Contents

Course Information

Applied Networking
Time: Theory – M 1:30PM-3:00PM
Programming – W 1:30PM-3:00PM
Lab1 – M 3:00PM- 3:20PM
Lab2 – W 3:00PM- 3:20PM
Room: AH 208
Instructor: Dr. Yu-Ju Lin
email: ylin@csuniv.edu
Office: AH 206

Course Description

An introduction to the fundamentals of networking using the OSI model as a framework. Basic hardware components: routers, hubs, switches, Ethernet, fiber optics, wireless. Protocols: application layer (HTTP), transport layer (TCP, UDP), network layer (IP), link layer (Ethernet). Introduction to application programming in a networking environment, including protocols and languages such as XHTML, ASP, and JavaScript. Additional topics include historical perspectives on network evolution and ethical issues.

Prerequisites

CSCI 235 and CSCI 217.

Introduction

This course studies general principles and concepts of Computer Networks and basic application programming for networks. First, you will learn the theoretical concepts underlying network architecture. Second, you will learn how to do programming within the network. This includes both client and server programming. This course is intended for both Math/CS and Business majors with an emphasis in Information Systems. Non-majors may find the course beneficial in understanding how the computer hardware, software and the Internet interact. This is an introductory computer networking course and serves as a pre-requisite for Advanced Networking and Network Security.

There is an expectation of team work in many of the class/lab projects. I will direct teams to produce a single solution among the teammates. Team work is a highly valued skill in the workplace and society as a whole. Through these teamwork exercises the goal is to develop an understanding of what makes teams successful and to be able to function effectively as a teammate.

Course Objectives

- *To introduce the fundamentals of networking.*
- *To utilize networking in an applied environment.*

- *To Prepare students for advanced courses in networking.*
- *To make students aware of human interface issues.*
- *To increase students' perception of the breadth of computer science.*
- *To improve student written and verbal skills.*
- *To increase student knowledge of ethical issues.*

Course Goals

1. *The student will be able to list the data inputs, data output requirements, and processes involved in forming a solution to the problem without errors after the course.*
2. *The student will be able to describe the basic components needed for a local and wide area network after the course without errors.*
3. *The student will become familiar with Visual Studio, Network related components, design protocols for communication after the course with confidence.*
4. *The student will be able to build server/client programs so they can talk to each other after the course correctly.*
5. *The student will be able to identify and build working network cables after the course with confidence.*
6. *The student will be able to build a local area network independently after the course.*
7. *The student will be able to convert numbers between number systems independently without error.*
8. *The student will be able to learn team cooperation and communicate with each other effectively after the course.*
9. *The student will be able to compute packet delay, network performance, and bandwidth requirements after the course.*
10. *The student will be able to present team project professionally after the completion of the team project.*
11. *The student will be able to understand professional, ethical, legal, security, and social issues and responsibilities without errors after the course.*

ABET Student Outcomes:

1. An ability to analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.
2. An ability to design, implement, and evaluate a computer-based solution to meet a given set of computing requirements in the context of the program's discipline.
4. An ability to recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles.
5. An ability to function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline.
6. An ability to apply computer science theory and software development fundamentals to produce computing-based solutions.

General Information

Communication

I will use Blackboard to communicate information in this class. You must be registered with Blackboard. An account should have been already created for you. If you don't have an account, see me. It is imperative that

you set your e-mail address in Blackboard via the links: "personal information" and "edit personal information". Copies of lecture notes and the like will be posted.

Availability

Please feel free to discuss this course with me during office hours or by appointment. I am happy to answer question by e-mail. In case of emergency, my home number is listed in the side bar. If I'm not available, please leave your name and number and I will call you back not later than the next working day.

Textbooks

This course will require the textbook: "*Computer Networking - A top-down approach featuring the Internet, Seventh Edition"* by James F. Kurose & Keith W. Ross, Addison Wesley. ISBN-10: 0133594149. And "*Programming the World Wide Web 8th Edition"* by Robert W. Sebesta, Person, ISBN-10: 0133775984. Supplement materials will be given during the semester depends on the progress and coverage of the course. You would expect to see at least another 100 pages of other material for the course.

Computer Requirement

Face to Face students:

University will issue a laptop for this course. Please follow the lecture video of how to prepare your computer for assignments. You will return the laptop by the end of the semester.

