Internetworking Systems and Protocols (CSCI 156)
Fall 2013

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Lecture: M/W 4:30pm-3:20pm at McF 208.

Office hours: M/W 9:00-10:00AM @ Science II 256. Additional office hours may be available with appointment.

Lab: No separate lab time assigned. In class instruction will be scheduled for some lab practices.

Textbook: J. Kurose and K. Ross, "Computer Networking: A Top-Down Approach Featuring the Internet", Addison-Wesley, **5th** edition. (3rd and 4th editions will also be fine). Textbook is required for all students.

Instruction Style: This course will be taught in "Hybrid" mode, i.e., some portions of the materials are delivered online. To achieve this, all lectures videos are available in Youtube and accessible through blackboard links. Please note that up to 50% of the delivery will be online. The instructor will notify students about the schedule in class and through blackboard.

Resource: http://wps.aw.com/aw_kurose_network_5

Description: CSCI 156 (3 units): Review of underlying network technologies. Application-level interconnections, network architectures, addressing, mapping abstract addresses to physical addresses, routing datagrams, error and control messages, protocol layering, gateways, subnets. Client-server interactions. Upper layers of protocol stacks.

Objectives: The aim of this course is to help student have a comprehensive understanding of the computer network concepts, layering architecture, TCP/UDP transport protocols, routing algorithms, and medium access control protocols.

Learning Outcomes: Students should be able to understand and analyze various network protocols/architectures in traditional and emerging network technologies, apply common problem solving techniques, grasp necessary programming skills, and utilize simulation tools.

Corequisite: Introduction to Operating Systems (CSCI 144).

Software requirements: This course is taught in C++. However, students can also use Java for all the programming assignments. Students should know how to use one of the following softwares:

- ***Basic C++:*** Unix/Linux g++ or gcc.
- ***C++ IDE:*** Dev C++, Microsoft Visual C++, C#.
- ***Java IDE:*** Eclipse, NetBeans.

In addition, www.gitlab.com will be used for version control and code management of the project.

Attendance: Attending the class is required and enforced. Important examples will be illustrated in the class. Students are required to attend 80% of the classes in order to obtain the attendance credit (2%). If

you are absent from class, it is your responsibility to check on announcements made while you were away by checking the course webpage.

General characteristics of students who succeed in the class:

- Always attending the class and actively participating in the class discussion.
- Reviewing class materials before working on assignments.
- Finishing all assignments on time.
- Consulting instructors regarding project and experiment requirements before and during the work.
- Willing to challenge themselves for the project.
- Passion and interest in the topic and study at least 3 hours outside of the lectures.
- Preparing for exams, practicing more problems, and asking all questions during instructor office hours.

Common mistakes that should be avoided:

- Missing many lectures.
- Missing many assignments.
- Not spending time outside of the lecture to further their understanding.
- Never ask questions during office hours for difficult topics.
- Working until the last week before the deadline for project.
- Spending too much time on project and much less time on studying lectures.

Homeworks:

- There are **8** homeworks for six chapters with 1% each.
- Homeworks are graded based on efforts.
- Homeworks are announced in the class, posted on class webpage.
- Homeworks are usually due 2 weeks from the assignment date on class.
- Solutions will be posted on the class website.

Quizzes and in-class practices:

- There will be **3** quizzes with 2% each.
- Students should finish the quiz within the TWO day period specified on the tentative schedule.
- All quizzes should be completed through blackboard.
- Several problem sessions will be given and students will practice in the class on various problems.

Lab practices:

- There are **6** lab practices (1% each) for important contents in the class.
- 4 labs are performed with WireShark real time packet sniffing software.
- 2 labs are performed with OPNET, a commercial large scale network design and simulation software.
- Labs are assigned to enhance the understanding through real-world experiments.
- Lab report should be submitted through blackboard.

Project

- This is a group or individual project.
- Course projects involve *socket programming* with TCP and/or UDP.
- The description of the project will be announced in the class, posted on class webpage.
- All projects will be graded through demonstration to the instructor individually.
- This project will be 8% with
    - 1% for project report;
    - 1% coding style and comments;

- 6% for execution of the code and the correctness of the running results.

Assignments and projects are submitted through **blackboard.csufresno.edu**. No Email or hardcopy is accepted unless instructed to do so.

Penalty for late submission: Late assignments and projects are subject to penalty of 10% and not accepted after one week from the initial due date.

