

# Syllabus of CS5220: Computer Communications

Fall 2014, Credit Hrs: 3, CS Dept/College of EAS

**Time & Loc.:** MW 4:45pm -- 6:00pm, 105 Engineering

## Instructor:

Prof. Xiaobo (Joe) Zhou

Office: 176 Engineering Building, 255-3493 (office), Email: xzhou@uccs.edu

Office Hours: MW 3:30 pm--4:30pm, ENG 198, and/or by appointment

Course website: [http://www.cs.uccs.edu/~zbo/teaching/CS522/CS522\\_Fall14.html](http://www.cs.uccs.edu/~zbo/teaching/CS522/CS522_Fall14.html)

## Course Description:

Communication networking is one of the most exciting and important technological fields of our time. The Internet and its applications and services are changing the ways we live and work. The networking/Internet field and all that it enables is a vast new frontier, full of amazing challenges. There is always room for your innovation. Think about Clouds and data center networking.

CS522 covers fundamental computer networking concepts and principles which guide you to apply the networking theory and design principles, verify their understandings, and build a solid foundation for creating innovations in today's Internet. It lays foundations of network architectures, protocol design principles, and TCP/IP programming skills, which are necessary to take more advanced courses in graduate study and/or technical training in the industry. It covers basic networking knowledge and in-depth understanding of the inner-workings of computer networks and their evolution. Communication systems, from simple to asynchronous point-to-point links, to those based on complex network architectures will be studied.

## Course Format

The material presented in the course will be complemented by the following textbook.

Required: Alberto Leon-Garcia and Indra Widjaja, "Communication Networks", 2nd Edition, McGraw Hill, 2004, ISBN 0-07-246352-X. The text may be complemented by some additional reading assignments.

## Tentative Schedules

- Introduction to Communication Networks and Services
- Layered Architectures and Socket API
- Queueing and Differentiated Services
- Digital Transmission Fundamentals
- Peer-to-Peer Protocols and Data Link Layer
- Medium Access Control Protocols and Local Area Networks
- Packet-Switching Networks
- TCP/IP
- Advanced Network Architectures and Applications
- Research presentations in Cloud & Datacenter Networking

## Prerequisites

- CS 2060 (C) and CS 2080 (Unix)
- You should have background of C/C++ Programming or Java.
- If you want to take the class without the prerequisite, you have to get permission from the instructor. If approved, it is your responsibility to makeup for the prerequisite.

## Grading

The final grade will be composed of

- In-class discussion & Attendance 2%
- Homework 18%
- Project & presentation 22%
- Midterm (in class, closed book and notes) 20%
- Final (in class, closed book and notes, comprehensive) 38%

All exams will be graded by the instructor himself. Grades will be assigned as follows:

- $90 \leq \{A\}$ ;  $87 \leq \{A-\} < 90$ ;  $84 \leq \{B+\} < 87$ ;  $80 \leq \{B\} < 84$ ;
- $75 \leq \{C+\} < 80$ ;  $70 \leq \{C\} < 75$ ;  $65 \leq \{D+\} < 70$ ;  $60 \leq \{D\} < 65$ ; E/F: below 60

## Requirements

- The last day to drop the class with special permission from your dean is Oct 31, 2014.
- Students are expected to attend all lectures. Homework assignments are important part of the course and are to be completed individually. There will be about five homework assignments and one reading, one semester project and its presentation. Homework and reading assignments must be due in class on the due date as specified. Reports in hard-copy and Demos are expected. See course Website for more details.
- Late homework/reading/project submissions lose 30% of their values per day, except under extreme non-academic circumstances, such as illness. In such cases, you have to inform the instructor right away and provide sufficient proof, i.e., documents from the doctors.
- FOR FAIRNESS, NO MAKE-UP EXAMS, exceptions are the same as those of late homework.
- There will be one midterm exam and one final exam, which are close-book and close-notes. However, you can carry one double-side hand-writing help sheet of 8.5 by 11in each time. The midterm exam is tentatively scheduled 4:45PM-6:00PM, Wednesday, Oct 15, 2014, in classroom. The final will be in the classroom, 5:20PM-7:20PM, Wednesday, Dec 17, 2014, in classroom. No MAKE-UP EXAM!

## Links to Information Assurance Related Website

- National Security Agency: <http://www.nsa.gov/>
- NIST, Computer Security Division, Computer Security Resource Center: <http://csrc.nist.gov/>
- Common Criteria for Information Technology Security Evaluation: <http://www.commoncriteriaportal.org/>
- U.S. Department of Homeland Security: <http://www.dhs.gov/>
- ITU (International Telecommunication Union): <http://www.itu.int/>
- Internet Society (ISOC): <http://www.isoc.org/>
- The Internet Engineering Task Force (IETF): <http://www.ietf.org/>
- Internet Architecture Board (IAB): <http://www.iab.org/>
- International Organization for Standardization (ISO): <http://www.iso.org>
- IEEE Computer Society: <http://www.computer.org>
- Association for Computing Machinery (ACM): <http://www.acm.org/>
- USENIX: The Advanced Computing Systems Association: <http://www.usenix.org/>

## Others

If you have a disability for which you are requesting an accommodation, you are encouraged to contact the Disability Services Office, located in Main Hall #105 (Phone # 255-3354), within the first week of classes.

Cheating, unfortunately, it is necessary to mention it here. Cooperation is not the same as cheating. It's OK to ask someone about the concepts before you start to do homework or project assignments; however, copying other people's code or solution sets is strictly prohibited. Any work submitted for a grade must include the following statement and be signed and dated. If this is missing or not signed and dated, the work will be returned un-graded. Please prepare a big envelope for your homework.

**We need the strict rules, because everyone wants to be, and will be, treated fairly in this class!**

*I have neither given nor received unauthorized assistance on this work.*  
Signed: \_\_\_\_\_ Date: \_\_\_\_\_