Online Students:

You are responsible for using your own laptop for assignments. Please make sure your computer is up-to-date with sufficient memory (at least 4GB RAM, recommend 8GB RAM), computing power(using a 64bit CPU and OS), and storage(recommend at least 60GB free space on your hard drive). Your computer must support virtualization. If your computer's virtualization is turned off, you must turn it back on. You can get this information from your computer's manufacturer; we are not responsible for your computer's configuration settings.

Evaluations:

In order to pursue our mission of 'Academic Excellence in a Christian Environment', it is important that we receive feedback from students to let us know how are doing. In order to save time and paper this process is online, and should be available sometime in the second half of the semester. Students are strongly encouraged to complete the short evaluation, which is entirely anonymous. Your professor will let you know when this is active, and you can then access it through your MyCSU account.

Method of Evaluation:

Midterm Grade	
Attendance	10%
Test 1	34%
Homework	24%
Labs	32%
Final	
Attendance	10%
Tests	20%

Midterm Grade	
Exam (Final)	20%
Project	15%
Homework	15%
Labs	20%

Grading Scale:

Grading Scale
90-100= A
83-89 = B+
74-82 = B
65-73 = C+
60-65 = C
50-59 = D
49-0 = F

Attendance and Participation:

Class participation, attendance and attitude may be used by the instructor to raise a letter grade.

Homework:

Homework will be assigned in class. Online students are expected to behave like a face-to-face student. You must take notes of what is announced in lecture. I will not necessarily put dates on Blackboard. I will cover some of the hard homework problems in class and these problems will be assessed in tests.

Some of the assignments require you to draw diagrams/pictures. You can draw them on a paper then use your cellphone's camera to capture them. Please reference to your cellphone manufacturer's instructions of how to connect your cellphone to your computer. You may need to use your cellphone camera during exams. You should test it as early as possible to avoid complications.

Paste all pictures and solutions of your homework assignment to a document (it can be a Word document or PDF) instead of attaching several images to the submit link. Make sure it is clear enough for me to grade. If I am not able to read it, you will not be able to receive the grade you deserve.

Labs:

The lab assignments will be given in class. It will due **one hour before class starts**. You are expected to demonstrate your lab assignments during lab hours. If you are not able to demonstrate your lab within the first 30 minutes, it will be counted as overdue and receive a penalty of 10 points. You will be expected to stay in class until you have completed the necessary computer tasks/graded. You should ask for lab assistance if it is beyond your capability. I'll be glad to help you in class or during office hour. You do not need to write up your results until after class. Late labs will receive 10 points late penalty per day excluding weekend (Basically I extended the lab assignments for 2 more days after the first penalty).

Online Students:

Except uploading your lab assignments solutions to Blackboard, you are required to upload a video to demonstrate your project. You will receive a great reduction (50%) of your grade WITHOUT video demo. Since online students do not have the chance to clarify things of your lab solutions, you must explain your lab solutions as clearly and detailed as possible in your video. If I cannot see or hear things clearly, for fairness, I cannot give you the credit. You can upload the video to YouTube or Blackboard. Please indicate the link in your submission on Blackboard so I know where to find it.

The procedure of demo video should follow the steps below:

1. Close Visual Studio Code
2. Open Internet Explorer/Firefox/Chrome
3. Enter http://localhost in the URL field
4. Go through pages
5. Open Visual Studio Code
6. Open your website
7. Go through your code, explain each problem how you achieve it.
8. Length of the video should not be longer than 3 min-5 min

There are many choices of screen recording software available, you can try:

- Apowersoft Screen Recorder
- BandiCam
- OBS
- Your cellphone camera!

Projects:

You will be given a final project. There is an expectation of team work in the final projects. Each team will produce a single solution among the teammates. Team work is a highly valued skill in the workplace and society as a whole. Through these teamwork exercises the goal is to develop an understanding of what makes teams successful and to be able to function effectively as a team.

Online Students:

Please see the rule of lab assignments. Team work is expected. Just like in the real world situations, you are expected to work with people who are working from home. Communication and patience is the key to the success of team work. I am sorry teamwork is required in ABET, we have to do it. Use CSCI VPN to connect with your teammate if you are not able to physically meet with each other.

Team Communication Software:

I understand the difficulties and conflicting schedules among your team thus there are many tools available to allow you to communicate effectively. Here are some of the suggestions for you:

1. Slack
2. Beekeeper
3. Highfive
4. Microsoft Teams
5. Google Hangouts

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In the past, there are students doing video demo with Skype between teammates. They are able to show both of the members on screen along with their work and explain things at the same time. I encourage you to explore all the possible solutions to make teamwork works.