Exams:

- There will be one review class immediately before each exam.
- The style of exams will be announced in the review class.
- Make-up exam is permitted only in special cases and is handled case by case by the instructor.

Grading:

A: 85-100; B: 70-84; C: 55-69; D: 40-54; F: <40

Attendancy	**2% (80% of the classes)**
8 homeworks	**8% (1% each)**
6 lab reports	**6% (1% each)**
1 individual project	**8%**
3 quizzes	**6% (2% each)**
Midterm exam	**30%**
Final exam	**40%**

Note: This syllabus and schedule are subject to change in the event of extenuating circumstances. If you are absent from class, it is your responsibility to check on announcements made while you were absent.

Course Policies:

- Questions and discussions are welcome and encouraged.
- Students are expected to work independently in homework assignments and collaborate as a team in group projects.
- Cheating and dishonesty will be heavily published according to university policy.

University Policies

The syllabus must note the university **Policy on Students with Disabilities, the University Honor Code, the Policy on Cheating and Plagiarism**, a **statement on copyright**, and the **university computer requirement** University policies can be included in the syllabus by reference to statements in the University Catalog and Class Schedule. For example, one might state: "For information on the University's policy regarding cheating and plagiarism, refer to the Class Schedule (Legal Notices on Cheating and Plagiarism) or the University Catalog (Policies and Regulations)." These may also be incorporated by directing students to the online required syllabus policy statement page: http://www.csufresno.edu/academics/policies_forms/instruction/RequiredSyllabusPolicyStatements.htm Below are some sample statements that provide more than just the reference. In all instances, it is recommended that specific examples of what you consider to be cheating and plagiarism be included. See also those listed in the University Policy.

Students with Disabilities: Upon identifying themselves to the instructor and the university, students with disabilities will receive reasonable accommodation for learning and evaluation. For more information, contact Services to Students with Disabilities in the Henry Madden Library, Room 1202 (278-2811).

Honor Code: "Members of the CSU Fresno academic community adhere to principles of academic integrity and mutual respect while engaged in university work and related activities." You should:

a) understand or seek clarification about expectations for academic integrity in this course (including no cheating, plagiarism and inappropriate collaboration)
b) neither give nor receive unauthorized aid on examinations or other course work that is used by the instructor as the basis of grading.
c) take responsibility to monitor academic dishonesty in any form and to report it to the instructor or other appropriate official for action.

Cheating and Plagiarism: "Cheating is the actual or attempted practice of fraudulent or deceptive acts for the purpose of improving one's grade or obtaining course credit; such acts also include assisting another student to do so. Typically, such acts occur in relation to examinations. However, it is the intent of this definition that the term 'cheating' not be limited to examination situations only, but that it include any and all actions by a student that are intended to gain an unearned academic advantage by fraudulent or deceptive means. Plagiarism is a specific form of cheating which consists of the misuse of the published and/or unpublished works of others by misrepresenting the material (i.e., their intellectual property) so used as one's own work." Penalties for cheating and plagiarism range from a 0 or F on a particular assignment, through an F for the course, to expulsion from the university. For more information on the University's policy regarding cheating and plagiarism, refer to the Class Schedule (Legal Notices on Cheating and Plagiarism) or the University Catalog (Policies and Regulations).

Computers: "At California State University, Fresno, computers and communications links to remote resources are recognized as being integral to the education and research experience. Every student is required to have his/her own computer or have other personal access to a workstation (including a modem and a printer) with all the recommended software. The minimum and recommended standards for the workstations and software, which may vary by academic major, are updated periodically and are available from Information Technology Services (http://www.csufresno.edu/ITS/) or the University Bookstore. In the curriculum and class assignments, students are presumed to have 24-hour access to a computer workstation and the necessary communication links to the University's information resources."

Disruptive Classroom Behavior: "The classroom is a special environment in which students and faculty come together to promote learning and growth. It is essential to this learning environment that respect for the rights of others seeking to learn, respect for the professionalism of the instructor, and the general goals of academic freedom are maintained. ... Differences of viewpoint or concerns should be expressed in terms which are supportive of the learning process, creating an environment in which students and faculty may learn to reason with clarity and compassion, to share of themselves without losing their identities, and to develop and understanding of the community in which they live . . . Student conduct which disrupts the learning process shall not be tolerated and may lead to disciplinary action and/or removal from class."

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For complete university policies, please refer to
http://academicaffairs.csufresno.edu/assocprovost/RequiredSyllabusPolicyStatements.htm