

DATA SCIENCE (DSCI)

DSCI 101 Introduction to Data Science (3 credits)

The course provides students with a survey of both theoretical and practical aspects in the field of data science. Course topics include an overview of the data science field, data manipulation and flow, artificial intelligence and machine learning, testing, sorting, preparing and cleaning data sets, and cross-validation. Students will develop skills in relevant programming and scripting languages such as R and be able to make inferences using results from data summaries. Course fee.

DSCI 102 Introductory Statistics with Programming Applications

(GM) (4 credits)

This course provides the student with the fundamental concepts and methods of statistical analysis while employing programming and scripting skills. Course topics include graphical and numerical representations of data, probability and data distributions, parameter estimation, and hypothesis testing. R programming language will be used to collect, prepare, and organize data throughout the semester. Students cannot earn credit for both MATH 216 and DSCI 102. Offered only in the spring semester. Course fee.

Prerequisite(s): (MATH 023 or MATH 025 or MATH 027 or Next Gen QAS with a score of 263)

DSCI 103 Database Management and Database Systems (3 credits)

This course provides a foundation of database concepts. Topics include definitions and operations related to database systems as well as processes of database design. Students will be able to develop tables, forms, reports, and queries from a database. Entity-relationship (ER) diagrams and database normalization are also explored. This course requires DSCI 101 or a grade of C or better in a previous high school or college-level programming course. DSCI 101 may be taken concurrently. Offered only in the fall semester. Course Fee.

Prerequisite(s): DSCI 101

DSCI 201 Data Visualization (3 credits)

This course provides students with a study of the graphical representation of data and how to use visualization to aid understanding of big data for fields such as science, engineering, medicine, and the humanities. Students will learn how to design, build, and evaluate visualizations for different types of data, disciplines, and domains. The course emphasizes design and practical applications of data visualization. This course requires DSCI 102 or MATH 216 and programming experience, or instructor permission. DSCI 102 or MATH 216 may be taken concurrently. Offered only in the spring semester. Course fee.

Prerequisite(s): (DSCI 102 or MATH 216)