## CPSC 6157 – Network and Cloud Management

## Spring 2025

### ****INSTRUCTOR INFORMATION****

INSTRUCTOR - Dr. Lixin Wang

EMAIL - [wang\_lixin@columbusstate.edu](mailto:wang_lixin@columbusstate.edu)

OFFICE PHONE: (706) 507-8190

OFFICE LOCATION: SCCT-434

**PHYSICAL OFFICE HOURS (In my office)**

**2:00 - 3:00 PM & 4:30 – 5:30 PM on Mondays**

**10:00 – 11:00 AM & 2:00 – 3:00 PM on Wednesdays**

**VIRTUAL OFFICE HOURS (Via Microsoft Teams)**

**2:00 – 5:00 PM on Tuesdays & Thursdays**

If you’d like to meet me online using Microsoft Teams, please make an appointment with me on my shared calendar thru the link below:

[Book time with Lixin Wang: Dr. Lixin Wang's Office Hours](https://outlook.office.com/bookwithme/user/a595375fdf6c4889bd953382b870cf39@columbusstate.edu/meetingtype/RBv0XGLL3UGgB5H0mCoZzg2?anonymous&ep=owaSlotsCopyCard)

CLASS MEETING TIME AND PLACE

**CRN 26369 (50% Online) Lecture Time 11:00 AM - 12:15 PM Monday at CCT 408**

**CRN 26370 (100% Online) Delivered via CougarView**

### Faculty Contact Information

[Name and official email]

### Course Introduction

This is a 6-credit course.   
There are 12 weeks in the semester.

**Important Semester Dates**

Semester Start Date: **Jan. 21, 2014**   
Semester Ending Date: **Apr. 13, 2014**  
Last Date to Drop:   
Last Date to Withdrawal:

UMUC wants all students to be aware of the last date to withdraw from their class(es). A student who officially withdraws by the withdrawal deadline receives the mark of "W" which does not impact the student's cumulative grade point average (GPA).

### ****COURSE INFORMATION****

COURSE CRN NUMBERs/TITLE **26369 & 26370**

CPSC 6157 – Network and Cloud Management

CREDIT HOURS/PREREQUISITES (3 credits). No pre-requisites.   
  
COURSE DESCRIPTION: This course is specifically designed to focus on the protocols, skills and tools needed to support the development and delivery of advanced network and cloud services over the Internet. This graduate-level course is also focused on mastering technical details in a number of areas of advanced networking through reading and hands-on activities of important research topics in the field. The topics covered in this course include 1) network and cloud basics; 2) protocols; 3) network and cloud security; 4) mobile computing; 5) software-defined networking; 6) network and cloud management; 7) data center management; 8) big data analytics and cloud.

### A book cover of a computer networking Description automatically generatedREQUIRED TEXTBOOKS:REQUIRED TEXTBOOK AND MATERIAL

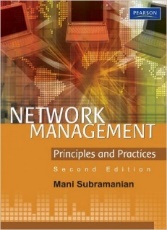
**1. Computer Networking: A Top–Down Approach, 7th Edition**

**By James F. Kurose & Keith W. Ross**

**Pearson / Addison–Wesley, © 2017**

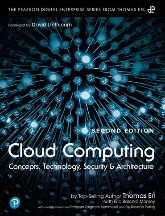
**ISBN–13: 978 – 0 – 13 – 359414 – 0**

This book is available for free online in PDF via [the link](https://www.ucg.ac.me/skladiste/blog_44233/objava_64433/fajlovi/Computer%20Networking%20_%20A%20Top%20Down%20Approach,%207th,%20converted.pdf).