Assessments:

Assessments are important to evaluate my teaching and your ability to absorb the material. Hard work and team work is essential in **preparing** for (not during) tests. Two tests will be given. Unless you are on University business, you must be in class to take the exams. If you are on University business, it is expected that you will take the exam early. If at all possible, you must notify me if you have an emergency that requires you to miss an exam **in advance**. If an emergency is properly documented, your final exam will replace the test. Otherwise a zero will be assigned.

Final Exam:

According to University policy you must be present for the final exam at the scheduled period. You may not take the final exam early without permission of the Provost and must pay a fee. If you fail to take the final exam, you will receive an F for the course.

Important Dates

Event	Dates
Last Date to Register or Drop/Add Classes	August 30
Last Date to Withdraw with a Grade of "W"	September 12
Test1	September 23-29
Fall Break	Oct 14-15
Test 2	Oct 28-Nov 3
Project Phase 1 Due	Nov 18
Project Phase 2 Due	Nov 25
Thanksgiving	Nov 27-29
Project Phase 3 Due	Dec 2
Final	Dec 4-10
Return of Equipment	Dec 11 1:30PM-3:30PM

Course Policies

Classroom Behaviors

For Face-To-Face Students

- No cell phone. Turn it off, tuck in the bag.
- No headphone, earphone, MP3 player etc. No, you cannot cover your ear during my lecture.
- Turn off screen when I am lecturing
- If you have anything to say, keep it to yourself unless you are asked.
- If you are sleepy, step outside until you are awake.
- When an assignment is due, it is due, no arguments.

- You are responsible for your own actions. If you miss my lecture, ask your classmates.
- Team work means working as a team, you and your partners. Your work will be graded as a team not separately. With that said, pick your partners wisely.
- Team work means working as a team, you and your partners. No, you are not allowed to work alone as a team.
- If you have personal issues, like grading issues, late assignment issues etc., that you need to talk to me, wait after class ends or during the break.

For Online Students

- You should set aside a few periods of time every week dedicating for watching lecture video
- You should pay attention to the videos as if you are sitting in a classroom.
- You should not let the video play at the background. You must take notes, practice how to solve problems and memorize terms while watching videos.
- You should participate in the class activities as if you are attending the face-to-face class.
- You should watch the lecture video as soon as possible once it is released.

Attendance

Face to Face students:

Every hour you absent will have a penalty of 1 point of your final grade. Attendance will be kept and FA's will be given if you exceed the cuts (4 sessions) allowed by Charleston Southern University.

Online Students:

After watching each week's lecture video, write a weekly report that no longer than 3 pages but no less than 2 pages(excluding cover page, MLA format, 12pt font, double space) and upload it to Blackboard to count as attendance.

The report should include:

1. What concept was most helpful? Why?
2. What concept was most difficult to grasp? Why?
3. How do you plan to apply the knowledge?
4. What question do you want to ask?

Academic Integrity:

As a liberal arts university committed to the Christian faith, Charleston Southern University seeks to develop ethical men and women of disciplined, creative minds and lives that focus on leadership, service and learning. The Honor System of Charleston Southern University is designed to provide an academic community of trust in which students can enjoy the opportunity to grow both intellectually and personally. For these purposes, the following rules and guidelines will be applied.

"Academic Dishonesty" is the transfer, receipt, or use of academic information, or the attempted transfer, receipt, or use of academic information in a manner not authorized by the instructor or by university rules. It includes, but is not limited to, cheating and plagiarism as well as aiding or encouraging another to commit academic dishonesty.

"Cheating" is defined as wrongfully giving, taking, or presenting any information or material borrowed from another source - including the Internet by a student with the intent of aiding himself or another on academic

work. This includes, but is not limited to a test, examination, presentation, experiment or any written assignment, which is considered in any way in the determination of the final grade.
"Plagiarism" is the taking or attempted taking of an idea, a writing, a graphic, music composition, art or datum of another without giving proper credit and presenting or attempting to present it as one's own. It is also taking written materials of one's own that have been used for a previous course assignment and using it without reference to it in its original form.
Students are encouraged to ask their instructor(s) for clarification regarding their academic dishonesty standards.

You must respect the integrity of the grading system so that each student's work will be fairly assessed. ***Work (or a portion of work) that is not your own should be properly documented as to the source. Failure to document other's work is considered plagiarism and will be treated under University regulations as such.*** I should not be grading anyone's work but your own.

