SENG 6285: Cloud Computing
Spring 2022

Instructor	Dr. Mark Hills
Scheduled Class Time	Tuesday and Thursday, 11:00am - 12:15pm Class meets in Bate 1024 or online.
Instructor Office	Science & Technology Building, Room C-110
Office Hours	Tuesday 3:30pm to 5:00pm Wednesday 1:00pm to 3:00pm Thursday 3:30pm to 5:00pm Feel free to make an appointment with me if you need to meet outside of these hours. I will be available on MS Teams during these times and will also be in my office if you want to meet in person.
Instructor Phone	252-328-9692
Instructor Email	hillsma@ecu.edu, responses within 24 hours during the week, potentially longer on weekends or over holidays
Course Web Page	Canvas: https://canvas.ecu.edu

Course Description and Objectives

The catalog description for this course is as follows:

> *Techniques for developing applications and services to run on distributed networks using virtualized resources accessed over the Internet.*

In this course we will cover a number of topics relevant to cloud computing. This will include different cloud service models; cloud administration and security; cloud storage; software architectures related to, or enabled by, cloud; cloud application support; DevOps; and APIs. Upon completion of this course each student will be able to:

- Compare and contrast different service models for cloud computing, e.g., IaaS, PaaS, SaaS;
- configure and administer security, billing, networking, and logging for cloud services;
- select and configure appropriate storage solutions for cloud applications, including file-based, relational/SQL, and NoSQL storage alternatives;
- utilize cloud services to support typical application execution scenarios;
- configure and use DevOps build pipelines, including support for application build, automated test, containerization, and deployment;
- use and create RESTful APIs;
- use Infrastructure-as-Code solutions for automating the configuration of cloud services.

Prerequisites

While there are no official prerequisites for this course, you should be comfortable with programming. This means you should have programming background at least equivalent to that from SENG 5000. Given this is a graduate course, you should be able to learn parts of different languages in a self-guided manner, although I am happy to help recommend resources.

Textbooks

Any needed material from textbooks will be made available directly on Canvas. There is no required book for this course.

Research material will be available through the ECU Joyner Library proxy, which will provide access to any papers discussed as part of the class. This will also be used for identifying papers for the research report and recorded lesson.

Other helpful material, including references to books, tutorials on the web, links to papers, and videos will be posted as the course progresses.

Classroom Meetings

NOTE: This language was provided by ECU, and has only been modified to update the semester.

As stated in ECU's Community Expectations, by working together, we can keep Pirate Nation safe for a successful Spring 2022 semester. Therefore, we will be observing the following class policies related to your health and safety:

- All students are required to comply with the University Regulation on Face Coverings. No student will be allowed into the classroom without a face covering or mask worn properly over both the mouth and nose. You must wear a face covering properly the entire time you are in class.
- If you do not have access to a face covering, you may obtain a mask from Dowdy Student Store, Pirate Pantry, or another provider of masks.
- Maintain appropriate social distancing in hallways or common spaces prior to and after class, and stay spaced as much as possible in the classroom.
- Follow all posted signage related to entry, exit and pedestrian flow within classroom buildings.
- Conduct a daily health screening using the CDC's COVID-19 symptoms list. Do NOT attend class if you answer yes to any item on the list or if you are experiencing symptoms of any illness.

In the case of localized outbreaks affecting our classroom identified by health officials, we will transition to online delivery for up to two weeks for your safety. Health officials will closely monitor conditions and may need to contact you by phone to help them monitor public health conditions. Please ensure your phone number is up to date in PiratePort. After this period of up to two weeks, we will resume on campus in-class activities. The temporary move to online course delivery will not affect the due dates for exams, quizzes, assignments, or any other form of assessment. If the course schedule requires adjustment, I will always notify you.

If the course moves online, you may be required to attend synchronous class meetings at the established class times via our existing Teams team for the course. Class meetings will be recorded for students who have poor internet connections.

I will post all course materials and class meeting recordings, if available, on Canvas. Students unable to attend should access those notes and materials and contact me if they have any questions. The Canvas course will be used for all communications, assignments, and assessments. It is recommended you save on your computer and/or print a copy of the syllabus, assignment schedule, and other important course material. In the event of a Canvas outage, I will use email to communicate with you.

Official Statement on Course Recordings: This class will be recorded and broadcast on the internet and/or distributed on other electronic media now or hereafter known. These recordings may contain your image and your voice. You must notify me as soon as possible if you DO NOT want your image and your voice contained on the recording. If you do not so timely notify me, then you understand and authorize that as part of this class we may record your image and record your voice and broadcast it on the internet and/or distribute it on other electronic media now or hereafter known.

Instructor's Explanation/Addendum: The language above is language we have been asked to use. Essentially, if we record the course, you may be on video. Most likely, this would only include audio of your voice, since we would mainly be focused on recording the lecture itself, not the entire classroom, but if we have a discussion or you ask a question, the audio from this may be captured. The video will only be available to other members of the course. Each classroom session will be recorded.