**2. Network Management: Principles and Practices (2nd Edition**)  
by **Mani** Subramaniam, Prentice Hall  
ISBN-10: 8131734048, ISBN-13: 978-813173404

We only need the first 4 chapters of this book that are available for free online in PDF:

[Chapter 1](http://seu1.org/files/level6/IT340/Book/ch1.pdf) [Chapter 2](http://seu1.org/files/level6/IT340/Book/ch2.pdf) [Chapter 3](http://seu1.org/files/level6/IT340/Book/ch3.pdf) [Chapter 4](http://seu1.org/files/level6/IT340/Book/ch4.pdf)

**3. Cloud Computing: Concepts, Technology, and Architecture (2nd edition)**

Published by Pearson in August 2023

Authors: Thomas Erl and Eric Monroy  
ISBN-13: 9780138052188

### LEARNING OUTCOMES

**Course Objective:** Upon completion of this course, students will

* be able to identify modern network and cloud management paradigms.
* be able to use existing tools and technologies to manage computer networks.
* be able to identify ways to migrate standalone servers to virtual machines.
* be able to configure firewalls, networks and cloud environment.
* be able to identify security threats to network, cloud computing and implement countermeasures.
* gain hands-on skills in real-world network and cloud computing platforms.

**Course Outcomes:**

* The students will be able to manage networks and clouds.
  + Strategies and Actions used to produce the outcome:
    - Utilize network management tools
    - Configure firewalls
    - Protect wireless networks and cloud
  + Assessment methods: labs and exercises.
* The students will be able to assess security of networks and clouds, and manage data centers.
  + Strategies and Actions used to produce the outcome:
    - Utilize network and cloud security assessment tools.
    - Implement network and cloud platforms that have built-in data analytics feasibilities.
  + Assessment Methods: labs and projects.
* The students will be able to migrate virtual machines and analyze big data in the cloud.
  + Strategies and Actions used to produce the outcome:
    - Work on a project that is based on real-time cloud platforms
    - Use built-in data analytics tools to monitor and analyze data.
  + Assessment Methods: labs and projects.

### ****COURSE ASSESSMENT****

### LEARNING ACTIVITIES

**[For the 50% Online Hybrid Section with one lecture each week]**

1. The class will meet once a week with each session of 75 minutes;
2. Students must have access to computers for doing assignments;
3. Every student is required to attend the weekly lecture **in-person in the classroom** and actively participate in-class discussions;
4. Manage your time and maintain the discipline required to meet the course requirements;
5. **Come to class prepared and ask questions** and participate in classroom discussions in order to maximize your learning;
6. Please do NOT reply to the announcements I sent to the class on CougarVIEW as any email sent from CougarView cannot be replied; please use my CSU email (wang\_lixin@columbusstate.edu) for all e-mail communications;
7. You are expected to monitor your course page in CougarVIEW and your CSU email account frequently (i.e., at least once every other day);
8. Read the PPT slides and online course materials on CougarView and corresponding sections in the textbook for each week;
9. Complete all hands-on exercises and quizzes in time. Hands-on exercises turned in after the time due are considered late. **Late course work when accepted will be assessed minus 24% for each day late (1% for each hour late)**. Exercises with labs must be submitted through the CougarView Dropbox.
10. The ACM recommends the following: “As a general guideline, the amount of out-of-class work is approximately ***three times*** the in-class time. Thus, a unit that is listed as requiring 3 hours typically entails a total of 12 hours (1.5 hours in class and **10.5 outside**).” Students will be expected to spend this time outside classroom reading the book, online materials and other materials; working on the quizzes, hands-on labs and homework exercises.

### LEARNING ACTIVITIES

**[For the 100% Online Section]**

1. Every online student is encouraged and welcomed to attend the lectures meeting (physically in the classroom) once a week with each session of 75 minutes, and actively participate in class discussions; a link to virtually attend the class on Google handout meet will be sent to the class each week;
2. Students must have access to computers for doing assignments;
3. Manage your time and maintain the discipline required to meet the course requirements;
4. Please do NOT reply to the announcements I sent to the class on CougarVIEW as any email sent from CougarView cannot be replied; please use my CSU email (wang\_lixin@columbusstate.edu) for all e-mail communications;
5. You are expected to monitor your course page in CougarVIEW and your CSU email account frequently (i.e., at least once every other day);
6. Watch all the lecture videos, and read the PPT slides and online course materials on CougarView and corresponding sections in the textbook for each week;
7. Complete all hands-on exercises and quizzes in time. Hands-on exercises turned in after the time due are considered late. **Late course work when accepted will be assessed minus 24% for each day late (1% for each hour late)**. Exercises with labs must be submitted through the CougarView Dropbox.
8. The ACM recommends the following: A unit that is listed as requiring 3 hours typically entails a total of **12** hours”. Students will be expected to spend this time outside classroom reading the book, online materials and other materials, working on the quizzes, hands-on labs and homework exercises.

