Spring 2023 – CSC 3600 Section 1

Professor:	Perry Kivolowitz
Office:	Straz Hall 090
Office Hours:	Hours by Appointment Use Google Calendar to make appointments. Remember to SEND me the invite. Set all appointments to ZOOM meetings.
Contact Info:	pkivolowitz@carthage.edu
Meeting pattern:	Section 1 meets MWF 2:50PM to 3:55PM
Text:	An Introduction to Computer Networks Peter L Dordal http://intronetworks.cs.luc.edu/current2/html/

Syllabus and Policies (Subject to change)

At the end of this course, you will be able to…

At the end of this course, you will be able to:

- Design and implement client-server applications using datagram (UDP) means.
- Design and implement client-server applications using reliable (TCP) means.
- Design and implement multithreaded client-server applications using reliable (TCP) means.
- Understand principles underlying protocols such as ARP, TCP, IP, UDP, DHCP.
- Understand NAT, Broadcasting, VPN, Shortest Path, Reachability, Forwarding, Routing, Ports, and Sockets
- Utilize the Linux / Unix development tool chain featuring make and gcc / g++.
- Utilize and understand Linux-based networking tools such as ping, tracert, and others.

Topics

This course will be project heavy, with between 5 and 8 projects assigned depending upon progress in the course. Projects will include UDP-based as well as TCP-based efforts. These will use Berkeley sockets and will therefore require a Unix-like environment. The Macintosh terminal is acceptable. On Windows, WSL or WSL 2 is required.

The textbook seems pretty good and it's FREE. As a safety measure against the book becoming unavailable, use this link to download a PDF version. For normal use, we prefer the online HTML version. The link for which is repeated here.

The following chapters in Dordal are expected to be covered in full or in part:

- Chapter 1 – An Overview of Networks
- Chapter 2 – Ethernet Basics
- Chapter 3 – Advanced Ethernet
- Chapter 4 – Wireless LANs
- Chapter 5 – Other LANs
- Chapter 7 – Packets
- Chapter 8 – Abstract Sliding Windows
- Chapter 9 – IP Version 4
- Chapter 10 – IPv4 Companion Protocols
- Chapter 13 – Routing-Update Algorithms
- Chapter 16 – UDP Transport
- Chapter 17 – TCP Transport Basics
- Chapter 19 – TCP Reno and Congestion Management

This is an aggressive plan. It is likely we will not get through all these chapters.

Platform

You must use a Unix-like environment. We will make extensive use of the Unix command line. All coding will be done with gcc or g++ except where noted. The Macintosh terminal is acceptable. On Windows, you must install and use WSL or WSL 2.

Class Rhythm

In general, we will follow this pattern:

Monday	Review, Lecture
Wednesday	Review, Lecture
Friday	Review, Code Day or Lecture

Course components

I stress these can change as I adapt to class needs.

Component	*Weight*
Midterm (March 27)	15
Final exam (May 23 1PM - 3PM)	15
Attendance	10
Programming Assignments	60

All gradable items will be marked without curve. The Final Exam is cumulative.

Grading

Your aggregate grade in Schoology will be kept reasonably up to date. You can always check it to get a feeling for where you are in the course.

Both the midterm and the final exams will be administered on Schoology. Your scores are reported automatically in your Schoology aggregate grade.

Projects will be graded on criteria dependent upon each project.

Attendance will be graded as follows:

- After 4 absences (i.e., starting at the fifth absence) each additional absence will mean 1 points being deducted from your final aggregate score.
- After 8 absences (i.e., starting at the nineth absence) each additional absence will be 2 points being deducted from your final aggregate score.

For example

- at 8 absences you will have lost 4 points from your aggregate score.
- At 10 absences you will have lost 8 points from your aggregate score.
- At 11 absences and beyond you will have lost 10 points from your aggregate score.

Programming Assignments

The number of programming assignments given is subject to the unique needs of each class. Therefore, the following is only an *estimation*. There will be a minimum of five programming assignments. These will stress systems and network programming principles. The maximum number of projects assigned is eight. Projects may be solo or may allow a partner if stated in the specification.