Internet Usage: The Internet is a great resource but is not to be used in place of using your mind. In general, the Internet is not to be used for homework, programming or laboratory specifics. If you feel it appropriate to use the Internet for a part of an assignment, you must consult me for permission. If permission is granted, documentation of the source is still required.

Collaboration Rules: Classmates are a good resource but only for generalities not for specifics. The learning process is enhanced as a result of exchange of information among peers. However, the homework and programming exercises are intended to prepare you for examinations. So, do not take so much information that you are not prepared for the exam.

If a programming project or laboratory work is assigned to a group of students, full collaboration among that group is authorized and a single product will be produced. No collaboration outside the group is authorized. The instructor is the only authorized consultant to the group.

1) If a programming project or laboratory work is assigned as individual work, each student may choose one other student in the class as peer-consultant providing there is mutual agreement between the two students involved. The student and peer-consultant are expected to independently develop a solution to the problem, but they are authorized to consult on algorithm development - to include specific coding - when difficulties arise.

   Any help must be noted in the program/lab as to who was consulted and what assistance was received. No collaboration outside the peer-consultant pair is authorized except that the faculty member can be used as a resource.

Consultation with the professor for the purpose of resolving problems is encouraged as an important part of the learning process. I am available by e-mail, text messages and the phone nearly all the time.

Questions on interpretation of a programming problem or a laboratory exercise are always appropriate at classroom sessions following assignment of the problem or exercise.

Allowed activities DO NOT include:

- ***Failure to fully participate in group projects but including one's name on the project.***
- ***Providing to or accepting from a peer-consultant a complete solution to a problem.***
- ***Taking code from the Internet without permission.***
- ***Failing to credit sources used in code.***

Note: Students are expected to take reasonable care to secure their own work. Copies should not be left on hard drives in the computer laboratory.

Disability Services:

If there is any student in this class who thinks they may have need of accommodations, they should review the requirements/procedures on Disability Services' website http://www.csuniv.edu/disabilityservices and then contact Disability Services (863-8010). If there is anything that you need from me feel free to come and discuss this with me during my office hours and I would be happy to accommodate you.

Evaluations:

These are students who are designated by letter to represent the University on official business, e.g., athletic, music, and similar events. If officially scheduled absences cause these students to miss tests, assignments, and/or other similar academic activities, University policy allows these to be made up without penalty. In accordance with this policy, Student Representatives may opt to either make up tests prior to departure, or supplanting missed tests with the final exam grade. Final exams must always be taken prior to departure to avoid an Incomplete for the course. Scheduled assignments remain subject to the lateness policy and must be turned in before departure to avoid lateness penalties. Student Representatives are responsible to inform the instructor of official absences and to make all appropriate arrangements.

Nondiscrimination Policy and Student Rights

Charleston Southern University does not illegally discriminate on the basis of race, color, national or ethnic origin, sex, disability, age, religion, genetic information, veteran or military status, or any other basis. Inquiries regarding the non-discrimination policies should be directed to Latitia R. Adams, Title IX Coordinator, 843-863-7374, ladams@csuniv.edu. Students should refer to the CSU Student Handbook (http://www.csuniv.edu/docs/studenthandbook.pdf) to be fully informed of their rights and remedies.

Course Schedule

Week	Material
1	Introductions Video: Light Speed Lab Setup Team Sign-up
2	Theory Topic 1: How Networks Work Programming 1: Introduction to HTML5
3	Theory Topic 2: Computer Network Programming 1: Introduction to HTML5
4	Theory Topic 2: Computer Network Programming 2: Cascading Style Sheets

5	**Test 1**
6	Theory Topic 2: Computer Network Programming 2:Cascading Style Sheets
7	Theory Topic 2: Computer Network Programming 3 - Introduction to ASP
8	Theory Topic 3: Some network apps Programming 3 - Introduction to ASP
9	Theory Topic 3: Some network apps Programming 4 - Working with Databases
10	**Test 2**
11	Theory Topic 3: Some network apps Programming 4 - Working with Databases Final Project Kick-off
12	Theory Topic 3: Some network apps Programming 5 – Javascript Final Project Phase 1 evaluation
13	Theory Topic 3: Some network apps Programming 5 - Javascript Final Project Phase 2 evaluation
14	Project Evaluation Final Project Phase 3 evaluation
15	**Final** Return of Equipment

Other Resources

1. Dr.Lin's Office hour schedule
2. Final Exam Date
3. CSCI VPN connection instructions
4. Weekly report template