

CSCI 6971 - Cloud Computing and Big Data

Fall 2026 Syllabus, Section 01, CRN 41547,

Credit hours: 3

Instructor

Feng Yu

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Public Instructor Information

Instructor Title: Professor

Instructor Professional Qualifications: Ph.D., Computer Science, Southern Illinois University, 2013

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Course Description

6971. Cloud Computing and Big Data. The objective of this course is to provide an introduction of cloud computing and big data, including the background knowledge and embracing technologies. This course addresses the latest advances in hardware and software, cluster architecture, programming paradigms that emphasize in system performance, scalability, security, and energy efficiency. We also include hands-on experiences for students to practice on building, managing, and programming on contemporary cloud and big data systems. Research directions in cloud and big data will be introduced for graduate level study. Prereq.: CSCI 6901 or graduate standing. 3 s.h.

Course Readings

Group	Title	Author	ISBN
Required	Distributed and cloud computing: from parallel processing to the internet of things	Hwang, Kai, Jack Dongarra, and Geoffrey C. Fox	0123858801
Optional	Mastering Cloud Computing	Rajkumar Buyya; Christian Vecchiola; S.Thamarai Selvi	978-0-12-411454-8

Available in O'Reilly Safari Books

The course readings are subject to change in the event of extenuating circumstances, research developments, current events, and/or to ensure better learning.

Schedule of Topics and Assignments

Week of	Reading(s)	Proposed Topic	Due/To Prepare for Class
8/24	Chapter 1	Introduction Systems modeling, clustering, and virtualization	
8/31	Chapter 2	Computer clusters for scalable parallel computing	
9/7	Chapter 2		Assignment 1 Due
9/14	Chapter 3	Virtual machines and virtualization of clusters and data centers	Assignment 2 Due
9/21	Chapter 3		
9/28	Chapter 4	Cloud platform architecture over virtualized data centers	
10/5	Chapter 4		Assignment 3 Due
10/12	Chapter 6	Cloud and Big Data programming	

10/19	Chapter 6 Chapter 5	Assignment 4 Due
10/26	Exam	
11/2	Lab 1	Lab 1 Due
11/9	Lab 2	Lab 2 Due
11/16	Lab 3	Lab 3 Due
11/23	Lab 4	Lab 4 Due
11/30	Term paper	
12/7	Term project	Term paper and term project Due

The course schedule, policies, procedures, and assignments in this course are subject to change in the event of extenuating circumstances, by mutual agreement, and/or to ensure better learning.