CS5310.001/002, Fall 2020
Computer Networks and Communication Systems

Time:	W: 6:30 − 9:20pm
Classrooms:	364 Avery at RRC and 114-C DERR at TxState
Instruction mode:	Hybrid. Zoom ID: 994 6078 8734, passcode: 588862
Office hours:	Office hours are posted and updated weekly on my web site

Instructor:	Wuxu PENG
Office:	309B Comal, TxState & 464X Avery, RRC
Office Hours:	Office hours are updated and posted online weekly
Phone:	245-3874 (TxState), 716-4562 (RRC)
Email:	wuxu@txstate.edu
Web:	https://keystone.cs.txstate.edu/teaching/cs5310/f-20/
WebPage Username/Password:	cs5310/CNf20 (password will be enhanced/announced in class)

Prerequisites: CS3358 (Data Structures). Background about UNIX is desired. Knowledge of operating systems (CS4328) or up-level standing.

Textbooks (Both required):

1. A.S.Tanenbaum and D.J.Wetherall, *Computer Networks* (5th ed.). Prentice-Hall, 2011. ISBN-13: 978-0-13-212695-3.

2. W. R. Stevens, Bill Fenner, and Andrew M. Rudoff. *UNIX Network Programming – Networking APIs: Sockets and XTI* (3rd ed.). Addison-Wesley, 2004. ISBN: 0-13-141155-1.

Textbooks (Optional and for reference only):

1. F. Halsall, *Computer Networking and the Internet* (5th ed.). Addison-Wesley, 2005. ISBN 0-321-26358-8.

General Information and Course Objectives:

This is a course covering both communications and computer networks. The whole course is divided into three phases:

(1) Fundamentals of data communications;
(2) Fundamentals of computer networks;
(3) UNIX network programming.

The first phase will follow several chapters in Part One and the second phase will mostly follow Part Two of the first textbook. In Phase three we shall study the core part of the second textbook. The material in Phase one and two will lay some foundations and clarify some basic concepts and terms. Phase three, which will be emphasized, is intended to provide concrete and practical examples related to the basic concepts and to solidify the understanding.

You are expected to gain solid knowledge about fundamental aspects of computer networks and data communications through this course. You are also expected to be able to perform elementary UNIX networking programming through the BSD *socket* API after taking this course.

Grading Policy:

Home assignments are due on time. All assignments are to be submitted electronically through the *homework/project management panel* of class forum web site. For programming assignment, a copy of your program is required to be uploaded on time. A single Word/PDF/PS/ASCII file is not sufficient for programming problems. Please do not submit Windows RAR formated files/bundles. Details of homework/project submissions are posted on the class forum.

As always, I will try my best to maintain fairness in grading. You are encouraged to bring any discrepancy in grading to me and I will try to resolve it promptly and fairly.

Course Evaluation:

There are three to four written homework assignments, one programming project, plus the final exam. Homework assignments are expected to be due on time. The project will implement a client-server application using Berkeley socket API. All programming assignments/project must be able to compile/run successfully on department lab Linux computers designated for this class. The host language for the entire class, including programming project, is C (or C++ if you prefer). Your final grade for the course will be calculated as follows:

3-4 homework assignments:	35%
Programming project:	20%
Class attendance:	5%
Final exam:	40%

A class forum is maintained for the class. The class forum is the primary venue of information exchanges. **Registration of class forum is required, not optional**. The URL for the class forum is: https://keystone.cs.txstate.edu/teaching/class_bbs/

The class forum front page is protected with the same username/password of the class webpage.

Your class forum account username will be posted on class web page shortly after the semester begins. If you have taken my classes last two years, and already have an account for my class forum, and the posted account name is the same as your previous account name, then you can continue to use that account. If your forget your password, you can reset it by clicking a link on class forum front page.

If you haven't taken my class previously, **you are required to register an account with the posted account name**. When you register on class forum, please use a valid email account which will be used to receive a registration confirmation email message. **You must activate your account by following the instructions in that email message**.

Date/Time of Final Exam:
05:00 − 07:30pm, Wednesday, December 9, 2020

The final exam will be online through Zoom unless the COVID-19 pandemic situation allows effective F2F instructions/meetings.

Attendance and Incomplete Policies:

It is your responsibility to attend the class and follow the course progress. **Regularly attending the class is required. Regularly missing class meetings will adversely affect your final grade**. The total attendance counts 15% of semester grade average.

