

## **EECS 263: Cloud Computing**

**Credits:** 4

**Instructor:** Mukesh Singhal, Chancellor's Professor.

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**Course Description:** The course will introduce the following topics roughly in the given order:

1. Cloud definition and classifications
2. Motivations and economics of Cloud Computing,
3. Resource virtualization
4. Scheduling and load balancing, flow scheduling,
5. Cloud pricing models,
6. Security management in the cloud,
7. Databases in the cloud,
8. Mobile clouds, video streaming cloud,
9. Federated Clouds and multi-Clouds, and
10. Various case studies from the Industry.

### **Prerequisites**

Operating systems (CSE 150) and Computer networks (CSE 160), or consent of the instructor.

### **Examinations**

There will be one midterm examination during the semester (on Wednesday, March 15, 2017 in class) and final examination (on Monday, May 8, 2017, 3-6PM).

### **Grading**

A student's grade will be determined by a weighted average of homeworks, lab. assignments, paper/report presentations, midterm examination, and the final examination.

Homeworks and lab. assignments or Presentations or Reports: 30%

Midterm: 30%

Final Examination: 40%

Letter Grades: Letter Grades: A => 90%, B => 80%, C => 70%.

## **Course Learning Outcomes**

The students will demonstrate understanding of the following concepts in the design and development of Cloud computing systems: Cloud definition and classifications, resource virtualization, motivations and economics of Cloud Computing, scheduling and load balancing, flow scheduling, cloud pricing, Security management in the cloud, Databases in the cloud, Mobile cloud, video streaming cloud, and federated Clouds and multi-Clouds. The students will be able to solve various problems in the design, implementation, and deployment of Cloud computing systems. The students will be able to explain the price-performance and cost-security trade-offs in Cloud computing systems. The students will be able to design and conduct experiments on various Cloud computing systems available in the Industry.

## **Program Learning Outcomes**

- Ability to design and conduct experiments and numerical simulations of complex electrical, electronic and computer systems, to analyze, and interpret general scientific and engineering information.
- A dedication to advance engineering research to discover new knowledge, develop new methodologies, promote innovative thinking and research output in engineering and science.

## **Academic Honesty**

Students are expected to abide by the UC Merced campus-wide Academic Honesty Policy which can be found at <http://studentlife.ucmerced.edu/what-we-do/student-judicial-affairs/academicy-honesty-policy>. Academic misconduct is a serious offense. Violation of these policies may result in a grade of “F” or 0 points for the assignment or exam, or for more serious violations, a grade of “F” in the course, at the discretion of the instructor.

## **Special Needs**

UC Merced provides individuals with disabilities reasonable accommodations to participate in educational programs, activities, and services. Students with disabilities requiring accommodations to meet course requirements should contact the UCM Disability Services Center (<http://disability.ucmerced.edu/>) to obtain assistance and coordination with this course.

## **Textbook**

**Cloud Computing, A Hands-on Approach,**

**by A. Bagha and V. Madisetti**

ISBN-13: 978-1494435141, ISBN-11: 1494435144

**Papers from the literature.**