**CSCI/CMPE 4345**

**COMPUTER NETWORKS**

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**ALL STUDENTS: PLEASE USE BLACKBOARD TO SUBMIT ASSIGNMENTS**

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| **Computer Networks**  **CSCI/CMPE 4345** | Th 5:55 to 8:25 pm  **Eng 1.272** |  |  |
| **CSCI 6175.01** | Th: 8:45 pm - 9:35 pm  **Eng 1.290**  [**Syllabus**](file:///\\faculty.utrgv.edu\john.abraham$\4345\2017\6175\2017\syllabus.htm) |  |  |
| **Advanced Computer Networks CSCI 6345 - 01** | Th: 5:55 - 8:25 pm  **Eng 1.272** |  |  |
| **Office Hours** | **TW 10:30 to 12noon** |  |  |

Cell phones must be entirely out of sight inside a closed backpack or purse. **IF YOU USE THE PHONE DURING CLASS, I WILL ASK YOU TO BRING THE PHONE TO THE FRONT AND KEEP IT ON THE TABLE UNTIL THE CLASS IS OVER, NO EXCEPTIONS.**

TA:

**Required Textbook**: Comer, Douglas E., Computer Networks and Internets, 6th Edition, Prentice Hall, 2015.

ISBN-10: 0133587932 **(**ISBN-13: 978-0133587937**)**

**Please take good notes as I cover a great deal more than in the textbook.**

**Reference:**

* Behrouz A. Forouzan, TCP/IP Protocol Suite, 4th Ed., McGraw Hill, 2010. ISBN 978-0-07-337604-2
* Tanenbaum, A. S., 2002, Computer Networks, 4th Ed., Prentice Hall, Upper Saddle River, New Jersey.
* UNIX Network Programming by W. Richard Stevens, Prentice Hall, 1990

**Catalog description**:

An introduction to data communication topics, including data transmission, encoding data link control, switching, network topologies, protocols, internetworking and data security. Examples of existing networks and network architectures are studied. Prerequisites: Operating systems or Computer Architecture or consent of instructor.

In addition to this, students will gain practical experience in setting up communication between computers, networking, and network management. Students will also install different peer-to-peer and client-server network software. They will also gain some experience on inter-networking.

Students are required to setup servers and conduct experiments. Students are expected to dedicate outside hours to complete lab assignments. Most lab assignments can be completed using **virtual machines set up on personal computers**. Advanced lab in the second floor is available if you want to make arrangements.

Grading:

Midterm and Final Exams 60%

Network (socket) programming 10% present to class

Practical portion (labs) 20%

Attendance and online quiz 10%

**Course Topics:**

Fundamentals of computer networks; theory, design, implementation and performance analysis of computer networks; network protocols; examples of computer network applications.

**COURSE OBJECTIVES**: Upon conclusion of this course a student will be able to plan and install a TCP/IP protocol stack based local area network, set up switches and routers, and write socket programs for communication.

**Learning outcomes:**

* 1. Compare and contrast the OSI and TCP/IP models.
  2. Given a network problem, create appropriate topology and draw wiring diagrams.
  3. Make cat 5 cables and connect them with switches and make crossover cables where appropriate.
  4. Configure servers, switches and routers.
  5. Create subnets and supernets.
  6. Create routing tables.
  7. Setup static IP address as well as DHCP based addresses.
  8. Setup a DNS.
  9. Setup a mail server
  10. Setup a wireless network
  11. Install appropriate network security
  12. Write socket programs in C or Java.

**General instructions about the group project**: You will be assigned to one of the graduate student group projects. Please contribute and learn. You will not be asked to write reports or give presentations. No points assigned for this part.

Socket Programming. You will be asked to present the program to class.

1. Write a Socket Program to send a file from a client to the server. Use TCP.

2. Write an Socket Program using UDP to send messages from the client to the server and server to the client.

3. Write a Chat Program with one server and multiple clients and clients chatting with each other. You need to use the user name as the alias to identify the chat user. Make it non-blocking so it can accept multiple clients. You need to use threading. It would be good to use the time stamp.

