DATA SCIENCE (DS)

Data Science (DS) Courses

DS 1001. Data Science and AI for All. (1-0) 1 Credit Hour.
The course is designed for students from all academic backgrounds to develop interests in data science and artificial intelligence. Introduction to the concept of analyzing data culled from a variety of sources, and understanding the methods of aggregating data, forming coherent queries, and building machine learning models to derive insights from data. Topics may include Python programming using Jupyter Notebook, R programming, text analysis, database, data analytics, and data visualization. Course Fee: LRDS $12.50.

DS 3023. Statistical Analysis for Data Science. (3-0) 3 Credit Hours.
Prerequisite: MAT 1073 or the equivalent. Introduction to the scientific method; principles of sampling and experimentation; scales of measurement; exploratory data analysis; basic probability; models for discrete and continuous data; simple simulations and inferences based on resampling; fundamentals of hypothesis testing and confidence intervals; analysis of variance and linear regression model; tensors and matrices. The course will emphasize data analysis and interpretation and effective communication of results through reports or presentations within data science contexts. Course Fee: LRDS $37.50.

DS 4003. Introduction to Data Science. (3-0) 3 Credit Hours.
Prerequisite: MAT 1073 or the equivalent; students may not enroll without 30 credit hours completed. An introduction to foundational data science knowledge and life cycle. Focus areas on data visualization, data curation, ethics, and tools available for analysis will be covered. Course Fee: LRDS $37.50; DL01 $75.

DS 4013. Programming for Data Science. (3-0) 3 Credit Hours.
Prerequisite: MAT 1073 or the equivalent. An introduction to data-driven programming emphasizing problem solving and critical thinking. Topics will focus on foundational computer programming concepts and skills. Course Fees: LRDS $37.50; DL01 $75.

DS 4023. Data Organization and Visualization. (3-0) 3 Credit Hours.
Prerequisites: DS 3023, DS 4003, and DS 4013 or the equivalents. This course focuses on programming concepts, file input/output, and recursion that are involved in integrating, loading, processing, and transforming data from external sources for exploratory data analysis and visualization using data science software packages and APIs. Course Fees: LRDS $37.50; DL01 $75.

DS 4033. Data Mining and Machine Learning. (3-0) 3 Credit Hours.
Prerequisites: Completion of or concurrent enrollment in DS 4023. This course utilizes fundamental data science concepts to introduce in-depth analysis, data mining, machine learning, and artificial intelligence. Topics may include clustering, classification, evaluation metrics, supervised and unsupervised learning, search algorithms, intelligent agents, and AI applications in select areas. Course fee: DL01 $75.