Course Syllabus Part I
DSC 500 Introduction to Data Science

3 Credit Hours

Course Description

This course introduces the possibilities, history, and ethics surrounding data science. Basics of data science are explored, including vocabulary, programming languages, big data frameworks, visualization, and statistics. Prior programming experience is not needed for this course.

Course Prerequisites

None

Course Objectives

Students who successfully complete this course should be able to:

1. Describe the skills needed to be a data scientist.
2. Demonstrate an understanding of the data science process.
3. Apply the data science process to case studies using exploratory data analysis.
4. Compare data science approaches and their ethical considerations.
5. Explain the purpose of various programming languages used in data science.
6. Develop a portfolio of data science projects.

Grading Scale

93 – 100% = A	87 – 89% = B+	77 – 79% = C+	67 – 69% = D+
90 – 92% = A-	83 – 86% = B	73 – 76% = C	63 – 66% = D
	80 – 82% = B-	70 – 72% = C-	60 – 62% = D-
			0 – 59% = F

Topic Outline

I. History
   A. Founders
   B. What is data science?
   C. Buzz Words
   D. How is data science different than reporting?
   E. How is data generated?
II. The Data Science Process
   A. How to get started
   B. Why does it matter
   C. Formulating Questions
III. Real World Use Cases
   A. Data Science for the Individual
   B. Data Science in Business
   C. Ethics
IV. Data Preparation
   A. Data Wrangling
   B. Data Quality
V. Data Analysis
   A. Algorithms
   B. Statistics
   C. Big Data
   D. Text Mining
VI. Data Visualization
   A. R/Python
   B. Tableau/PowerBI
VII. Big Data, Data Mining, Machine Learning and AI
VIII. Data Science Roles
   A. Day in the Life
   B. Roles & Responsibilities
IX. How to deepen skills
   A. Software
   B. Online communities
   C. Online identity
X. Software & Tools