Course Information

Course Number: CSCE 412
Course Title: Cloud Computing
Section: 500 - 200
Time: MW 4:10 – 5:35 PM
Location: 310 Zachry Engineering Education Complex
Credit Hours: 3

Instructor Details

Instructor: Robert Lightfoot
Office: 422 Peterson Building
Phone: 979 845 2611
E-Mail: Use the Canvas email system for all class communications.
Office Hours: Monday & Tuesday 11 - 12 noon

Course Description

Operating system and distributed systems fields that form the basis of cloud computing such as virtualization, key-value storage solutions, group membership, failure detection, peer to peer systems, datacenter networking, resource management and scalability; popular frameworks such as MapReduce and HDFS and cases studies on failure determination.

Course Prerequisites

Grade of C or better in CSCE 315.

Special Course Designation

N/A

Course Learning Outcomes

At the conclusion of this course, students should be able to:
- *demonstrate understanding of the key research results that enabled the development of the cloud computing industry and being familiar with the standards in this new area;*
- *demonstrate knowledge of the basic technology components that enable offerings such as Amazon AWS, Microsoft Azure, and OpenStack;*
- *analyze cloud configuration offerings and assess fitness for specific application domains;*
- *configure software stacks for cloud deployment and automate develop-deploy cycles;*
- *identify weaknesses and strengths of cloud offering configurations;*
- *characterize expected performance, availability, and reliability of common multi-tier application when deployed on cloud platforms.*

Textbook and/or Resource Materials

We will use Perusall for our reading this semester. This will allow discussion and questions about the content and server as a class library for documents we will read and discuss. You will link to Perusall through canvas for all reading assignments.

Textbook: Cloud Computing Sehgal-Bhatt Second Edition

We will also reference NIST Cloud Computing Documents.

Grading Policy

- *Grades are based on a weighted average. The letter grade will be assigned on the %Total.*
  - *Total >= 90*   *A*
  - *80 <= Total < 90*   *B*
  - *70 <= Total < 80*   *C*
  - *60 <= Total < 70*   *D*
  - *Total < 60*   *F*

- *This course will allow you to show the achievement of the learning outcomes through the following methods:*
  - ***Exams***   ***30%***
    - *Midterm*   *10%*
    - *Final*   *20%*
  - ***Quizzes***   ***5%***
  - ***Discussions***   ***5%***
  - ***Readings***   ***15%***
    - *Perusall*   *10%*
    - *Knowledge checks* *5%*
  - ***Projects***   ***45%***
    - *Virtualization*   *10%*
    - *Load balancing*   *15%*

- ▪ *S3 & CI/CD*   *20%*

  - ○ *Honors*   *20%*
    - ▪ *Participation, reading, teaching days. Your project will be defined with you on the third week of class.*
- ● *For any inclass activity, you must be in class to participate or receive credit. This includes quizzes, discussions, and exams.*
- ● *For any submission for an assignment, the work must meet a minimum viable solution to the assignment. Failure to submit this will result in no attempt at grading or applying any rubric scores.*

You are required to develop your projects using a private repository at github.tamu.edu that you will share with instructor(s) and with grader(s). Your repository is a documentation of your development process. You are required to have clear commit messages that document the bugs you identified, corresponding fixes, addition of test cases, etc. Your github usage will impact your grade. For example, having all the code added to the repository and submitted within a short period of time (the magic of going from no code to a working solution quickly) will result in a very low grade.

Late Work Policy
Class participation, quizzes, and reading are not accepted late.

An assignment will be accepted up to 24 hours after the deadline with a 30% penalty.

- ● *Late work will be accepted without penalty on the first class day after the University reopens after closing for an unexpected event. (The newest SARS, Snow Day, Hurricane Day, etc.)*
- ● *Late work will not be accepted for full credit for planned events. If you are part of a University sponsored event, have your work done prior to the due date. This includes interviews, conferences, etc.*

Excused absences will normally not affect an assignment as most (except exams) happen outside of class. If you have a University excused absence during an exam, we will follow Student Rule 7.

Course Schedule (Major assignments)
Fall 2022 is a 15 week course.

Exams
- ● *Midterm October 5, 2022*
- ● *Final December 12, 2022*
Projects
- ● *Project-1 September 14, 2022*
- ● *Project-2 October 13, 2022*
- ● *Project-3 December 7, 2022*
Honors
- ● *TBD by IBM - October 18, 2021*

- *Final Reflection - December 7, 2022*

University Policies

Attendance Policy

The university views class attendance and participation as an individual student responsibility. Students are expected to attend class and to complete all assignments. Excused absences will excuse you from having to be present, but not from the work assigned. It is your responsibility to make up the missed work.