Practical (Lab) work:

* + Virtual Machine
  + Peer to Peer
  + RDP
  + Domain
  + Netadmin
  + Join the domain
  + Create Security groups
  + Grant local Admin rights
  + Packet analyzer
  + WSUS
  + Backup
  + Catchup

**Some dates to remember:**

Jan. 16 (Tues.) Spring classes begin

Jan 19 (Fri.) Last day to add a class or register for Spring classes

Jan. 22 (Mon.) Last day to withdraw (drop all classes) and receive an 80% refund

Jan. 29 (Mon.) Last day to withdraw (drop all classes) and receive a 70% refund

Feb. 5 (Mon.) Last day to withdraw (drop all classes) and receive a 50% refund

Jan. 31 (Wed.) Census Day (last day to drop without it appearing on the transcript)

Feb. 12 (Mon.) Last day to withdraw (drop all classes) and receive a 25% refund

Mar. 12 – Mar. 17 (Mon. – Sat.) Spring Break. No classes

Mar. 30 – Mar. 31 (Fri. – Sat.) Easter Holiday. No classes.

April 12 (Thurs.) Last day to drop a class (grade of DR) or withdraw (grade of W)

May 3 (Thurs.) Study Day. No classes.

**Attendance:**

Attendance and class participation is required to pass the course. If you must miss an exam, make prior arrangements. No make-up exams will be given unless you contact me in advance! Homework assignments may be submitted to me by hardcopy in my mailbox prior to class time (May submit by email to mark date and time, but must be submitted by hardcopy for grading purposes). Late homework will be levied heavy penalties. Penalty: One day late 10%, 1 week late 20%, 2 weeks late 50%. Not accepted afterwards.

STUDENTS WITH DISABILITIES: If you have a documented disability (physical, psychological, learning, or other disability which affects your academic performance) and would like to receive academic accommodations, please inform your instructor and contact Student Accessibility Services to schedule an appointment to initiate services. It is recommended that you schedule an appointment with Student Accessibility Services before classes start. However, accommodations can be provided at any time. **Brownsville Campus**: Student Accessibility Services is located in Cortez Hall Room 129 and can be contacted by phone at (956) 882-7374 (Voice) or via email at [accessibility@utrgv.edu](mailto:accessibility@utrgv.edu). **Edinburg Campus:** Student Accessibility Services is located in 108 University Center and can be contacted by phone at (956) 665-7005 (Voice), (956) 665-3840 (Fax), or via email at [accessibility@utrgv.edu](mailto:accessibility@utrgv.edu).

MANDATORY COURSE EVALUATION PERIOD: Students are required to complete an ONLINE evaluation of this course, accessed through your UTRGV account (<http://my.utrgv.edu>); you will be contacted through email with further instructions. Online evaluations will be available Nov. 18 – Dec. 9, 2015. Students who complete their evaluations will have priority access to their grades.

SCHOLASTIC INTEGRITY: As members of a community dedicated to Honesty, Integrity and Respect, students are reminded that those who engage in scholastic dishonesty are subject to disciplinary penalties, including the possibility of failure in the course and expulsion from the University. Scholastic dishonesty includes but is not limited to: cheating, plagiarism, and collusion; submission for credit of any work or materials that are attributable in whole or in part to another person; taking an examination for another person; any act designed to give unfair advantage to a student; or the attempt to commit such acts. Since scholastic dishonesty harms the individual, all students and the integrity of the University, policies on scholastic dishonesty will be strictly enforced (Board of Regents Rules and Regulations and UTRGV Academic Integrity Guidelines). All scholastic dishonesty incidents will be reported to the Dean of Students.

SEXUAL HARASSMENT, DISCRIMINATION, and VIOLENCE: In accordance with UT System regulations, your instructor is a “responsible employee” for reporting purposes under Title IX regulations and so must report any instance, occurring during a student’s time in college, of sexual assault, stalking, dating violence, domestic violence, or sexual harassment about which she/he becomes aware during this course through writing, discussion, or personal disclosure. More information can be found at [www.utrgv.edu/equity](http://www.utrgv.edu/equity), including confidential resources available on campus. The faculty and staff of UTRGV actively strive to provide a learning, working, and living environment that promotes personal integrity, civility, and mutual respect in an environment free from sexual misconduct and discrimination.

COURSE DROPS: According to UTRGV policy, students may drop any class without penalty earning a grade of DR until the official drop date. Following that date, students must be assigned a letter grade and can no longer drop the class. Students considering dropping the class should be aware of the “3-peat rule” and the “6-drop” rule so they can recognize how dropped classes may affect their academic success. The 6-drop rule refers to Texas law that dictates that undergraduate students may not drop more than six courses during their undergraduate career. Courses dropped at other Texas public higher education institutions will count toward the six-course drop limit. The 3-peat rule refers to additional fees charged to students who take the same class for the third time.