

DATA 401 - Data Science

Fall 2018

I. Catalog Description

DATA 401 Data Science (4)

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.
Prerequisite: CSC 349, CSC 466, DATA 301, STAT 334, and STAT 419

II. Required Background and/or Experience

Prerequisite: CSC 349, CSC 466, DATA 301, STAT 334, and STAT 419
Basic knowledge of statistics and the use of computers.

III. Expected Outcomes

The student should:

- A. Acquire, store, process, clean and manipulate data of high volume, velocity, and variety
- B. Analyze acquired data using a wide range of methods, techniques and algorithms
- C. Design and implement evaluation studies to compare the quality of performed data analysis
- D. Visualize the results of data analysis and explain these results to other stakeholders in the data analytic tasks both in writing and orally

IV. Text and References

Recommended Texts: Varies by instructor.

V. Minimum Student Materials

USB flash drive.

VI. Minimum University Facilities

Availability of computing facilities.

VII. Expanded Description of Content and Method

Content	Number of lectures
A. Introduction	4
1. Data science for big data	
B. Data Acquisition and Preparation	12
C. Data Analysis and Evaluation	12
D. Explanation of Results and Data Presentation	8
E. Big Data and Cloud Computing Architectures	4
Total	40

Method

Largely lecture with computer demonstrations of methods and problems, class discussion, supervised computer lab work and in-class exercises. Material from references and additional problems supplement the text.

VIII. Method of Evaluating Outcome

Problem and programming homework assignments, examinations, and projects.