

CMSC 417 — Computer Networks

Spring 2017

Section 0201

Course Summary

This course will cover the basic principles of networking with a focus on protocols, implementations, and issues specific to the Internet. We will study how routing, transport, and internetworking protocols work using the Internet family of protocols as examples. We will selectively implement new protocols and network services. Note well: This course has a substantial programming requirement.

Expectations

Background

You should be able to design, implement, and test non-trivial programs in C. The assignments must be coded in C. You should be comfortable with at least one debugger. Experience with multi-threaded code may be helpful for implementing the project, but is not required. Please note that *you* are completely responsible for these prerequisites, and they will not be covered in class or by the TA.

Postcondition

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

- Understand the fundamentals of networking protocols, including protocol layering, basic medium access including wireless protocols, routing, addressing, congestion control.
- Understand the principles behind the Internet protocols and some application layer protocols such as HTTP, DNS, and a few peer-to-peer systems and protocols such as BitTorrent and BitCoin.
- Understand some of the limitations of the current Internet and its service model.
- Understand the causes behind network congestion, and explain the basic methods for alleviating congestion.
- Design, implement, and test substantial parts of network protocols.

Getting Help

Andrew Pachulski is the teaching assistant for this course. See the course web page and Piazza forum for his office hours/location and contact information.

Please make use of the Piazza forum. Post questions and answers that may be useful to others. If something is confusing or unclear to you, it likely is to others, so don't hesitate to ask. Questions like "How do I link *foo*?" "Does *bar* option in compiler *baz* work for you?" or "How do I get to the fifth bit on the third byte of an int under Linux/ARM running on a Raspberry Pi?" should be posted on the forum first. If you email one of the teaching staff, we might not be able to answer them on time.

Occasionally, I will update the course website and post announcements on the forum. **You are responsible for checking all announcements on the forum and website.**

My office hours are posted on the website and forum. I am happy to meet with you outside of these hours, as long as I'm available. Please email non-office-hours meeting requests (or other class-related issues) to me with "CMSC417-S17" in the subject.

Grading

The grading allocation is given below. This is subject to change (slightly), but *any changes will be posted to the forum*.

	Allocation
Final	20%
In-term exams	30%
Final project	30%
Assignments	15%
Participation	5%

Attendance is *not* mandatory, but you will be responsible for all material covered and assigned in class. Participation points will be based on both in-class interaction and forum posts. We expect you to be civil on the forum, and to use it to bolster your own and your classmates' understanding of the course material; it is not the appropriate place to air grievances regarding the material or instructional staff. Disruptive behavior on the forum may lead to negative participation points.

Policy and Academic Honesty

- 2. Turn assignments in *on time*.** Unless we have agreed on an extension in advance, you will **not** receive credit for work that is turned in after the *day* and *time* it is due. The only exception is for excused absences as defined by the university (Section V-1.00(G) of the Consolidated USMH & UMCP Policies and Procedures Manual). > Any student who needs to be excused for an absence from a single lecture, recitation, or lab due to a medically necessitated absence shall: > > a) Make a reasonable attempt to inform the instructor of his/her illness prior to the class. > > b) Upon returning to the class, present their instructor with a self-signed note attesting to the date of their illness. Each note must contain an acknowledgment by the student that the information provided is true and correct. Providing false information to University officials is prohibited under Part 9(i) of the Code of Student Conduct (V-1.00(B) University of Maryland Code of Student Conduct) and may result in disciplinary action.
- 3. Do not miss exams.** As with assignments, you will not receive credit for missed exams unless previously arranged or covered by the university policy cited above.
- 4. The punt pox rule:** On any problem you turn in (homework or exam), if you clearly mark a rectangular box with an "X", we will not grade the problem and you will receive 1/10 of the points for the problem. All punt points are added, and rounded up. This is to stop you from guessing on exams.
- 5. Please read and understand the UMCP code on academic integrity** (Section III-1.00(A) of the Consolidated USMH & UMCP Policies and Procedures Manual).

Do not violate it. The whole point of taking a class is to learn the material; violating the academic integrity code means you are robbing *yourself* of this opportunity, wasting both your time and money. You are also wasting the time of the instructors.

Working together on projects is encouraged (projects will, in fact, be team efforts). Working together on homework is acceptable, within limits. Namely, the work you turn in *must be your own*. How to address a problem is fair game for discussion with your classmates, the actual code is not. No collaboration or communication is permitted for exams.

An example for clarification: Suppose Alice and Bob are working on a programming project/homework. It is fine for Alice and Bob to discuss their proposed solutions, work on a whiteboard together, and even ask questions on the forum. Once they figure something out, they can also answer specific questions on the forum. However, they should not post complete solutions (or code snippets), unless specified by the instructor or the TAs.

After discussing their solutions, Alice and Bob go off and write up their work/code up their project. This level of cooperation is allowed and encouraged.

However, if Alice or Bob had simply copied code or text from each other, their effort would be deemed dishonest. They should not use “old versions” of the other’s code, or steal throwaway code from a temporary directory or a dustbin, or “look at the other’s screens” while typing in their solution.

All University course-related policies can be found at <http://www.ugst.umd.edu/courserelatedpolicies.html>
In particular, *any student eligible for and requesting reasonable academic accommodations due to a disability is requested to provide, to the instructor in office hours, a letter of accommodation from the Office of Disability Support Services (DSS) within the first TWO weeks of the semester.*