guest Relations (or)	3
or		
POLS M09	Introduction to Political Science Research Methods	3
and/or		
POLS M122 or PHIL M122	Independent Study - Political Science or Independent Study - Philosophy	1
	Units/Hours	**25**
	Total Units/Hours	**25**

Upon successful completion of this program, students will be able to:

- apply data science concepts and principles.
- be able to use different types of machine learning appropriately.
- understand the relationship between statistics and machine learning.
- be attuned to ethical issues with data science.