

# CSC 346 Cloud Computing

**McClelland Park Rm 105 - Tuesday & Thursday 11am - 12:15pm**

## Course Description

This course focuses on cloud programming, with an emphasis on using the cloud to solve problems. The course will look at how distributed systems, databases, networks, etc. are used to implement cloud computing platforms and cloud applications, and the impact of the infinite scalability and pay-as-you-go on the platforms and applications.

## Instructor and Contact Information

Mark Fischer: he/him/his - [fischerm@arizona.edu](mailto:fischerm@arizona.edu)

Office Hours: TBD - In person and Zoom

Teaching Assistants:

Sean Eddy - Bella Salter - Rupal Jain

Instructors Contact List: [csc346-instructors-fall2022@list.arizona.edu](mailto:csc346-instructors-fall2022@list.arizona.edu)

Website: <https://www2.cs.arizona.edu/classes/cs346/spring24/>

## Course Format and Teaching Methods

This course will be in-person lecture. There will be weekly homework assignments, and three exams. I encourage questions and class discussion.

Class lectures will be recorded and available on Panopto shortly after the in-person class time.

## Course Objectives

This course will introduce you to many topics in Cloud Computing. Because of the breadth of topics here, we will not have time to go into great detail on any one topic.

- History of cloud computing, enabling technologies, and common philosophy, including computing as a utility and its implications
- Strategies and patterns for the design and implementation of cloud services
- Underlying technologies of cloud services
- Specific implementations of various cloud services, and how to use them

## Expected Learning Outcomes

Successful completion of this course will result in the following outcomes:

- You will be able to identify specific cloud resources, their strengths and weaknesses, and know when to properly apply each.
- You will understand cloud application architectures, their strengths and weaknesses, and how these architectures differ from existing architectures.
- You will demonstrate real world cloud skills by building a functioning application using cloud principles and resources.
- You will understand the financial differences between cloud computing architectures and traditional computing architectures.

## Makeup Policy for Students Who Register Late

This class is currently full, so in the unlikely event you are able to even register for the course late, any homework assignments must still be completed by the posted date. If you register after a homework assignment was due, it cannot be made up. The first Homework will be due on January 27th. Plan accordingly!

## Course Communications

Official course related communications and announcements will be to your University Email address.

Class discussions will take place on the Computer Science Discord server. Contact [advising@cs.arizona.edu](mailto:advising@cs.arizona.edu) to gain access.

## Required Texts or Readings

There are no required textbooks for this course. Reading materials will primarily be online documentation for the various technologies used in the course.

## Required or Special Materials

You will need access to a computer you can install software on, and an internet connection.

## Assignments and Examinations: Schedule/Due Dates

There will be three Exams for this course.

Exam 1: February 20th - During regular class meeting

Exam 2: March 26th - During regular class meeting

Exam 3: May 7th - During Final Exam Slot

There will be around 10 homework assignments for the course. Homework will be assigned on the Thursday course meeting, and will be due the following Saturday at 11pm. ***You can turn the assignments in early, on the Thursday before the Due Date for extra credit.*** The amount of extra credit available will vary depending on the assignment.

## Final Examination

McClelland Park Rm 105: May 7th 2024 from 10:30am - 12:30pm

Final Exam Regulations and Final Exam Schedule:

<https://registrar.arizona.edu/faculty-staff-resources/room-class-scheduling/schedule-classes/final-exams>

## Grading Scale and Policies

University policy regarding grades and grading systems is available at <https://catalog.arizona.edu/policy/courses-credit/grading/grading-system>

This course will use the Regular Grade policy from the University's grading policy linked above.

n >= 90%	A
80% <= n < 90%	B
70% <= n < 80%	C
60% <= n < 70%	D
n < 60	E

Late work will only be accepted for extraordinary circumstances as determined by the instructor. If you know you will be unable to complete an assignment on-time contact the instructor as soon as possible.

Exams will each be worth 100 points. Exams will be 30% of the final grade.

Each homework assignment will be worth a varying amount of points from 20 to 50 points or so, commensurate with the complexity of the assignment. All of the homework assignment points will be added up and multiplied by 70% towards your final grade.

$$\text{Exam Weighted Score} = \frac{\text{your exam points}}{\text{total exam points}} \cdot 0.3$$

$$\text{Homework Weighted Score} = \frac{\text{your homework points}}{\text{total homework points}} \cdot 0.7$$

Your final grade will then be Homework Weighted Score + Exam Weighted Score.