The CS Department has a strict policy and procedure for granting incomplete grades. The instructor has to provide convincing information in writing to the department Chair to get approval. Therefore incomplete will not be granted unless convincing reasons are provided. Reasons such as too much workload are not acceptable for requesting an incomplete grade.

Dropping Classes and Withdrawing (Extracted from http://mycatalog.txstate.edu/graduate/registration-course-credit/)

Dropping a class is an official action whereby a student drops one or more courses, yet remains enrolled in at least one other course. Refer to the Registration Instructions at http://www.registrar.txstate.edu for details on dropping a class.

1. The drop deadline is the first 60% of the semester. Please refer to the academic calendar on the Registrar's website for the most current dates.

2. A 'W' grade will be assigned automatically when a student drops one or more classes by the automatic 'W' deadline, the first 60% of the semester.

Withdrawing from the University (dropping all classes) is an official action whereby a student informs the University Registrar, who in turn informs the instructor(s) of record, that the student will cease attending all classes in which enrolled.

1. The deadline to receive an automatic 'W' is the first 60% of the semester. Please refer to the academic calendar on the Registrar's website for the most current dates.

2. After the automatic 'W' period, faculty assigns grades to students who officially withdraw from the University. Faculty assign a 'W' grade only to those students who have a passing average at the time the withdrawal action is officially completed. Otherwise, faculty assigns an 'F' grade.

3. Please refer to the academic calendar on the Registrar's website for the withdrawal deadline.

The student must contact the University Registrar in person, by letter, or by fax to withdraw officially from the University. Visit the Registrar's Office website at http://www.registrar.txstate.edu/ or contact the Registrar's Office at 512-245-2367 for the proper procedures. Students living in university residence halls must also contact the Residence Life Office in person, by letter, or by fax.

Academic Calendar for Fall 2020:

Disclaim: Information here is for your reference only. Please check with Registrar's Office for official academic calendar.

First class day	08/24/2020
Late registration/schedule changes	08/24-09/1/2020 (ends at 3:45pm on 09/01)
Last day to add a course	09/01/2020 (ends 3:45pm)
Labor day (classes do not meet)	09/07/2020
Official 12th class day available	09/09/2020
Official 12th class day certified	09/16/2020
Last day to drop course with full refund	09/09/2020 (ends at 11:59pm 09/09/2020)
Fall graduation application available	08/24/2020
Fall graduation application deadline	10/02/2020
Registration for Spring 2021 begins	10/19/2020
Last day to drop/automatic "W" deadline	10/26/2020 (both end at 11:59pm 10/26/2020)
Last day to withdraw, go to zero hours	11/19/2020 (ends at 11:59pm 11/19/2020)
Thanksgiving break begins	11/25/2020
Thanksgiving break ends	11/29/2020
Last class day	12/03/2020
Reading day	12/04/2020
Final exam	12/04-11/2020
Commencement	12/11-12/2020
Grades available online	12/15/2020
University closed for holiday break	12/21/2020

Academic Integrity:

Academic integrity is an integrated part of high education. Please consult appropriate Texas State documents for university's academic integrity requirements and policies.

Tentative Schedule:

1. Introduction (1 week, Book 1, Ch.1)
2. Basic concepts and terms (0.75 week, Book 1, Ch. 1)
3. Basics of digital communications (1 week, Book 1, Ch. 1,2)
4. Fundamentals of communication protocols (1 week, Book 1, Ch. 1,3)
5. Telephone networks, DSL, and Internet over Cable (1.5 weeks, Book 1, Ch. 2)
6. Local area networks (1 week, Book 1, Ch.4)
7. Introduction of TCP/IP and socket API (2 weeks, Book1, Ch.6, Book 2, Ch.1,2 & 3)
8. TCP sockets (2 weeks, Book 2, Ch. 5 & 6)
9. I/O Multiplexing sockets (1.5 weeks, Book 2, Ch. 6)
10. UDP sockets (0.75 week, Book 2, Ch. 8)
11. Name and address conversions (0.75 week, Book 2, Ch. 11)

Recording and dissemination of class contents:

No recording or diseminating of any class presentation contents is allowed. Class lecture notes, homework assignments, programming project, and exams are all not allowed to be distributed outside of the class, in any form.