CSYE 6225 Network Structures and Cloud Computing
FALL 2024

Course Information
Course Title: Network
Course Number: CSYE 6225
Term and Year: Fall 2024
Credit Hour: 4
CRN: 20811
Course Format: In Person every Thursday 6:00 – 9:00 PM Arlington Room 1525

Instructor Information
Full Name: Yuze Chen
Email Address: yuz.chen@northeastern.edu
Office Hours: Saturdays 3-4 pm ET and by appointment

Instructor Biography
Yuze is an experienced software engineer with in-depth knowledge in full-stack web development and cloud deployment. His teaching focuses on the the front-end and back-end web development, as well as the deployment of the web application to the cloud services.

Teaching Assistant Information
Full Name: N/A
Email Address:N/A
Office Hours:N/A

Course Prerequisites
INFO 5100 with a minimum grade of B- or CSYE 6200 with a minimum grade of B-

Course Description
Offers a practical foundation in cloud computing and hands-on experience with the tools used in cloud computing. Designed as a foundation course for cloud-aware, adept professionals. Focuses on the fundamentals of cloud computing, the principal areas of cloud architectures, cloud security, cloud governance, cloud storage, cloud virtualization, and cloud capacity. Discusses the Internet evolution that led to cloud and how cloud applications revolutionized Web applications.

Course Learning Outcomes
At the end of this course, students will be able to:

- Understand the concepts of cloud computing, including virtual machine, load balancing, private cloud, DNS, etc.
- Understand the common cloud services offered in the market, such as Amazon Web Services, Microsoft Azure, and Google Cloud Platform.
- Gain hands-on experiences with the selected AWS services, including EC2, S3, Route 53, CloudFront, etc.
- Understand the security considerations for cloud services.
- Gain hands-on experiences with AWS authentication and access control.
- Gain hands-on experiences with AWS storage and database.
- Perform common actions for creation, monitoring, and deletion of various AWS services.
- Integrate the cloud development with the modern software development practices, such as Agile, Git, CI/CD, etc.

Required Tools and Course Textbooks.
No textbook needed. Important Notice: Each student is solely responsible for any costs related to any cloud services they registered, even if they are used for the purpose of a variety of class-related activities such as doing assignments, following in-class demos, and doing projects. Northeastern University (NEU), College of Engineering (COE), and the instructor will not be responsible for any charges incurred. By taking this course, you agree to pay any cloud-related costs under the username you registered. You agree not to hold NEU, COE, or the instructor liable for these costs.

Course Schedule/Topics Covered.
*Note: The following schedule is only used as a reference and subject to change at any time. The exact assignment due dates are posted on Canvas -> Modules, and **Canvas is the only source of truth**.*

Module	Date	In Class Topic	Assignment Due before Lecture
1	9/5	Intro to Cloud	
2	9/12	AWS Walkthrough	HW 1
3	9/19	Quiz 1, Linux basics, CLI, Shell scripts	
4	9/26	EC2, Load Balancing	HW 2
5	10/3	Networking basics, and VPC on AWS	
6	10/10	Quiz 2, DNS, CloudFront	HW 3
7	10/17	Storage Services and AWS S3, EBS, EFS	
8	10/24	Intro to Database, AWS RDS	HW 4
9	10/31	Quiz 3, DevOps intro, AWS CloudFormation	
10	11/7	Docker intro, AWS ECS, Fargate	HW 5
11	11/14	Serverless Computing, AWS Lambda	
12	11/21	Quiz 4, Cloud Security & Best Practices	HW 6
	11/28	Thanksgiving, no class	
13	12/5	Intro to AI & Machine Learning in the Cloud	HW 7
14	12/12	Quiz 5, Final Presentation	HW 8

Assignment Grading
- Participation: 5%
  - Attendance is required for all lectures in order to participate in the in-class discussions and group activities
  - For each missed attendance without prior authorization from the lecturer, 1% will be deducted.
  - **3 or more absences results in automatic F per MGEN policy. Please carefully review the Attendance/Late Work Policy below.**
- Quizzes: 25%
- Homework: 50%
- Final Project: 20%

Grading Scale

	87-89.9% B+	77-79.9% C+	
	84-86.9% B	74-76.9% C	
95-100% A			
90-94.9% A-	80-83.9%B-	70-73.9% C-	
			69.9% or below F

Attendance/Late Work Policy

Attendance Policy

Students registered in MGEN courses (INFO, CSYE, and DAMG) are allowed **a maximum of 2 absences per course, with 3 or more absences resulting in an automatic 'F' for that course.** Students are expected to inform their instructors of any absences in advance of the class; if a student is sick long-term or experiences a medical issue that prevents class attendance, it is strongly encouraged that they speak with their Academic Advisor (coe-mgen-gradadvising@northeastern.edu) to learn more about the Medical Leave of Absence. Should a student anticipate being unable to attend 3 or more classes, they should discuss their situation with their Academic Advisor to explore other types of leave in accordance with the University's academic and global entry expectations. International students should review the Office of Global Services webpage to understand their visa compliance requirements.

