

Syllabus
ST: Cloud Application Design
CS 4/59995-014-201810:
Spring 2018

Instructor Information

Dr. Gregory S. DeLozier

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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 deploying modern applications using resources and tools in the cloud. With modern development of cloud computing capabilities, it is becoming less common to build large single-instance applications that are shipped to customers for installation on isolated computers. Instead, modern cloud applications are characterized by use of new technologies such as:

- * Use of cloud storage and scalable cloud computation resources
- * Architectures of distributed, connected services and layers
- * Use of cloud services for communication with other people and data sources
- * Different modes of user interaction, such as conversation or interaction in social settings
- * Extensive use of alternative media such as photos, sound, maps, or video.
- * Distribution via web or package management
- * Cooperation and synchronization between families of applications

These activities bring new tools and practice into application development, and require re-examining basic assumptions about application development, both in terms of what is possible and what is useful. This class will cover these topics through current literature, experimentation, and experience in creating and deploying significant cloud applications.

Required and Optional Textbooks and Materials

There is no required textbook.

There will be reading assigned from web, academic, and industry sources.

An account at 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 intermediate 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 1/21/2018 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: (See schedule)

Topics:

- Understanding cloud concepts
 - IAAS, PAAS, SAAS, Economics
- Survey of cloud application assets
 - VMs, Networking, Storage, Database, Platforms
- Selecting a cloud vendor
- Cloud application architectures
- Building servers and containers
- Deploying platform applications
- User experience capabilities
- Storage strategies
- Serverless applications and computational models
- Social platforms
- Conversational platforms
- Synchronization and Pub/Sub tools
- Application monitoring
- Scaling issues and strategies
- Maintenance and upgrading

Final: TBD

Withdrawal Deadline

The course withdrawal deadline is 3/25/2018.

Grading Policy

Homework. Homework is not accepted late.	20%
Midterm. Online, open handwritten notes.	20%
Application project completed and tested.	30%
Final exam. In class, open handwritten notes.	30%

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 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.

Additional Class Policies (continued)

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.

Identification of Submissions

- Everything you want graded must be clearly identified with your KENT ID.
- This is the personalized part of your kent email address.

gdelozie@kent.edu → "gdelozie" is my KENT ID

- I am not interested in your student numbers, etc.
- Get familiar with what Kent thinks your name is and use that when necessary.

If Kent thinks your name is this:

First: Alpha Beta
Last: Gamma Delta

Then please turn in as :

Alpha Beta Gamma Delta or Alpha Gamma Delta

And *not*

Beta Delta Gamma
Gamma Delta Beta Alpha
etc.

Use *at least some* of your "first" name and *all* of your last name.

I _know_ that traditions and cultural standards vary. Here, be consistent with Kent.

Content of Submission

- Any content submitted to Blackboard must consist of *one* PDF file.
- Any additional content must either be submitted by arrangement.
- ...Or submitted via a link in the PDF file.