**From A Study Guide: “Study actively**. Ask yourself questions, review your notes regularly, create concept maps, and discuss key concepts with peers and your instructor. *FACT: Association is a key to memory and cognitive research has shown that you will remember 10 percent of what you read, 20 percent of what you hear, 30 percent of what you see, 50 percent of what you hear and see together, 70 percent of what you say, and 90 percent of what you do!"*

**COURSE EVALUATION**

|  |  |  |  |
| --- | --- | --- | --- |
| **GRADED LEARNING ACTIVITIES** | | | **Percentage** |
| **Hands-on exercises & post-lab quizzes**  – Without a documented proof for emergency, **late submission of hands-on exercises/quizzes will receive** **a penalty of 24% per day late**. | | | 50% |
| **Midterm Exam (closed books, closed notes, and proctored)** | | | 25% |
| **Final Exam** **(comprehensive, closed books, closed notes, and proctored)** | | | 25% |
| **TOTAL** | | | 100 |
| **Percentage Range** | **Final Grade** |
| 90-100% | A |
| 80-89% | B |
| 70-79% | C |
| 60-69% | D |
| 59% and below | F |

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## Emotional and Mental Health Statement

Your emotional and mental health is very important and can affect your ability to meet your academic responsibility. Part- and full-time students have free access to mental health counseling through the CSU [Counseling Center](https://counseling.columbusstate.edu/). If you begin to experience any sort of emotional concerns such as anxiety, depression, or significant life events that are negatively impacting you, please seek help at the counseling center as quickly as possible. Please know that you will find a friendly "virtual" face for your appointments. Hours of operation are 8:00AM to 8:00PM Monday and Tuesday and 8:00AM to 5:00PM Wednesday through Friday. You can call to set up an appointment: 706-507-8740.   If you are in crisis during non-business hours, please call the Georgia Crisis Line:  1-800-715-4225.

### ****ADMINISTRATIVE POLICIES AND ACADEMIC RESOURCES****

CSU DISABILITY POLICY   
If you have a documented disability as described by the Americans with Disabilities Act (ADA) and the Rehabilitation Act of 1973, Section 504, you may be eligible to receive accommodations to assist in programmatic and/or physical accessibility. We recommend that you contact the Office of Disability Services located in Schuster Student Success Center, Room 221, 706-507-8755 as soon as possible. Students taking online courses can contact the Office of Disability services at http://disability.columbusstate.edu/. The Office of Disability Services can assist you in formulating a reasonable accommodation plan and in providing support. Course requirements will not be waived but accommodations may be able to assist you to meet the requirements. Technical support may also be available to meet your specific need.

**ACADEMIC INTEGRITY**   
All students are expected to recognize and uphold standards of intellectual and academic integrity. As a basic and minimum standard of conduct in academic matters that students be honest and that they submit for credit only the products of their own efforts. Both the ideals of scholarship and the need for fairness require that all dishonest work be rejected as a basis for academic credit. They also require that students refrain from any and all forms of dishonorable or unethical conduct related to their academic work.

Students are expected to comply with the provisions of Section III, "Student Responsibilities," of the Columbus State University Student Handbook. This specifically includes the sections on "Academic Irregularity," and "Conduct Irregularity." In particular, the Columbus State University Student Handbook states:

“No student shall give or receive assistance in the preparation of any assignment, essay, laboratory report, or examination to be submitted as a requirement for any academic course in such a way that the submitted work can no longer be considered the personal effort of the student submitting the work.”

**Examples of Academic Dishonesty include but are not limited to:** Plagiarism (see definition below), giving or receiving unauthorized assistance on exams, quizzes, class assignments or projects, unauthorized collaboration, multiple submissions (in whole or part) of work that has been previously submitted for credit.

Plagiarism is any attempt to represent the work or ideas of someone else as your own. This includes purchasing or obtaining papers from any person and turning them in as your own. It also includes the use of paraphrases or quotes from a published source without properly citing the source. All written assignments may be submitted for textual similarity review to Turnitin.com for the detection of plagiarism.

