

Instructor

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Meeting Time

Lecture: 3:30 PM to 5:17 PM on MW at EC 554.

Office Hours: 5:20 PM to 6:20 PM on MW, after lectures, and by appointment.

Textbook

J. F. Kurose and K. W. Ross, *Computer Networking: A Top-Down Approach*, Seventh Edition, Pearson Education, Inc., 2017 (ISBN: 978-0-13-359414-0). There is an *International Edition* of the same textbook which **should not** be purchased for this course.

Course Description

An introduction to fundamental concepts for design and analyses of computer networks. Topics covered include the physical layer, network protocols, Local Area Networks, Internet, wireless and mobile networks, network security, and socket programming. *Prerequisite*: High level programming course or CSI 2300.

Course Objectives

Upon successful completion of the course students will be able to:

- Describe network protocol stack such as application, transport, network, link, and physical layers.
- Describe local area networks, and wireless and mobile networks.
- Conduct experiments by using network protocol analyzer such as Wireshark.
- Explain major design and performance issues in computer network.
- Describe basic concepts of network security.

To accomplish the above objectives the course will primarily concentrate on the following topics.

- Computer Networks and the Internet
- Application Layer (e.g. Web and HTTP, FTP, Email, DNS)
- Transport Layer (UDP, TCP)
- Network Layer (IP)
- Link Layer and Local Area Networks
- Wireless and Mobile Networking
- Security in Computer Networks

Evaluation and Grading

Students will be evaluated based on the following components with the given weights:

20%	—	Lab & Quizzes
15%	—	Term Paper
30%	—	Midterm Exam
35%	—	Final Exam

Policy for converting total points to grades: grade 4.0 corresponds to 100% points, grade 1.0 corresponds to 50% points, and the scale is linear between grades 1.0 and 4.0. The grading scheme will be modified at the instructor's discretion if the average grade of the class becomes very low.

When and Where

Please visit <https://oakland.edu/registrar/important-dates/> for many important dates of the semester. A tentative schedule of different activities of the course is as follows:

- *Lab*: Will be posted about six days before the due dates.
- *Quizzes*: Unannounced quizzes will be given at the beginning or end of some lectures based on materials previously presented.
- *Midterm Exam*: Will be held on 2/14 in the classroom during lecture hours.
- *Final Exam*: Will be held on 4/25 in the classroom starting at 3:30 PM. You will need your Grizzly ID Number.

The instructor reserves the right to modify the above schedule. If the class cannot meet on any of the scheduled days, the missed activity will be held at the same time during the next class meeting.

Term Paper

Students will do an independent research in a small group (e.g., team of two) and write a term paper, which may cover any topic under the broad area of computer networks. It needs not to be a topic discussed in the class. The goal of the term paper is to conduct an indepth study of a particular topic and present the topic in a cohesive manner. A report and a presentation will be due at the end of the semester. The paper should be roughly five pages in length when list of references is excluded. Format of the paper: two-column, 1/2" margin, single spaced lines, 10 point times roman font. You are encouraged to start thinking of topics of interest early.

Exams

Exams will be closed books and notes with no crib sheet. Calculators that can store texts and diagrams will not be allowed. All the materials covered by the lecture till the day of the midterm will be included in the midterm, and the final exam will cover all the materials introduced in the class. Graded exam paper will be recollected immediately after returning. THERE WILL BE NO MAKE UP EXAM, unless such a request is supported by a valid and verifiable reason such as a medical emergency.

Mid-Term Evaluations

Mid-term evaluations will be conducted for all students registered in the course. For those who receive a grade lower than 2.0 by the middle of the semester, an unsatisfactory grade U will be entered to the SAIL system. No mid-semester grade means performance is satisfactory.

Attendance

Everyone is recommended to actively participate in the class. The instructor will not monitor class attendance but it is students' advantage to attend the lectures. Late arrival and side talking are strongly discouraged. Students are responsible for knowing all the verbal and written information provided by the instructor, including those are posted on the course web page.

Use of Electronic Devices

Students who want to use electronic devices such as iPad, laptop computer, etc. to take class notes should sit in the center area of the very front rows. They should prepare in advance so that the devices can be used without being connected to an electrical outlet. Anyone who wants to use electronic devices for any other purpose should step out of the classroom. Electronic devices such as smartphones or other texting devices should be put in vibration mode and kept out of sight of the student. Internet connections to all electronic devices should be turned off during the lecture. If you require an exception of this policy please talk to the instructor.

ADA Notice

Students with disabilities who may require reasonable accommodations should contact Oakland University's Disability Support Services office for assistance. DSS office is located at 121 NFH, and their contact information is as follows. Phone: (248) 370-3266; TTY: (248) 370-3268; Fax: (248) 370-4989; E-mail: dss@oakland.edu.

Academic Conduct and Classroom Policy

Students are expected to comply with the Academic Conduct Policy of the Oakland University. Suspected breaches of academic honesty will be taken before the Academic Conduct Committee. Academic misconduct includes—but not limited to—cheating in quizzes and exams, unauthorized collaborations in assignments, and plagiarizing the work of others. Students found guilty of academic misconduct in this course will receive a grade 0.0 for the course in addition to any penalties imposed by the conduct committee. Please refer to the undergraduate catalog as well as on-line Academic Conduct Regulations from <http://www.oakland.edu/deanofstudents> for details. Violations of classroom policy will be reported to the Dean of Students.

ABET Program Outcomes

Program outcomes are a set of skills that assure the achievement of the program educational objectives. Before graduating, students will demonstrate their skills in the following key areas:

- a. An ability to apply knowledge of computing and mathematics appropriate to the discipline.
- b. An ability to analyze a problem, and identify and define the computing requirements appropriate to its solution.
- c. An ability to design, implement and evaluate a computer-based system, process, component, or program to meet desired needs.
- d. An ability to function effectively on teams to accomplish a common goal.
- e. An understanding of professional, ethical, legal, security, and social issues and responsibilities.
- f. An ability to communicate effectively with a range of audiences.
- g. An ability to analyze the local and global impact of computing on individuals, organizations and society.

- h. Recognition of the need for, and an ability to engage in, continuing professional development.
- i. An ability to use current techniques, skills, and tools necessary for computing practice.
- j. An ability to use and apply current technical concepts and practices in the core information technologies.
- k. An ability to identify and analyze user needs and take them into account in the selection, creation, evaluation and administration of computer-based systems.
- l. An ability to effectively integrate IT-based solutions into the user environment.
- m. An understanding of best practices and standards and their application.
- n. An ability to assist in the creation of an effective project plan.