Please refer to Student Rule 7 in its entirety for information about excused absences, including definitions, and related documentation and timelines.

Makeup Work Policy

Students will be excused from attending class on the day of a graded activity or when attendance contributes to a student's grade, for the reasons stated in Student Rule 7, or other reason deemed appropriate by the instructor.

Please refer to Student Rule 7 in its entirety for information about makeup work, including definitions, and related documentation and timelines.

Absences related to Title IX of the Education Amendments of 1972 may necessitate a period of more than 30 days for make-up work, and the timeframe for make-up work should be agreed upon by the student and instructor" (Student Rule 7, Section 7.4.1).

"The instructor is under no obligation to provide an opportunity for the student to make up work missed because of an unexcused absence" (Student Rule 7, Section 7.4.2).

Students who request an excused absence are expected to uphold the Aggie Honor Code and Student Conduct Code. (See Student Rule 24.) Request for excused absence for interviews or other planned events should be made 2 weeks in advance to receive make up opportunities.

Academic Integrity Statement and Policy

"An Aggie does not lie, cheat or steal, or tolerate those who do."

"Texas A&M University students are responsible for authenticating all work submitted to an instructor. If asked, students must be able to produce proof that the item submitted is indeed the work of that student. Students must keep appropriate records at all times. The inability to authenticate one's work, should the instructor request it, may be sufficient grounds to initiate an academic misconduct case" (Section 20.1.2.3, Student Rule 20).

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You can learn more about the Aggie Honor System Office Rules and Procedures, academic integrity, and your rights and responsibilities at aggiehonor.tamu.edu.

Americans with Disabilities Act (ADA) Policy

Texas A&M University is committed to providing equitable access to learning opportunities for all students. If you experience barriers to your education due to a disability or think you may have a disability, please contact the Disability Resources office on your campus (resources listed below) Disabilities may include, but are not limited to attentional, learning, mental health, sensory, physical, or chronic health conditions. All students are encouraged to discuss their disability related needs with Disability Resources and their instructors as soon as possible.

Texas A&M at College Station
Disability Resources is located in the Student Services Building or at (979) 845-1637 or visit disability.tamu.edu.

Title IX and Statement on Limits to Confidentiality

Texas A&M University is committed to fostering a learning environment that is safe and productive for all. University policies and federal and state laws prohibit gender-based discrimination and sexual harassment, including sexual assault, sexual exploitation, domestic violence, dating violence, and stalking.

With the exception of some medical and mental health providers, all university employees (including full and part-time faculty, staff, paid graduate assistants, student workers, etc.) are Mandatory Reporters and must report to the Title IX Office if the employee experiences, observes, or becomes aware of an incident that meets the following conditions (see University Rule 08.01.01.M1):

- The incident is reasonably believed to be discrimination or harassment.
- The incident is alleged to have been committed by or against a person who, at the time of the incident, was (1) a student enrolled at the University or (2) an employee of the University.

Mandatory Reporters must file a report regardless of how the information comes to their attention – including but not limited to face-to-face conversations, a written class assignment or paper, class discussion, email, text, or social media post. Although Mandatory Reporters must file a report, in most instances, a person who is subjected to the alleged conduct will be able to control how the report is handled, including whether or not to pursue a formal investigation. The University's goal is to make sure you are aware of the range of options available to you and to ensure access to the resources you need.

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Students wishing to discuss concerns in a confidential setting are encouraged to make an appointment with Counseling and Psychological Services (CAPS).

Students can learn more about filing a report, accessing supportive resources, and navigating the Title IX investigation and resolution process on the University's [Title IX webpage](#).

Statement on Mental Health and Wellness

Texas A&M University recognizes that mental health and wellness are critical factors that influence a student's academic success and overall wellbeing. Students are encouraged to engage in healthy self-care by utilizing available resources and services on your campus

Texas A&M College Station
Students who need someone to talk to can contact Counseling & Psychological Services (CAPS) or call the TAMU Helpline (979-845-2700) from 4:00 p.m. to 8:00 a.m. weekdays and 24 hours on weekends. 24-hour emergency help is also available through the National Suicide Prevention Hotline (800-273-8255) or at [suicidepreventionlifeline.org](#).