

# CSE 245: Computer Networks and Data Communications

## Course Information

Time and location:	Tu/Th 12:30pm – 1:45pm, ITE127
Instructor:	Jun-Hong Cui ( <a href="mailto:jcui@cse.uconn.edu">jcui@cse.uconn.edu</a> ) Office: ITEB 267 Phone: (860) 486-8951
Instructor office hours:	Tu/Th 2:00pm– 3:00pm, or by appointment
Teaching assistant:	Yan Li ( <a href="mailto:yan.li@uconn.edu">yan.li@uconn.edu</a> )
Teaching assistant office hours:	Mon./Wed. 11:00am-12:00pm, ITEB 230
Class online:	Check WebCT ( <a href="http://webct.uconn.edu">http://webct.uconn.edu</a> )

## Objectives

The past few years have seen a remarkable growth in the global network infrastructure. The Internet has grown from a research curiosity to something as essential as the ubiquitous telephone and utility networks. It has been able to withstand rapid growth fairly well and its core protocols have been robust enough to accommodate applications that were unforeseen by the original Internet designers, such as the World Wide Web. Furthermore, networking is becoming an essential component of many systems.

In this class, we will study the fundamental principles in the design and implementation of computer communication networks, their protocols, and applications. Topics to be covered include: layered network architectures, network applications, network programming interfaces (e.g., sockets), transport services, data link protocols, local area networks and network routing. Examples will be drawn primarily from the Internet TCP/IP protocol suite. Through homework assignments and class projects, the students will learn how the Internet works and how to design Internet applications.

Upon successful completion of the course, you will have a good understanding of the layered network architecture, the fundamental design issues in each layer, and the solution approaches towards addressing these issues. You will also get well prepared for investigating advanced topics in the networking field.

## Course Prerequisites

- A rudimentary understanding of algorithms, probability, computer architecture, and operating systems would be helpful.
- Programming experience in C is required.
- System experience in Unix/Linux is preferred.

## Textbook

- Computer Networking: A Top-Down Approach Featuring the Internet, 4/E, by James F. Kurose, University of Massachusetts, Amherst, and Keith W. Ross, Polytechnic University, ISBN-10: 0-321-49770-8 (ISBN-13: 9780321497703), Publisher: Addison-Wesley

## List of Topics

- Chapter 1: Computer Networks and the Internet
- Chapter 2: Application Layer
- Chapter 3: Transport Layer
- Chapter 4: Network Layer
- Chapter 5: Link Layer and Local Area Networks
- Chapter 6 & 7 & 8: Wireless and Mobile Networks, Multimedia Networking and Security in Computer Networks (if time permits)

## References

- [UNIX Network Programming](#), Volume 1, Second Edition: Networking APIs: Sockets and XTI, by [W. Richard Stevens](#), Prentice Hall, 1998.
- TCP/IP Illustrated, Volume 1: The Protocols, by [W. Richard Stevens](#), Addison-Wesley, 1994, ISBN 0-201-63346-9
- Computer Networks: A Systems Approach, by [Larry L. Peterson](#) and Bruce S. Davie, Morgan Kaufmann Publishers, 2nd edition, 1999
- Computer Networks, Fourth Edition, by [A. S. Tanenbaum](#), Prentice Hall PTR, 2003.

## Grading

There will be 5 homework assignments, 3 programming projects, one in-class midterm exam (in the Mid. of Oct.), and one final exam. The exams will be closed-books and closed-notes.

The final course grade will be computed as follows:

- Homework: 15% (3% each)
- Projects: 30% (10% each)
- Mid-term exam: 25%
- Final exam: 30%

If you have questions regarding the grading of your homework, projects or exams, you **MUST** come to see either the instructor or the TA **WITHIN ONE WEEK** after the date your homework, projects or exams have been returned to you.

## Computer Accounts

You are expected to use the Unix/Linux machines in ECS ([Engineering Computing Services](#)) for the programming projects. If you do your projects in other system environments, it is your responsibility to make sure your programs can run on the ECS Unix/Linux machines. (NOTE: TA will grade the projects on the ECS Unix/Linux machines.) If you do not have an ECS UNIX/LINUX account, you need to apply for one at <http://www.engr.uconn.edu/ecs/newpeople.htm>. You can get more information on Linux from the ECS help link: <http://www.engr.uconn.edu/ecs/linux/>.

## Late Policy

Homework and projects are subject to late penalty. Here is the point deduction policy: **20% deduction (late by 1 day), 40% deduction (late by 2 days), 80% deduction (late by 3 days), and no credit if late by more than three days.**

Contact the instructor in case of medical emergency, and a written proof from your doctor is required.

## Academic Integrity

**YOU MUST DO YOUR HOMEWORKS AND PROJECTS ON YOUR OWN UNLESS THEY ARE SPECIFIED AS GROUP WORK!**

You may discuss the homework with anyone and use any reference material, provided you do not copy any other person's work or solution books. Appropriate reference or credit must be acknowledged if you do not solve the homework problems on your own.

For the programming projects, it is expected that you have written **EVERY LINE OF CODE** that you submit (with the exception of code given out in class). The following are examples of activities that are **PROHIBITED**:

- Writing code with another student.
- Copying code from another student.
- Giving code to another student (via email, printouts, etc).
- Posting code in a publicly accessible location.

Such activities will result in zero points awarded for the project.

Project 1 and 2 can be done **in a small group (up to 2 people)**. For the group project, it is expected that your group have written **EVERY LINE OF CODE** that you submit (with the exception of code given out in class). The following are examples of activities that are **PROHIBITED**:

- Writing code with another group.

- Copying code from another group.
- Giving code to another group (via email, printouts, etc).
- Posting code in a publicly accessible location.

Such activities will result in zero points awarded for the project.

We will follow the [University Policy on Academic Integrity](#) regarding any cheating and plagiarism. Take the time to familiarize yourself with the contents of this page, as you are responsible for its contents.