Data Intensive Computing
FALL 2019

Course Information

Instructor Information:

- Instructor: Dongfang Zhao
- Office: SEM 206
- Phone: 775-784-1410
- Email: dzhao@unr.edu
- Lecture time: Tuesday/Thursday, 10:30 – 11:45 am
- Office hours: Tuesday/Thursday, 1:30—3:00 pm
- Course webpage: https://www.cse.unr.edu/~dfz/teaching/CS433-F19/

Course Description:

This course is a tour through various research topics in cluster computing, grid computing, supercomputing, and cloud computing. This course is geared for senior-level undergraduates and graduate students in computer science.

Course Pre/Co-requisites:

Prerequisite(s): CS 302 with a “C” or better.

Required texts, course materials:

Recommended textbook: Distributed Systems: Principles and Paradigms (3rd Edition) by Andrew Tanenbaum and Maarten van Steen

Unique class procedures /structures:

The instructor will spend the first ten weeks to cover the basics of data intensive computing and use the remaining five weeks to discuss the latest high-impact papers in this area.

Student Learning Outcomes:

- Students will be able to apply knowledge of computing, mathematics, science, and engineering.
- Students will be able to analyze a problem and identify, formulate, and use the appropriate computing and engineering requirements for obtaining its solution.
- Students will be able to use current techniques, skills, and tools necessary for computing and engineering practice.
- Graduate students will be able to apply engineering research and theory to advance the art, science, and practice of the discipline.
- Graduate students will be able to design and conduct experiments as well as to analyze, interpret, apply, and disseminate the data.
- Graduate students will be able to understand research methodologies.
Course Requirements:
Paper presentations (30%), paper reviews (20%), midterm exam (20%), final project report/presentation (30% for undergraduate, 50% for graduate students)

Grading Criteria, Scale, and Standards:
A: 90% - 100%
B: 80% - 89.9%
C: 70% - 79.9%
D: 60% - 69.9%
F: < 60%
Late work or make-up exams will be granted by the instructor case-by-case.

Course Calendar or Topics Outline:
• Introduction to distributed systems, communication: Week 1-2
• Process and thread, naming: Weeks 3-4
• Synchronization, consistency: Week 5-6
• Fault tolerance, distributed file systems: Weeks 7-8
• Supercomputing, cloud computing: Weeks 9-10
• Paper presentation: Weeks 11-15

University Support
University Math Center (UMC)

The University Math Center (UMC) is focused on helping students with mathematical and statistical concepts. While mathematics is used extensively in engineering, the UMC does not have the resources to help students with engineering courses. Engineering students are encouraged to use the UMC for help in their math classes, and they are welcome to use its computer lab and study area any time—regardless of course. However, UMC tutors cannot answer questions regarding engineering courses.

University Policies
Statement on Academic Dishonesty:
"Cheating, plagiarism or otherwise obtaining grades under false pretenses constitute academic dishonesty according to the code of this university. Academic dishonesty will not be tolerated and penalties can include filing a final grade of "F"; reducing the student's final course grade one or two full grade points; awarding a failing mark on the coursework in question; or requiring the student to retake or resubmit the coursework. For more details, see the University of Nevada, Reno General Catalog."

Statement of Disability Services:
“Any student with a disability needing academic adjustments or accommodations is requested to speak with me or the Disability Resource Center (Pennington Achievement Center Suite 230) as soon as possible to arrange for appropriate accommodations.”
Statement on Audio and Video Recording:

"Surreptitious or covert video-taping of class or unauthorized audio recording of class is prohibited by law and by Board of Regents policy. This class may be videotaped or audio recorded only with the written permission of the instructor. In order to accommodate students with disabilities, some students may have been given permission to record class lectures and discussions. Therefore, students should understand that their comments during class may be recorded."

The University of Nevada, Reno is committed to providing a safe learning and work environment for all. If you believe you have experienced discrimination, sexual harassment, sexual assault, domestic/dating violence, or stalking, whether on or off campus, or need information related to immigration concerns, please contact the University's Equal Opportunity & Title IX office at 775-784-1547. Resources and interim measures are available to assist you. For more information, please visit the Equal Opportunity and Title IX page.

Statement for Academic Success Services:

"Your student fees cover usage of the University Math Center (775) 784-4433, University Tutoring Center (775) 784-6801, and University Writing Center (775) 784-6030. These centers support your classroom learning; it is your responsibility to take advantage of their services. Keep in mind that seeking help outside of class is the sign of a responsible and successful student."