

Syllabus  
ST: Cloud Infrastructure  
CS 6/73995-003-12548  
Spring 2017

### **Instructor Information**

Dr. Gregory S. DeLozier  
[gdelozie@kent.edu](mailto:gdelozie@kent.edu)

Office Hours: 6-7PM 9:45-10:45PM MW in classroom or CS213 as requested

### **Outcomes and Expectations**

Students in this course will learn the concepts and methods of creating and managing cloud infrastructure. With modern development of cloud computing capabilities, it is becoming more common for enterprises to opt out of building expensive private IT infrastructure on premises, and instead opt to create their business infrastructure in the cloud. With this decision comes a number of new responsibilities: enterprises must select vendors, define and create virtual infrastructure in those vendor systems, secure those assets from accidental and intentional damage, deploy IT systems and applications to those systems, test and monitor the resulting virtual environments, manage performance and scale, and maintain and update those environments over time. These activities bring new tools, new practices, and a re-examination of the economics and practical considerations of IT infrastructure. This class will cover these topics through current literature, experimentation, and experience in creating and managing significant cloud infrastructure deployments.

### **Required and Optional Textbooks and Materials**

There is no required textbook. There will be reading assigned from web, academic, and industry sources.

Additional online reading will be assigned.

An account at [www.pythonanywhere.com](http://www.pythonanywhere.com) is required. This costs \$5/month.

An account at DigitalOcean will be required. This cost is variable, expect about \$20/month.

A personal computer running Python and Chrome or Firefox is required.

### **Course Prerequisites**

This course requires basic programming skills. Familiarity with Python and web programming is useful. Students who do not have this experience will need to learn these as we go. This may be challenging.

This course also requires basic familiarity with Unix/Linux shell concepts. These can be caught up as we go, but they are not extensively taught in class.

### **Enrollment/Official Registration**

The official registration deadline for this course is 1/22/2017. University policy requires all students to be officially registered in each class they are attending. Students who are not officially registered for a course by published deadlines should not be attending classes and will not receive credit or a grade for the course. Each student must confirm enrollment by checking his/her class

schedule (using Student Tools in FlashLine) prior to the deadline indicated. Registration errors must be corrected prior to the deadline.

## **General Class Calendar**

Lectures: Monday, Wednesday, 8:30-9:45

Topics:

Understanding cloud concepts

IAAS, PAAS, SAAS, Economics

Survey of cloud assets

Servers, Networking, Storage, Database, Platforms

Selecting a cloud vendor

Amazon, Azure, Google, Linode, Digital Ocean, PA, CA

Deploying servers and containers

Building servers and containers

Securing and hardening assets

Setting up networking

Deploying software

Systems and application monitoring

Scaling issues and strategies

Maintenance and upgrading

Final: TBD

## **Withdrawal Deadline**

The course withdrawal deadline is 3/26/2017.

## **Grading Policy**

|   |     |     |
|---|-----|-----|
| Homework. Homework is not accepted late.      | 20% |     |
| Midterm. Online, open handwritten notes.      | 20% |     |
| Infrastructure project work done and tested.  |     | 20% |
| Final exam. In class, open handwritten notes. | 40% |     |

Letter Grades: 90% = A, 80% = B, 70% = C, etc.

## **Class Attendance Policy**

Students are encouraged to attend class. If class is missed, students are still responsible for course content, notes, etc. The class slides are not guaranteed to cover all important content from the class session.

There may be extra credit opportunities during class sessions. These will not be announced in advance.

## **Cheating and Plagiarism**

University policy 3-01.8 deals with the problem of academic dishonesty, cheating, and plagiarism. None of these will be tolerated in this class. The sanctions provided in this policy will be used to deal with any violations. If you have any questions, please read the policy at

<http://www.kent.edu/policyreg/administrative-policy-regarding-student-cheating-and-plagiarism>

or ask me at any time.

## **Students with Disabilities**

University policy 3-01.3 requires that students with disabilities be provided reasonable accommodations to ensure their equal access to course content. If you have a documented disability and require accommodations, please contact the instructor at the beginning of the semester to make arrangements for necessary classroom adjustments. Please note, you must first verify your eligibility for these through Student Accessibility Services (contact 330-672-3391 or visit [www.kent.edu/sas](http://www.kent.edu/sas) for more information on registration procedures).

## **Additional Class Policies**

### **Class Conduct**

- The usual rules about adult behavior apply.
- Keep the laptop and phone distraction to a minimum when we're doing things together.
- We will have one or two breaks. If you need to leave between breaks, be discreet.

### **Extreme Circumstances**

- If something unusual is happening at the university, we might not have class if the university is closed.
- If something unusual happens to me, and I'm not here by 7:30, we won't have class.
- If either one of these happens, adjusted homework and lecture notes will be posted on the web within 24 hours. You will still be responsible for getting assignments done.