



## CS 4555 – Data Communication and Networking

**Prerequisites:** CS 3325 or CS 3330.

### **Objectives:**

The course provides students basic knowledge of Internet by top-down approach. This course focuses on application layer, transport layer and network layer in both data plane and control plane, link layer, security in computer networks and multimedia networking.

### **Student outcomes:**

On completion of this course students can:

- demonstrate their theoretical knowledge of Internet;
- design, set up, administrate and maintain simple networks;
- apply solutions to maintain the network security; and
- understand multimedia networking.

### **Textbook:**

**Computer Networking**, 7<sup>th</sup> Edition, Pearson. Jame F. Kurose, Keith W. Ross.

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### **Grading Scale**

90-100 - A

80- 89 - B

70- 79 - C

60- 69 - D

Below 60 - F

### **Grading Computation:**

Class discussion: 15%

Homeworks: 15% (2x7.5%)

Group project: 20%

Midterm test 20%

Final Exam: 30%

### **ATTENDANCE**

Student's attendance will be marked for every lesson. A student who is absent more than **03 times** with or without faculty's permission will get F for the course.

### **SUBMITTING ASSIGNMENTS AND PROJECTS:**

The homeworks and project must be completed using **Microsoft WORD 20xx, Times New Roman, 12-14pt. font, with standard margins, and 5-space paragraph indentations.** Students are to name their files with the chapter number that they are submitting (i.e., Ch 1 Homework, Ch 2 Homework, etc.). Include your **Name, Chapter #, Page #, & Exercise #** you are answering on the assignment. Points will be deducted for failure to follow the format requirements and submission procedures.

The **deadline** for students to hand in their home work is by **5:00 p.m** of the day assigned in the time table.

#### **LATE WORK POLICY:**

Late work is not accepted unless **extraordinary circumstances** exist, such as student hospitalization.

If I have not heard from you regarding your "**extraordinary circumstances**" by the deadline for assignments, test projects, or quizzes, no make-up work will be allowed. Requests for extensions must be made **in advance** and accompanied by appropriate written documentation if the excuse is acceptable to the instructor. "**Computer problems**" **are not an acceptable excuse.**

Missing any part of the course agenda may prevent completion of the course. If you know of any difficulty of any type (i.e., an illness, employment change, TDY, etc.) which may prevent completion of this course, notify the instructor as soon as possible. Failure to do so will result in failure for an assignment and/or failure of the course.

#### **EXAMINATION SCHEDULE & INSTRUCTIONS:**

The Final Exam will consist of a two-hour, objective Exam based on the material learned in the course.

#### **ACADEMIC HONESTY AND PLAGIARISM:**

In accordance with the **Standards of Conduct** in the Troy University Bulletin, a student or organization may be disciplined, up to and including expulsion, if deemed in violation of the **Standards of Conduct** for the commission of or the attempt to commit this offense: Dishonesty, such as cheating, plagiarism or knowingly furnishing false information to the university, faculty, or other officers or employees of the university.

The awarding of a university degree attests that an individual has demonstrated mastery of a significant body of knowledge and skills of substantive value to society. Any type of dishonesty in securing those credentials therefore invites serious sanctions, up to and including suspension and expulsion (see Standard of Conduct in each TROY Catalog). Examples of dishonesty include actual or attempted cheating, plagiarism\*, or knowingly furnishing false information to any university employee.

\*Plagiarism is defined as submitting anything for credit in one course that has already been submitted for credit in another course, or copying any part of someone else's

intellectual work – their ideas and/or words – published or unpublished, including that of other students, and portraying it as one's own. Proper quoting, using strict APA formatting, is required, as described by the instructor. All students are required to read the material presented at: <http://troy.troy.edu/writingcenter/research.html>

- Students must properly cite any quoted material. No term paper, business plan, term project, case analysis, or assignment may have no more than 20% of its content quoted from another source. Students who need assistance in learning to paraphrase should ask the instructor for guidance and consult the links at the Troy Writing Center.
- This university employs **plagiarism-detection software**, through which *all* written student assignments are processed for comparison with material published in traditional sources (books, journals, magazines), on the internet (to include essays for sale), and papers turned in by students in the same *and* other classes in this *and all previous terms*. The penalty for plagiarism may range from zero credit on the assignment, to zero in the course, to expulsion from the university with appropriate notation in the student's permanent file.

**Plagiarism Policy:** Plagiarism is the passing off of the thoughts or works of another as one's own. Plagiarism involves giving the impression that a person has thought, written or produced something that has, in fact, been borrowed from another. Plagiarism may result from poor technique or more serious causes such as: copying the work of another person; submitting the work of another person; or closely paraphrasing a piece of work without due acknowledgment.

**Allegations of Plagiarism:** Depending on the circumstances, the penalty imposed may include a warning, resubmission, loss of marks, a failing grade on a particular assignment or course, or a charge of misconduct to be dealt with by Troy University.

## **TECHNOLOGY REQUIREMENTS:**

Students must have:

- Access to the Internet;
- E-mail software capable of sending and receiving attached files;
- **Microsoft WORD 20XX software;**
- Virus protection software, installed and active, to prevent the spread of viruses via the Internet and email. It should be continually updated!

## CS 4445 - Data Communication and Networking

<b>Week</b>	<b>Chapter</b>	<b>Topic</b>
1. (23/9/2024)	1	Computer networks and the Internet
2.	2	Application layer
3.	3	Application layer (cont) Transport layer <b>Homework #1</b>
4.	3	Transport layer (cont)
5.	4	The network layer: Data plane <b>Group Project handout</b>
6.	5	The network layer: Control plane <b>Homework #2</b>
7.		Discuss chapter 1, 2, 3, 4, 5. <b>Midterm test</b>
8.	6	The link layer and LANs
9.	7	Wireless and mobile networks
10.	8	Security in computer networks
11.	8	Security in computer networks (Cont)
12.	9	Multimedia networking
13.		Discuss chapter 6,7,8, 9 Revision, Q&A
14.		<b>Final Exam</b>
15. 03/01/2024		<b>Project Presentation</b> Revision, Q & A