CALIFORNIA STATE UNIVERSITY, LONG BEACH
DEPARTMENT OF COMPUTER ENGINEERING AND COMPUTER SCIENCE

CECS 474 --- FALL 2020
Computer Networks Interoperability

Lecture
Sat 8:00am – 9:50am
Virtual Lecture

Lab
Sat 10:00am – 12:45pm
Virtual Lab

Instructor: Jose Tamayo
Office: N/A
Office hours: Sat 6:00-6:30pm, by appointment
email: jose.tamayo@csulb.edu

Course Objectives
This course is an in-depth study of computer network theory and practice from a systems perspective. Topics include network infrastructure, local area network (LAN) protocols, wide area network (WAN) protocols, switching technologies, Internet Protocols, Transmission Control Protocol (TCP), network configuration, design, security and performance.

Prerequisite

All students will be asked to present evidence showing that they have completed **CECS 326 or CECS 327,** or equivalent courses from another university.

Textbook

Computer Networks and Internets (6th Edition), by Douglas E. Comer, Pearson, 2015, ISBN-10: 0-13-358793-2. The CSULB Bookstore should have both hardback and electronic versions available. You may choose to use an older edition of the textbook; however, you are responsible for learning any material from the 6th Edition that is not included in previous editions.

ABET Student Outcomes

The course satisfies following ABET student outcomes:

1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics

2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors

3. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts

4. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions

5. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

Course Structure and Delivery Mode

This course is conducted entirely online. You will access the course material and activities on BeachBoard and are required to participate in synchronous class meetings via Zoom.

If you need technical assistance at any time during the course or need to report a problem with BeachBoard, please contact the Technology Help Desk using their online form, by phone at (562) 985-4959.

Course Communication

We will use BeachBoard to make announcements, communicate information, post assignments and corresponding due dates, and discuss course-related topics. Please note, it is your responsibility to check BeachBoard's dashboard regularly, as it will contain important information about upcoming class assignments, activities, or concerns.

Grading

BeachBoard will be used to post grades**: CECS 474 Computer Net Interoperability.** There will be two mid-term exams, one final lab exam, one final examination, and a 5-page final paper. Final exam will be cumulative. Make-up exams will not be given except for university excused absences. Remember, it is the student's responsibility to notify the instructor in advance of an absence or the need for accommodation or a University verified disability. ****There will be no extra-credit assignments in this class to make up grades.**

Laboratory assignments will consist of approximately 6-7 assignments; some assignments are multi-part. Lab assignments will be submitted on BeachBoard.

Grades for the course will be based on a weighted average of the examinations and homework/laboratory assignment scores. An average score between 90-100% will guarantee at least an A, an average score between 80-89% will guarantee at least a B, an average score between 70-79% will guarantee at least a C, and an average score between 60-69% will guarantee at least a D. The curve may be lowered but not guaranteed.

Lab Assignments	one lab assignment every week (starting September 12)	20%
Attendance/Participation		5%
Mid-term 1	October 3	15%
Mid-term 2	November 7 or November 14	15%
Lab Final Exam	December 19 during final exam	5%
Final Exam	Saturday, December 19, 2020, @ 8:00 am	25%
Final Paper	Monday, December 21, 2020 @ 5pm	15%

Attendance

Regular attendance at both lecture and lab are strongly recommended. Students will be held responsible for all material covered in both lectures and lab sessions. Particularly because all lab assignments will be part of the examinations. There will be no make-up lab sessions. *Students with two absences will lose 5% of the grade.

Cheating

There is zero tolerance for cheating, plagiarism, or any other act of violation of Academic Integrity policy. Work that you submit is assumed to be original unless your source material is documented appropriately, using proper citation. Using the ideas or words of another person, even a peer, or a web site, as if it were your own, is plagiarism. Any individual or group caught cheating on homework, lab assignments, or any exam/quiz will be subjected to full extent of academic actions allowed under University regulations. At a minimum, any student caught violating Academic Integrity Policy will receive no credit for the work concerned and one grade lower letter grade. To learn more about the University policy on Cheating and Plagiarism, visit:
http://catalog.csulb.edu/content.php?catoid=5&navoid=369#cheating-and-plagiarism

University Withdrawal Policy

Class withdrawals during the final 3 weeks of instruction are not permitted except for a very serious and compelling reason such as accident or serious injury that is clearly beyond the student's control and the assignment of an Incomplete grade is inappropriate (see Grades). Application for withdrawal from CSULB or from a class must be filed by the student online whether the student has ever attended the class or not; otherwise, the student will receive a grade of "WU" (unauthorized withdrawal) in the course. More information regarding the University guidelines on Dropping and Withdrawing at: Dropping and Withdrawal

Tentative Material Covered

Material to be covered during class (the list reflects a tentative schedule of the lectures that will be given, this list is subject to slight changes)

- OSI and TCP/IP Layering Models Recall
- Support Protocols and Technologies: ARP, DHCP, ICMP, NAT, VLAN
- Circuit vs Packet switching networks
- Timing in Networks: effect in performance and delay analysis
- IP Addresses and CIDR, the future IPv6
- IP Datagrams, encapsulation, fragmentation, and reassembly
- TCP/IP Layer Functionality
- Transmission Media, Interconnection Technologies, data communication, and channelization
- Interconnection Devices
- Long Distance communications: issues and routing protocols, legacy vs SDN
- Network Design

Student Grievance Policy

Please check CSULB grievance policy and procedure at:

https://www.csulb.edu/academic-senate/policy-statement-07-01-student-grievance-procedures%C2%A0superseded-ps-95-21

Special Needs Accommodations

Online courses are required to meet ADA accessibility guidelines. Students with a disability or medical restriction who are requesting a classroom accommodation should contact the Bob Murphy Access Center (BMAC) and also notify the instructor. BMAC personnel will work with the student to identify a reasonable accommodation in partnership with appropriate academic offices and medical providers. Only approved BMAC petitions will be accommodated.

Any student who is facing academic or personal challenges due to difficulty in affording groceries/food and/or lacking a safe and stable living environment is urged to contact the CSULB Student Emergency Intervention & Wellness Program. Additional resources are available via Basic Needs Program. The students can also email supportingstudents@csulb.edu, call (562)985-2038, or if comfortable, reach out to the instructors as they may be able to identify additional resources. For mental health assistance please check out CSULB Counseling and Psychological Services (CAPS).

http://web.csulb.edu/divisions/students/caps/

Emergency Preparedness (add only if the class is hybrid)

Students are strongly encouraged to familiarize themselves with the Personal Preparedness Instructions and other resources under “Emergency Preparedness” link on CSULB University Police web site.

Disclaimer

In the event of extraordinary circumstances beyond the University's control, the content and/or evaluation scheme in this course is subject to change.

Technology Requirements

- **Access to a PC with at least the following configuration**: Windows 10, MAC OS, Linux OS, 20GB of available space, at least 4GB RAM (8GB or more RAM is preferred)
- **Software and tools**: You will need to have an up-to-date browser, Wireshark, and GNS3 on your computer to take this class. Some of the documents in this course will be available to you in PDF form. If you do not have Adobe Acrobat Reader software on your computer, you can download it by going to Adobe Acrobat Reader
- **Virtual Lab:** GNS3 and Wireshark apps will be used.

Please contact the department if you need support with access to the Internet, electronic devices, or any other issues related to remotely accessing your course.

Personal Assistance

The following *statement* has been provided by the Dean of Students for use in your syllabi:

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