Any work turned in for individual credit must be entirely the work of the student submitting the work. **All work must be your own.** You may share ideas but submitting identical assignments (for example) will be considered cheating. **You may discuss the material in the course and help one another with debugging, however, I expect any work you hand in for a grade to be your own.** A simple way to avoid inad**ver**tent plagiarism is to talk about the assignments, but don't read each other's work or write solutions together. Keep scratch paper and old versions of assignments until after the assignment has been graded and returned to you. **If you have any questions about this, please see me immediately.**

For assignments, access to notes, textbook, books and other publications is allowed. Stealing, **giving or receiving** any code, diagrams, drawings, text or designs from another person (CSU or non-CSU) is not allowed.   
Having access to another person’s work on the system or giving access to your work to another person is not allowed. It is your responsibility to keep your work confidential.

**No cheating in any form will be tolerated. Please be aware that anyone caught cheating or plagiarizing in this class will receive a “0” for the assignment/exam and may receive a “F” for the course.**

STUDENT COMPLAINT PROCESS   
Information and resources for student complaints and academic appeals are located at the following link on the Columbus State University website <http://aa.columbusstate.edu/appeals/>.

COURSE ATTENDANCE POLICY   
Class attendance is the responsibility of the student, and it is the student's responsibility to independently cover any materials missed. Class attendance and participation may also be used in determining grades. It is your responsibility to sign a roll sheet for every class meeting. At my discretion, I may drop you from the course for more than **six (6)** absences. Missing an exam or quiz is considered an absence. Missed classes caused by participation in documented, formal, University-sponsored events will not count as absences provided you notify me of such anticipated absences in advance and as soon as possible.

**You** are responsible for all class work missed, regardless of the reason for the absence(s). Late assignments will **not** be accepted, so if you are absent on the day an assignment is due, it is your responsibility to make alternate arrangements. No makeup exams or quizzes will be given, so please make sure you are present for all exams/quizzes. Refer to the CSU Catalog (**http://ace.columbusstate.edu/advising/a.php#AttendancePolicy** ) for more information on class attendance and withdrawal.

**Electronic Devices and Academic Integrity**: All cell phones and pagers must be turned off prior to entering the classroom or lab. The use of any electronic device during a test or quiz is prohibited. This includes cell phones, handheld calculators, iPhones, Android phones, PalmPilots, Blackberrys, PocketPCs, and laptops. Any use of such a device during a test or quiz will be considered a breach of academic integrity.

### ****TECHNICAL RESOURCES****

If you need technical support or need assistance configuring your computer, you can refer to the link located in the "Support Resources" widget located on your "My Home" and your "Course Home" pages. If you cannot solve your problem after reviewing the knowledge base help pages, you can call help center 24-7 and talk to a Help Center agent. The number is 1-855-772-0423.

**Discussion Etiquette**   
CSU is committed to open, frank, and insightful dialogue in all of its courses. Diversity has many manifestations, including diversity of thought, opinion, and values. Students are encouraged to be respectful of that diversity and to refrain from inappropriate commentary. Should such inappropriate comments occur, I will intervene as I monitor the dialogue in the discussions. I will request that inappropriate content be removed from the discussion and will recommend university disciplinary action if deemed appropriate. Students as well as faculty should be guided by common sense and basic etiquette. The following are good guidelines to follow:

* Never post, transmit, promote, or distribute content that is known to be illegal.
* Never post harassing, threatening, or embarrassing comments.
* If you disagree with someone, respond to the subject, not the person.

Never post content that is harmful, abusive; racially, ethnically, or religiously offensive; vulgar; sexually explicit; or otherwise potentially offensive.

**Getting help**  
Student assistants in the public Computer Center labs / Library can help you with basic computer-related problems such as logging on to the network, saving your work, etc., but they are not obligated to help you with your assignments. There are several tutors in the School of Computer Science lab (CCT450) who can help you with the assignments. Their schedule is posted in the Computer Science School. You can always contact me by e-mail, or by appointment, to discuss class material. Email is always the best, fastest way to reach me.