Any partner projects require that one partner submit the code, the other a TEXT file that specifies who the partner is. Both partners receive the same score.

Be careful to precisely follow directions with regard to formatting output. Output may be checked by my own programming. Failure to follow instructions to the literal "letter" can result in tears.

Programming assignments will be graded on a 100-point scale where components include correctness, understanding and style.

Projects have specifications. Read specifications immediately. If anything in a specification is unclear, ask for resolution immediately. I prefer this sort of question be asked in a class forum so that all may benefit.

You are to hand in only source code unless otherwise instructed.

Computers in class

Bring your computer to every class.

Advising and accommodations

The Carthage Advising Center offers a variety of services and accommodations to students with disabilities, based on appropriate documentation, nature of disability, and academic need. In order to initiate services, students should meet with Diane Schowalter at the start of the semester to discuss reasonable accommodation. After meeting with Diane Schowalter, students in need of accommodations should also speak with individual faculty members from whom accommodations are sought to communicate their needs and make requests in a timely manner. If a student does not request accommodation or provide documentation, the faculty member is under no obligation to provide accommodations. You may contact Diane Schowalter at ext. 5802 or via e-mail at dschowalter1@carthage.edu.

Additional Attendance policy

First, as a good guest, it is polite to let the host know *in advance* if you won't be able to make it. *Prior to class* (and in general as soon as you know you will not be present), send me an email of no more than two sentences letting me know. *Bulk emails sent by Carthage are not sufficient.* You don't have to go into detail, but if there is something you think I should know, that's OK.

Second, you are expected to arrive on time and stay to the completion of the class. Exceptions to this are possible by prearrangement.

Academic Honesty Guidelines

In this class, I will be looking for copied code. Copied code may be forwarded to the Provost for Academic Honesty prosecution.

Carthage College Academic Honesty Guidelines are found at:

https://www.carthage.edu/community-code/academic-concerns/academic-honesty-guidelines/

A high level summary follows but you are encouraged to consult the original document.

Topic	*Summary*
Plagiarism	Don't do it
Cheating on a Test	Don't do it
False Citation	Don't do it
Multiple Submissions	Don't do it
False Data	Don't do it

Folks, it is really easy to spot copied code. Just. Don't.

Cell phone policy and other class decorum

Silence cell phones. Banish them to a pocket or bag. Silence other devices as well. There is to be no buzzing, chirping, whistling, chiming or any other digital sound with the following exception:

If your phone supports overriding of silencing options for certain classes of emergency notifications such as SMS from campus security, feel free to enable the feature.

This is a Computer Science class, so computers are an intrinsic part of the work. I walk the class as I lecture and will be gazing at your screens. Please keep to class related tasks.

If you are asked to put away a device, take the request as if it were a demand. Failure to comply will result in penalties.

My office hours

If I were to post office hours, some percentage of the class would never be able to attend. Therefore, rather than fixed hours, I am available to you on a demand basis. Use Google Calendar to make requests for appointments.

Enable a ZOOM meeting for each appointment.

Acceptable hours include evenings and weekends.

Early hours are almost never acceptable.

Wednesday noontime is never OK.

Preferred means of contacting me

I read and answer email frequently including nights and weekends. However, during nights and weekends there is likely to be a longer delay than during work hours.

I have faculty related meetings that occur Wednesdays during community time so may not be available at then.

Possibility of changes made to the course

Please note the above schedule, policies, procedures, and assignments in the course are subject to change in the event of extenuating circumstances, by mutual agreement and / or to ensure better student learning.

Concerning learning outcomes

Students may vary in their competency levels of any stated outcomes. Students can expect to achieve stated outcomes *only if* they honor all course policies, attend classes regularly, complete all assigned work in good faith and on time and meet all other course expectations of them as students.

Suggestions for how to do well in CS courses

Please see the document I've written on this topic. It is available in the class eLearning portal. The high order bit (we'll learn what that means) is:

Start Early – Work Steadily