

# Course Outline

## 1. Document Information

<b>Degree Program</b>	Computer Science
<b>Course Number</b>	CS 425
<b>Course Title</b>	Principles of Virtualization and Cloud Computing
<b>Semester Hours</b>	3
<b>Course Coordinator</b>	Dunren Che
<b>Revision Term</b>	Spring 2020
<b>Latest Revision</b>	Fall 2020

## 2. Catalog Description

Cloud Computing (CC) represents a recent major strategic shift in computing and Information Technology. This course explores fundamental principles, foundational technologies, architecture, design, and business values of CC. Understanding will be reinforced through multiple angles including: analysis of real world case studies, hands-on projects and in-depth study of research developments.

## 3. Textbooks

## 4. References

- Jamsa, K. (2013). Cloud Computing. Jones & Bartlett Learning. ISBN: 9781449647391.
- Buyya, R., Broberg, J. & Goscinski, A. (2011). Cloud Computing: Principles and Paradigms. John Wiley & Sons. ISBN: 9780470887998.

## 5. Course Learning Outcomes

- Understanding the principles of virtualization and Cloud Computing.
- To learn the architectures and models of Cloud Computing.
- To learn the Service Oriented Architecture (SOA).
- To learn and practice the Cloud programming models and frameworks.

## 6. Assessment of the Contribution to Student Outcomes

Outcome	1	2	3	4	5	6	7
Assessed	X	X	X		X		

## 7. Prerequisites by Topic

CS 330 with a grade of C or better or graduate standing.

## 8. Major Topics Covered in the Course

1. Introduction to the course {1 lecture}
2. Introduction to Distributed Computing {2 lectures}
3. Introduction to Cloud Computing {2 lectures}
4. Virtualization technology {5 lectures}
5. Architectures and models of Cloud Computing {8 lectures}
6. Service Oriented Architecture (SOA) {4 lectures}
7. Cloud operating systems {5 lectures}
8. Cloud programming models and frameworks {6 lectures}
9. Cloud data storage and management {3 lectures}
10. Cloud security {2 lectures}
11. Mobile Cloud Computing {2 lectures}

NOTE: When course is taken as 500-level credit (CS 591 "Special Topics"), there will be additional requirements such as a research project.