DATA SCIENCE (DATA)

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DATA Courses

DATA 301. Introduction to Data Science. 4 units
Prerequisite: CPE/CSC 202; and one of the following: STAT 302, STAT 312, or STAT 313.

Introduction to the field of data science and the workflow of a data scientist. Types of data (tabular, textual, sparse, structured, temporal, geospatial), basic data management and manipulation, simple summaries, and visualization. 3 lectures, 1 laboratory.

DATA 401. Advanced Topics in Data Science. 4 units
Prerequisite: CSC 349; CSC 466; DATA 301; STAT 334; and STAT 419.

Principles of data science and big data analytics. Volume, velocity, and variety of data. Acquisition, processing, and cleaning of large data-sets. Analytics for big data. 3 lectures, 1 laboratory.

DATA 441. Bioinformatics Capstone I. 2 units
Prerequisite: BIO 351 or CHEM 373; BIO 441 or CSC 448; DATA 301.

Working with clients to design bioinformatics solutions to biological questions. Software requirements, elicitation techniques, data gathering, project planning, and project team organization. Ethics and professionalism. 2 laboratories.

DATA 442. Bioinformatics Capstone II. 2 units
Prerequisite: DATA 441.

Continue projects initiated in DATA 441. Team-based design, implementation of bioinformatics solutions and management of development teams. Technical documentation, quality assurance, and systems testing. Design and conduct empirical studies. Data visualization. Oral and written presentation. 2 laboratories.

DATA 451. Data Science Capstone I. 2 units
Prerequisite: DATA 401.

Working with clients to develop data-driven solutions for systems to be constructed in DATA 452. Specification and design requirements, elicitation techniques, research and data gathering methods; project planning, time and budget estimating; project team organization. Ethics and professionalism. 2 laboratories.

DATA 452. Data Science Capstone II. 2 units
Prerequisite: DATA 451.

Team-based design, implementation, deployment and delivery of a system or analytical methodology that involves working with and analyzing large quantities of data. Technical management of research and development teams. Technical documentation, quality assurance, integration and systems testing. Design and conduct of empirical studies. Visualization and presentation of results orally and in writing. 2 laboratories.

DATA 472. Data Science Seminar. 1 unit
CR/NC
Prerequisite: DATA 301.

Discussions of technical, societal and ethical aspects of modern data science theory and practice, concentrating on topics not covered in other courses. 1 seminar. Total credit limited to 4 units. Credit/No credit grading only.