### **Incomplete (I) or Withdrawal (W):**

Requests for incomplete (I) or withdrawal (W) must be made in accordance with University policies, which are available at <http://catalog.arizona.edu/policy/grades-and-grading-system#incomplete> and <http://catalog.arizona.edu/policy/grades-and-grading-system#Withdrawal> respectively.

### **Dispute of Grade Policy**

If you wish to dispute your score for an Exam or Assignment the issue **must be raised within 7 days of receiving your grade.**

## Honors Credit

Students wishing to contract this course for Honors Credit should e-mail me to set up an appointment to discuss the terms of the contract and to sign the Honors Course Contract Request Form. The form is available at <http://www.honors.arizona.edu/honors-contracts>

Honors Contracts must be agreed upon before the first Exam on February 15th.

## Scheduled Topic and Activities

Wk	Date	Topics	HW	Due
1	January 11	Class overview. History of Backend Computing. UNIX Basics, Docker		
2	January 16, 18	UNIX Command Line. Using Docker.	1	January 27th
3	January 23, 25	Web Servers & Applications. HTTP Protocol	2	February 3rd
4	January 30, February 1	Networking. IPv4. IPv6. Sockets.	3	February 10th
5	February 6, 8	Javascript	4	February 17th
6	February 13, 15	Passwords, Authentication & Authorization		
7	February 20	<b>Exam 1</b>		
7	February 22	Introduction to Amazon Web Services. aws-cli.	5	March 2nd
8	February 27, 29	AWS EC2 and RDS	6	March 16th
*	March 5, 7	<b>NO CLASS - Spring Break</b>		
9	March 12, 14	JSON and REST	7	March 23
10	March 19, 21	Infrastructure as Code		
11	March 26	<b>Exam 2</b>		
11	March 28	Cloud Architectures and Managed Services	8	April 13
12	April 2, 4	Cloud Architectures and Managed Services		
13	April 9, 11	Public Key Cryptography	9	April 27
14	April 16, 18	Cookies, Sessions and Local Storage		
15	April 23, 25	WebSockets		
16	April 30	<b>LAST DAY OF CLASS - Review</b>		
*	May 7	<b>Exam 3 - Our Regular Room: McClelland Park Rm 105</b>		

## Classroom Behavior Policy

To foster a positive learning environment, students and instructors have a shared responsibility. We want a safe, welcoming, and inclusive environment where all of us feel comfortable with each other and where we can challenge ourselves to succeed. To that end, our focus is on the tasks at hand and not on extraneous activities (e.g., texting, chatting, reading a newspaper, making phone calls, web surfing, etc.).

Students are asked to refrain from disruptive conversations with people sitting around them during lecture. Students observed engaging in disruptive activity will be asked to cease this behavior. Those who continue to disrupt the class will be asked to leave lecture or discussion and may be reported to the Dean of Students.

## **Safety on Campus and in the Classroom**

For a list of emergency procedures for all types of incidents, please visit the website of the Critical Incident Response Team (CIRT): <https://cirt.arizona.edu/case-emergency/overview>

Also watch the video available at

[https://arizona.sabacloud.com/Saba/Web\\_spf/NA7P1PRD161/common/learningeventdetail/crtfy00000000003560](https://arizona.sabacloud.com/Saba/Web_spf/NA7P1PRD161/common/learningeventdetail/crtfy00000000003560)

## **University-wide Policies link**

Links to the following UA policies are provided here, <http://catalog.arizona.edu/syllabus-policies>:

- Absence and Class Participation Policies
- Threatening Behavior Policy
- Accessibility and Accommodations Policy
- Code of Academic Integrity
- Nondiscrimination and Anti-Harassment Policy

## **Department-wide Syllabus Policies and Resources link**

Links to the following departmental syllabus policies and resources are provided here, <https://www.cs.arizona.edu/cs-course-syllabus-policies> :

- Department Code of Conduct
- Class Recordings
- Illnesses and Emergencies
- Obtaining Help
- Preferred Names and Pronouns
- Confidentiality of Student Records
- Additional Resources
- Land Acknowledgement Statement

## **Subject to Change Statement**

Information contained in the course syllabus, other than the grade and absence policy, may be subject to change with advance notice, as deemed appropriate by the instructor.