**Student Responsibilities**   
As a student in this course, you are responsible to:

* manage your time and maintain the discipline required to meet the course requirements,
* come to class prepared by completing the weekly pre-reading quizzes,
* ask questions whenever you need help and actively participate in class discussions, to maximize your learning,
* complete all readings, hands-on exercises and labs, quizzes, and exams in time, and
* read all the e-mails sent by the instructor and respond accordingly.

**Instructor Responsibilities**   
As your instructor for this course, I am responsible to:

* clearly answer students’ questions and lead the discussions in class,
* post weekly lessons and resources on CougarView, including main topics to be covered, hands-on exercises, quizzes, and resources for the topics covered within the week,
* grade hands-on exercises and/or projects with feedback, and exams **within ONE week** after the submission deadlines, and
* respond to students’ e-mails **within 48 hours.**

### ****TENTATIVE COURSE SCHEDULE****

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| WEEK | DATES | TOPICS | | | HANDS-ON EXERCISES & QUIZZES |
| 1 | Jan. 6 | Computer Networking Review (1. Layering) | | | Exercise 1; Post-lab Quiz 1. Both due: **Jan. 13** |
| 2 | Jan. 13 | Computer Networking Review (2. App-layer) | | | Exercise 2; Post-lab Quiz 2. Both due: Jan. 20 |
| 3 | Jan. 20 | Computer Networking Review (3. Trans-layer) | | | Exercise 3; Post-lab Quiz 3. Both due: Jan. 27 |
| 4 | Jan. 27 | Computer Networking Review (4. Network-layer) | | | Exercise 4; Post-lab Quiz 4. Both due: Feb. 3 |
| 5 | Feb. 3 | Computer Networking Review (5. Data Link-layer) | | | Exercise 5; Post-lab Quiz 5. Both due: Feb. 10 |
| 6 | Feb. 10 | Mani’s book Chapter 2 | | | Exercise 6; Post-lab Quiz 6. Both Due: Feb. 17 |
| 7 | Feb. 17 | Mani’s book Chapter 3 (ASN.1) | | | Exercise 7; Post-lab Quiz 7. Both Due: Feb. 24 |
| 8 | Feb. 24 | **Midterm Exam (closed books, closed notes and proctored)** | | | |
| 9 | Mar. 3 | Mani’s book Chapter 4 (SNMPv1 Network Management) | | | Exercise 8; Post-lab Quiz 8. Both Due: Mar. 10 |
| 10 | Mar. 10 | Mani’s book Chapter 4 (SNMPv1 Network Management) | | | Exercise 9; Post-lab Quiz 9. Both Due: Mar. 17 |
| 11 | Mar. 17 | **Spring break (No class)** | | |  |
| 12 | Mar. 24 | Mani’s book Chapter 4 (SNMPv1 Network Management) | | | Exercise 10; Post-lab Quiz 10. Both Due: Mar. 31 |
| 13 | Mar. 31 | Introduction to Cloud Computing I | | | Exercise 11; Post-lab Quiz 11. Both Due: Apr. 7 |
| 14 | Apr. 7 | Introduction to Cloud Computing II | | | Exercise 12; Post-lab Quiz 12. Both Due: Apr. 14 |
| 15 | Apr. 14 | Cloud Management I | | | Exercise 13; Post-lab Quiz 13. Both Due: Apr. 21 |
| 16 | Apr. 21 | Cloud Management II | | Exercise 14; Post-lab Quiz 14. Both Due: Apr. 28 | |
| 17 | Apr. 28 | **Final Exam: April 30 – May 5** | **Comprehensive, closed books, closed notes, and proctored** | | |

### ****CPSC 6157 – Network and Cloud Management****

### ****Spring 2025****

**Student’s Name:**

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Declaration: I have read, understood and agree to abide by the policies mentioned in the syllabus pertaining to the course. In particular, I agree to abide by the exercise/quiz/project policy/late work policy, attendance policy, academic dishonesty policy, website policy and exam policy.

(You must sign and date below).

 Signature: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Please upload your signed copy of this page to CougarView under Exercise 0 by the end of the first week.**