Cloud Computing

CS-351 **Spring 2019**

Course Information

Catalog Course Description: A comprehensive overview of cloud computing and its application to big data and data science. Current technologies that comprise the concept of cloud computing are discussed. Exploration of major Cloud frameworks that support large data storage and applications that support data analytics.

Prerequisites: CS-102, Computing and Algorithms II

Course Objectives: By the end of this course, you should be able to demonstrate the ability to do all of the tasks listed below:

- Describe the basic principles of modern computer networks, the design philosophy of the Internet, and Internet protocols.
- Design and implement efficient and scalable network applications.
- Describe the concepts of distributed system models, computer virtualization, and network virtualization.
- Write an application using cloud computing systems.

Course Schedule (Tentative):

Week 1: Introduction to Networks

Week 2: Application Layer Protocols

Week 3: Introduction to Distributed Computing

Week 4: Introduction to Cloud Computing

Week 5: Midterm review; Midterm

Week 6: Cloud Service Providers and the Cloud Ecosystem

Week 7: Introduction to IaaS

Week 8: Introduction to PaaS

Week 9: Cloud Applications

Week 10: Cloud Security, Cloud Issues, and Challenges

Administrative Information

Recommend Books:

- Dan C. Marinescu, *Cloud Computing: Theory and Practice*, second edition, Morgan Kaufmann
- Kurose and Ross, *Computer Networking: A Top-Down Approach*, 7th edition, Pearson
- Foster and Gannon, *Cloud Computing for Science and Engineering*, the MIT press

Instructor: Yunsheng Wang

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Office: AB 2-300N

Lecture: Tuesday and Friday 1:20pm-2:55pm, AB 4104

Lab: Tuesday 10:15am-12:20m, AB 3509 or Wednesday 1:20pm-2:55pm, AB 3509

Student Hours: Tuesday 3:00pm-4:30pm, Wednesday and Friday, 10:00am-11:30pm, *or by appointment.*

Office Phone: 762-7333

Course WWW Page: See *http://blackboard.kettering.edu*

Course Requirements and Grading

Course Grades and Policies

Exam

A midterm examination, worth 25% of the final course grade, is tentatively scheduled for **3 May (5th Friday)**. Details regarding the examination will be discussed later. Examination will cover material presented in lecture and announced sections of the textbook. You are responsible for all material presented in class.

Homework

There will be several homework assignments. Dates and relative weights for each assignment will be announced. Homework will be worth a cumulative 40% of the final course grade.

Final Project

The final project has three main milestones: (1) an initial project proposal, (2) the final project report, and (3) project presentation and demonstration. Details regarding the final project will be discussed later. Final project will be worth a cumulative 30% of the final course grade.

Course Grades and Policies

Table 1: Example of Computation of the Mid-term and the Final Grades

Grade	**Points**	**Equivalent Wag**
A	4.0	93 - 100
A-	3.7	89 - 92
B+	3.3	86 - 88
B	3.0	81 - 85
B-	2.7	78 - 80
C+	2.3	76 - 77
C	2.0	74 - 75
C-	1.7	72 - 73
D+	1.3	71
D	1.0	70
F	0.0	0 - 69

Final course grades will initially be computed using the relative weights described above. Individual grades may be adjusted to reward improvement over the course of the semester. The official interpretations of the Kettering University Grading Scheme in the Kettering University Catalog will be used to guide the above adjustments.

Questions regarding individual scores on assignments and exams should be addressed to the instructor within one week of receiving the score.

All suspected cases of academic dishonesty will be handled in strict accordance with Kettering University policy. Any questions regarding appropriate behavior should be cleared with the instructor in advance.

Attendance Policy

You are expected to attend all lectures and labs on time. If you cannot come to lecture, please email me. The attendance will be worth a cumulative 5% of the final course grade.

Late-to-class or missed class: It is the students' responsibility to find out what material or announcements were missed. After reviewing this material, if more help is needed, then the student can see the instructor.

Common Statement: Students with Documented Disabilities

The University will make reasonable accommodations for persons with documented disabilities.

Students need to register with the Wellness Center every term they are enrolled in classes. To be assured of having services when they are needed, students should contact the Wellness Center during the first week of each term. Note that it is the student's responsibility to arrange accommodations with each professor. For more information, refer to the *Student Life* section of the current Undergraduate Catalog. Undergraduate catalogs are located at *http://www.kettering.edu/undergraduate*. This information is also noted in the Student Handbook.

Common Statement: Ethics in the University and Academic Integrity

Kettering University values academic honesty and integrity. Cheating, collusion, misconduct, fabrication, and plagiarism are serious offenses. Each student has a responsibility to understand, accept, and comply with the Universitys standards of academic conduct as set forth in our statements, Ethics in the University and Academic Integrity, as well as policies established by individual professors. For more information, refer to the Student Life section of the current Undergraduate Catalog. Undergraduate catalogs are located at *http://www.kettering.edu/undergraduate*. This information is also noted in the Student Handbook.