

University of Arkansas – Fort Smith
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General Syllabus

CSCE 43233 Data Analytics

Credit Hours: 3

Lecture Hours: 3

Laboratory Hours: 0

Prerequisites: CSCE 13003 Introduction to Data Science or CSCE 20003 Data Structures

Effective Catalog: 2018-2019

I. Course Information

A. Catalog Description

Introduction to data science and statistical methods with emphasis on large-scale advanced data analysis.

II. Student Learning Outcomes

A. Subject Matter

Upon successful completion of this course, the student will be able to:

1. Research current trends in data science.
2. Evaluate and assess data analysis systems and frameworks.
3. Design data analysis applications and algorithms.
4. Evaluate and create data analytics interface design and data visualization.

B. University Learning Outcomes

This course enhances student abilities in the following areas:

Analytical Skills

Critical Thinking Skills: Students will identify a problem, break it down into its component parts and develop a solution.

Communication Skills (written and oral)

Students will compose coherent data analysis documents appropriate for the intended audience

III. Major Course Topics

- A. Current Research in Database Analytics Systems
- B. Frameworks

- C. Hadoop
- D. Spark
- E. Statistical Methods and Probability
- F. Descriptive Statistics
- G. Mean, Standard Deviation, Median
- H. Sample Size
- I. Confidence Intervals
- J. Regression Analysis
- K. Hypothesis Testing
- L. Null Hypothesis
- M. Alternate Hypothesis
- N. P-value Significance
- O. Data validating and cleaning
- P. Analytic algorithms
- Q. K-Means
- R. Data visualization