Grading

Students will be evaluated based on a combination of class activities, including homework assignments, quizzes, discussions, the midterm and final exams, and a research project/lesson. The final grade will be assessed with the following criteria, with grades normalized to a 100-point scale:

Grading	
A	≥ 90
B	≥ 80
C	≥ 70
F	< 70

This grade is based on the following relative weights of the various activities:

Weighting	
Homework and In-Class Activities	30%
Quizzes	10%
Online Discussions	10%
Midterm Exam	15%
Final Exam	15%
Research Project/Lesson	20%

Homework assignments and hands-on activities will be due throughout the semester. Quizzes will be posted periodically, focused on assigned readings. Discussions will also be posted periodically on Canvas. More details about the homework, the quizzes, discussions, activities, and the research project/lesson will be made available during the course.

Exams

The midterm exam for the course will be available from Wednesday, March 2 to Friday, March 4 on Canvas. The final exam for the course will be available from Tuesday, May 3 to Wednesday, May 4 on Canvas (final exam day is officially Wednesday, May 4). More details about the exams will be available closer to the exam dates. Both are timed exams. **Note**: this means you will not need a proctor for this course.

Starfish

This course uses the Starfish system to provide you with information on your performance within the course. For more information, please see **http://www.ecu.edu/cs-acad/advising/upload/Starfish-Student-Getting-Started.pdf**.

Student Conduct

Smoking is not permitted in classrooms. Please turn off mobile phones in class. Laptops and tablets can be used for taking notes, but should not be used for other work (or recreational browsing, playing games, etc).

Students are expected to abide by the university's Student Honor Code. The homework that you do is a critical part of your education. Each student is expected to do his or her own individual work. That does not mean you are not allowed to discuss your ideas with other students. Working together can be beneficial, and I encourage you to talk through ideas with other students. But outright copying is considered plagiarism and is unacceptable. Students who copy other students' work, or who allow their work to be copied, or who copy their work from other sources, such as the Internet, will receive either no credit or negative credit for the assignment, and may be reported to the university for an academic integrity violation.

Other potential academic integrity violations are cheating, falsification, multiple submissions of the same work in different classes, and attempts at any of these violations. Please see http://www.ecu.edu/cs-studentlife/policyhub/academic_integrity.cfm for more details.

Academic integrity violations can result in a grade penalty up to and including an F for the course.

Incompletes

No incompletes will be issued in this course except for extraordinary circumstances, which generally will be situations where almost all work is complete, this work has been done at an acceptable level of quality, and it is realistic that you can pass the course once the remaining work is completed.

Other Policies

All homework solutions are due by the posted due date. If for some reason you are not able to complete the assignment on time, you must contact me directly with an explanation and request an extension. If something comes up and you are having trouble keeping up with the class, talk to me right away, ***don't wait until the end of the semester!***

Course participation is an important part of the course. If you do not participate you will make it harder to have the kinds of discussions we need to make the class interesting. Please read the assigned readings in a timely fashion and come to class prepared to talk.

Success in the class is directly correlated with class attendance, so I highly recommend that you attend and actively participate. If for some reason you cannot attend, please let me know – my expectation is that you will watch the lecture online and ask me questions about the material if you have any. For online students, I recommend that you watch the lecture the day it is given and send any questions before the next class session (so I can address them in class). Falling behind will make the course more difficult than it would otherwise be. I will be taking attendance at regular points in the class for my own records.

Any code needed for the assignments will be distributed using either GitHub repositories, GitLab repositories, or Canvas. Written assignments must instead be scanned as PDFs and uploaded to Canvas.

Copyright on Course Materials

Course materials, including programming assignments and lecture notes, can only be publicly shared or used for commercial purposes if given permission. This is covered by ECU copyright regulations, available at http://www.ecu.edu/prr/10/40/02, which state the following:

> 7.1.3. Notes of classroom and laboratory lectures, syllabi, exercises and other course materials taken by Students shall not be deemed Student Works, may only be used for personal educational purposes, and shall not be used for commercialization by the Student generating such notes or by any third party without the express written permission of the author of such Works. Violation of University Policy may be grounds for disciplinary action pursuant with the ECU Student Conduct Process.

Weather Emergencies

In the event of a weather emergency, information about ECU can be obtained through the following sources:

ECU emergency notices	http://www.ecu.edu/alert
ECU emergency information hotline	252-328-0062

Students with Disabilities

East Carolina University seeks to comply fully with the Americans with Disabilities Act (ADA). Students requesting accommodations based on a disability must be registered with the Department for Disability Support Services located in Slay 138 ((252) 737-1016 (Voice/TTY)).

For more information, please see http://www.ecu.edu/cs-studentlife/dss/.

Caveats

Occasionally, it may be necessary to revise this syllabus due to extenuating circumstances. I reserve the right to revise this syllabus if the need arises. If I do so, I will announce this on Blackboard.