DATA SCIENCE (DASC)

DASC 5100 Programming Fundamentals. Introduction to foundational programming concepts. The course is specifically designed for students without prior programming experience. Topics include syntax, conditionals, loops, functions, lists, strings and dictionaries. Data structures such as trees and heaps are also discussed. 3 semester credit hour/s.
Campus: LISLE (Typically Offered: Fall Term)

DASC 5150 Ethics for Data Analytics. Ethical concepts and dilemmas within the field will be covered. Topics will include the ethical discussion about data science starting with proper data collection, then proper data analysis and finally safe and secure data storage. This course will prepare students to handle real world ethical issues within the field of data analytics and data science and their future projects. 3 semester credit hour/s.
Campus: LISLE (Typically Offered: Summer Term)

DASC 5200 Mathematics for Data Science. Mathematics from multiple disciplines, including probability, statistics, calculus, discrete mathematics and linear algebra, needed for understanding a variety of mathematical models used in data science. 3 semester credit hour/s.
Campus: LISLE (Typically Offered: Fall Term)

DASC 5300 Advanced Programming. Advanced programming concepts with specific emphasis on language features commonly utilized in data analytics. Relevant Python libraries for data analytics are also explored in depth, including NumPy, pandas and scikit-learn. Along with a brief introduction to R. Prerequisite: DASC 5100 3 semester credit hour/s.
Campus: LISLE (Typically Offered: Fall Term)

DASC 5320 Data Analysis & Visualization. Practical applications of data science in various industries are explored as well as ethical issues involved in data acquisition and analysis. Topics include data preparation techniques, data exploration methods, dimensional reduction techniques and data visualization approaches. Prerequisite: DASC 5300. 3 semester credit hour/s.
Campus: LISLE (Typically Offered: Fall Term)

DASC 5383 Machine Learning. Investigation of the design, implementation and application of various supervised machine learning algorithms. Techniques in data representation, model evaluation and model improvement are also considered. Prerequisite: DASC 5300 or CMSC 3270. 3 semester credit hour/s.
Campus: LISLE (Typically Offered: Fall Term, 1st 8 Weeks)

DASC 5400 Data Simulation, Bayesian Modeling, and Inference. The course will cover data simulation, statistical modeling techniques and inference.? Topics included will be differing methods of regression and model selection, Markov Chain Monte Carlo methods, EM algorithm, bootstrapping and other computational statistical models. Prerequisite: DASC 5200. Typically offered: Summer Session II 0 semester credit hour/s.
Campus: LISLE (Typically Offered: Summer Term)

DASC 6398 Capstone Project. This course will focus on defining a research question, literature review of the current state of the art in the particular subfield, collecting an appropriate dataset to evaluate the research question, and high-level design of the algorithmic solution and implementation of the solution. Prerequisite: Departmental Consent 3 semester credit hour/s. Department Consent Required.
Campus: LISLE (Typically Offered: Spring Term)