

University of Arkansas – Fort Smith
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General Syllabus

CS 4133 Cloud Applications Development

Credit Hours: 3

Lecture Hours: 3

Laboratory Hours: 0

Prerequisites: CS 2033 Web Systems

Effective: 2018-2019

I. Course Information

A. Catalog Description

Examines cloud architecture, application development, and the technologies used to create and deliver them. Students will also learn cloud application development and design using existing cloud development tools.

B. Additional Course Information

Whether it is a social network site, an online store, or a custom application, IT applications are increasingly web-based. The cost of acquiring the hardware and services will become increasingly costly for businesses. This course provides an introduction to designing and authoring business systems with the "systems as a service" environment as well as researching existing implementations.

II. Student Learning Outcomes

A. Subject Matter

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

1. Analyze and describe the technical foundations of Cloud Computing.
2. Explain the Cloud Computing Architectural Framework.
3. Evaluate and assess the different technologies that enable Cloud Computing.
4. Create programs to use Cloud Computing with MapReduce using Hadoop on Amazon's EC2 (with Cluster GPU Instances).
5. Assess how different algorithms can be implemented and executed in the Hadoop framework.
6. Create and design programs using existing languages for the Cloud Framework.

7. Evaluate and use the processes in evaluating performance and identifying bottlenecks when mapping applications to the Cloud.
8. Explain the Cloud Computing security and trust management.

B. University Learning Outcomes

This course enhances student abilities in the following area:

Analytical Skills

Critical Thinking Skills - Students will identify a problem, break it down into its component parts, and develop an algorithm for solving the problem. Students will implement their solution as a cloud application.

III. Major Course Topics

- A. Cloud Computing Concepts
- B. Cloud Architecture Frameworks
- C. Cloud Application Service Models
- D. Cloud Application Performance Analysis
- E. Cloud Security Vulnerabilities and Solutions