Teaching Assistants (TAs) or Instructional Assistants (IAs) will be present at each class to collect student attendance.

Late Work Policy

Students must submit assignments by the deadline in the time zone noted in the syllabus. Students must communicate with the faculty prior to the deadline if they anticipate work will be submitted late. Work submitted late without prior communication with faculty will not be graded.

- Late submissions include but not limited to these scenarios
  - Forgot to share your private Github repository with the instructor's Github account before the deadline.

- - Finished the code on Github before the deadline but failed to submit the link to your repo on Canvas.
    - You've done all your work on the cloud, but failed to submit the recording of your demo to Canvas before the deadline.
  - Up to 3 days late: Deduct 10% of Total possible grade of that assignment
  - 3-7 days late: Deduct 30% of Total possible grade of that assignment
  - More than 7 days late: Deduct 50 % of Total possible grade of that assignment

End-of-Course Evaluation Surveys

Your feedback regarding your educational experience in this class is particularly important to the College of Engineering. Your comments will make a difference in the future planning and presentation of our curriculum.

At the end of this course, please take the time to complete the evaluation survey at **https://neu.evaluationkit.com**. Your survey responses are **completely anonymous and confidential**. For courses 6 weeks in length or shorter, surveys will be open one week prior to the end of the courses; for courses greater than 6 weeks in length, surveys will be open for two weeks. An email will be sent to your Northeastern University Mail account notifying you when surveys are available.

Academic Integrity

A commitment to the principles of academic integrity is essential to the mission of Northeastern University. The promotion of independent and original scholarship ensures that students derive the most from their educational experience and their pursuit of knowledge. Academic dishonesty violates the most fundamental values of an intellectual community and undermines the achievements of the entire University.

As members of the academic community, students must become familiar with their rights and responsibilities. In each course, they are responsible for knowing the requirements and restrictions regarding research and writing, examinations of whatever kind, collaborative work, the use of study aids, the appropriateness of assistance, and other issues. Students are responsible for learning the conventions of documentation and acknowledgment of sources in their fields. Northeastern University expects students to complete all examinations, tests, papers, creative projects, and assignments of any kind according to the highest ethical standards, as set forth either explicitly or implicitly in this Code or by the direction of instructors.

Go to http://www.northeastern.edu/osccr/academic-integrity-policy/ to access the full academic integrity policy.

MGEN Student Feedback

Students who would like to provide the MGEN unit with anonymous feedback on this particular course, Teaching Assistants, Instructional Assistants, professors, or to provide general feedback regarding their program, may do so using this survey: https://neu.co1.qualtrics.com/jfe/form/SV_cTIAbH7ZRaaw0Ki

University Health and Counseling Services

As a student enrolled in this course, you are fully responsible for assignments, work, and course materials as outlined in this syllabus and in the classroom. Over the course of the semester if you experience any health issues, please contact UHCS.

For more information, visit https://www.northeastern.edu/uhcs.

Student Accommodations
Northeastern University and the Disability Resource Center (DRC) are committed to providing disability services that enable students who qualify under Section 504 of the Rehabilitation Act and the Americans with Disabilities Act Amendments Act (ADAAA) to participate fully in the activities of the university. To receive accommodations through the DRC, students must provide appropriate documentation that demonstrates a current substantially limiting disability.

For more information, visit https://drc.sites.northeastern.edu.

Library Services
The Northeastern University Library is at the hub of campus intellectual life. Resources include over 900,000 print volumes, 206,500 e-books, and 70,225 electronic journals.

For more information and for education specific resources, visit https://library.northeastern.edu
Network Campus Library Services: Northeastern University Library Global Campus Portals

24/7 Canvas Technical Help
For immediate technical support for Canvas, call 617-373-4357 or email help@northeastern.edu

Canvas Student Resources: https://canvas.northeastern.edu/student-resources/

For assistance with my Northeastern e-mail, and basic technical support:
Visit ITS at https://its.northeastern.edu
Email: help@northeastern.edu
ITS Customer Service Desk: 617-373-4357

Diversity and Inclusion
Northeastern University is committed to equal opportunity, affirmative action, diversity, and social justice while building a climate of inclusion on and beyond campus. In the classroom, members of the University community work to cultivate an inclusive environment that denounces discrimination through innovation, collaboration, and an awareness of global perspectives on social justice.

Please visit http://www.northeastern.edu/oidi/ for complete information on Diversity and Inclusion

Title IX
Title IX of the Education Amendments of 1972 protects individuals from sex or gender-based discrimination, including discrimination based on gender-identity, in educational programs and activities that receive federal financial assistance.

Northeastern's Title IX Policy prohibits Prohibited Offenses, which are defined as sexual harassment, sexual assault, relationship or domestic violence, and stalking. The Title IX Policy applies to the entire community, including male, female, transgender students, faculty, and staff.

In case of an emergency, please call 911.

Please visit **https://www.northeastern.edu/ouec** *for a complete list of reporting options and resources both on- and off-campus.*