College of Science · Computer Science

Topics in Cloud Computing

CS 218

Fall 2025   Section 01   In Person   3 Unit(s)   08/20/2025 to 12/08/2025   Modified 08/20/2025

AI Policy

- You can use AI to enhance your learning experience. Be warned that not everything that AI mentions is entirely true.
- You can use AI for your homework. If you do use AI, you need to mention the prompts you provided AI. You need to also mention which AI you used.
- AI use is prohibited on Midterm and Final exam.
- AI cannot be used for inclass quizzes

👤 Contact Information

Mr. Narayan Balasubramanian/ Mr. Srivatsan Rajagopal

Email: narayan.balasubramanian@sjsu.edu

Office hours: After class Mon/Wed 7:20-8pm

Office: Duncan 282

Note: Can meet outside office hours if required by zoom

🕐 Course Information

Lecture: Mon, Wed, 6:00 - 7:15 pm PST

Lecture room: MacQuarrie Hall 222

💻 Course Description and Requisites

Topics in cloud computing, including distributed system models, virtual machines, virtualization, cloud platform architectures (IaaS, PaaS, SaaS), service-oriented architectures, cloud programming and software environments, peer-to-peer computing, ubiquitous cloud, cloud security and trust management.

Prerequisite(s): CS 149 and Graduate standing. Allowed Declared Major: Computer Science, Bioinformatics, Data Science. Or instructor consent.

Letter Graded

✳ Classroom Protocols

You are expected to attend classes. If you cannot attend, it is your responsibility to get a copy of the lecture notes and class announcements from a reliable classmate. The instructor reserves the right to ignore frivolous or inappropriate e-mail inquiries. Students are expected to participate actively to provide improvement to presentations by other classmates.

Most classes will have assignments that have to be done in class. If you are done early, spend some time to help your fellow classmates with their assignment. You can learn a lot by helping and teaching others.

▤ Program Information

Diversity Statement - At SJSU, it is important to create a safe learning environment where we can explore, learn, and grow together. We strive to build a diverse, equitable, inclusive culture that values, encourages, and supports students from all backgrounds and experiences.

◎ Course Goals

The goal of this course is to learn how to deploy, monitor and maintain an application on the cloud. For this course, we will learn how to deploy on AWS. There are quite a few other cloud services providers available, but we will stick with AWS because of their leadership.

We will introduce a lot of technologies that will be very useful in the industry.

▂▃▅ Course Learning Outcomes (CLOs)

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

1. Good understanding of git

2. Learn about Continuous Integration/Continuous Deployment

3. Understand cloud related terminologies like IAAS, PAAS, SAAS etc

4. Use of tools like Docker, Kubernetes, terraform

5. Understand frameworks that allow easy development of Api's

6. Test, deploy and monitor apps

7. Understand how to make apps recover from errors and plan for disaster recovery

8. Understand security issues around app deployment

9. Understand Amazon's suite of cloud related products - AWS, EC3, S3, DBs, ECS etc

10. AI on AWS

📘 Course Materials

There is no prescribed textbook. We will make extensive use of the vast amount of free resources available on the internet. These links will be made available in lecture slides, canvas announcements. If you found a link to be very useful, please share with the rest of the class.

☰ Course Requirements and Assignments

Success in this course is based on the expectation that students will spend, for each unit of credit, a minimum of 45 hours over the length of the course (normally three hours per unit per week) for instruction, preparation/studying, or course related activities, including but not limited to internships, labs, and clinical practica. Other course structures will have equivalent workload expectations as described in the syllabus.

1. Project: There will a final project that students will have to demo to the entire class. Students can work in groups of at most 3 individuals.

2. Exams: There will be one midterm and one final exam.

3. Quizzes: There can be as many as a 2 quizzes per week. The quiz will be based on what was covered in an earlier class. Paying attention in class will have its benefits.

4. Homework: Homework submissions have to be done online.

5. Paper: Students will have to read published papers and summarize them. This submission typically happens at the end of the semester and depending on the course load, this requirement might be relaxed.

✔ Grading Information

Criteria

Course weightings will be as follows:

Homework, Quizzes and Paper summaries: 60%

Final Project: 20%

Midterm: 10%

Finals: 10%

Exams may be curved (up) to raise their grades if needed. There will be opportunity for extra credit throughout the course

Breakdown

Your course grade will be determined by your final weighted average.

Total Points	Grade
97% or higher	A+
93 - 97 %	A
90 - 93 %	A-
87 - 90 %	B+
83 - 87 %	B
80 - 83 %	B-
77 - 80 %	C+
73 - 77 %	C
70 - 73 %	C-
67 - 70 %	D+
63 - 67 %	D
60 - 63 %	D-
0 - 60 %	F

Boundary cases count as the higher of the two grades.

🏛 University Policies

Per University Policy S16-9 (PDF) (http://www.sjsu.edu/senate/docs/S16-9.pdf), relevant university policy concerning all courses, such as student responsibilities, academic integrity, accommodations, dropping and adding, consent for recording of class, etc. and available student services (e.g. learning assistance, counseling, and other resources) are listed on the Syllabus Information (https://www.sjsu.edu/curriculum/courses/syllabus-info.php) web page. Make sure to visit this page to review and be aware of these university policies and resources.

📅 Course Schedule

Detailed schedule is posted online (https://docs.google.com/spreadsheets/d/1fcmmWbe2beCAYSrZHSjbnd4zI0Z83oehZ8U_u7R-RVM/edit?gid=0#gid=0)