

Syllabus for CSCI 357 Networking Spring 2016

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Office hours: MF 1:30-2:30 p.m.

WTh 1:30-3:30 p.m.

and by appointment (esp. Thursday mornings)

Class meetings

MWF 9:15–10:20 a.m., Meyer 131

Final exam: 1:30–3:30 p.m. on Tuesday, May 3

On-line resources

Additional (and updated) course information will be available at the class page at

<http://cs.wheaton.edu/~cgray/csci357/>

Textbooks

Kurose and Ross, *Computer Networking: A Top-Down Approach*, sixth edition, Addison Wesley, 2013.

Matthews, *Computer Networking: Internet Protocols in Action*, Wiley, 2005.

It is essential that you confirm for me that you have a copy of the second of these with the associated CD of packet traces.

Description

CSCI 357 Networking

Examination of the fundamental problems in computer internetworking, from the link to application levels, with particular attention to the Internet protocols. Issues include naming/addressing, error-handling, routing, and decentralized control. Prerequisite: CSCI 351.

Objectives

By the end of this class, you should be able to:

1. explain how and why protocols stack;
2. describe the important layers in the Internet suite;
3. enumerate major recurring issues/problems in networking;
4. describe common approaches to those issues;
5. read or write programs that use the socket interface;
6. interpret a trace of network activity in terms of the protocols it includes.

Exams will focus on the first four items above; written homework will cover those plus the last one. Your project work demonstrates the fifth—as well as many of the others.

Grading. Your grade will be based on the following:

40%	exams
10%	participation (including attendance)
30%	homework
20%	project

The current plan is to have four in-class exams in addition to the final; those exams are currently scheduled for Jan 29, Feb 19, Mar 18 and Apr 6.

Project The last quarter of the semester will be dedicated to work on projects and explorations of additional topics that we will choose together. Projects will be done in teams, and will include implementation of an application, service, or tool. In addition to the software, you will present (as a team) during the last week of classes, and each you will individually turn in a written report on your project. Major due dates:

- Feb 22: initial teams and proposals
- Mar 4: final written proposal
- Apr 1: team progress report
- Apr 18: project work completed
- Apr 25: in-class presentations
- Apr 29: final write-ups, including individual reports

Policies

Attendance. I expect you to be in class, and you are responsible for what happens in class whether you are present or not. If you are sick or must miss because of other school responsibilities, let me know in advance. If there is an emergency, let me know as soon as practical. You must make arrangements for make-up work (including exams) *in advance*; after-the-fact arrangements will be permitted only for emergencies, and then only with your timely notification and, in the case of illness, confirmation by the Health Center. (You'll do well to think of this as practice for keeping a job. Note that you can reach me by e-mail, and my office phone takes messages at all hours.)

I also expect you to be on time. If you come in late, don't interrupt class, and plan to find out what you've missed from another student *after* class. If the door is locked when you arrive, do not disturb the class.

Your presence in class calls for your full attention. That implies no use of networked devices to be virtually somewhere else. *If* you need to use a computer of some sort for access to your textbook or to take notes, you should do so with the networking turned off, and you are implicitly promising that you will not use it for any other purpose during class.

Preparation. You are expected to read assigned material, as indicated in the class schedule, before each class meeting: what we do in class will assume that you've done the reading. As you read, note anything that you aren't sure about, and bring your questions to class.

Homework Written homework will be due at the beginning of class, though we may take time to discuss it before it is collected. Due dates will generally set to allow you to attempt the homework a class meeting before it is due. All homework should be neat, clearly labeled, and written on one side only of letter-sized paper; multiple pages should be stapled together.

Be sure you turn in what you have on time: I do *not* promise to give credit for late assignments.

Academic integrity. I expect you to conduct yourself honestly in this course. When you submit work, you assert that it is your own. If you use an outside source or receive assistance, acknowledge it. Deliberate misrepresentation will result in no credit for the assignment; a second offense will result in failing the course. All offenses will be reported and are subject to college disciplinary action as well.

Because you are encouraged to work together and provide each other assistance, you do risk inadvertent plagiarism. Be cautious, especially when you ask for or provide assistance. Make sure that you don't let someone else do your work for you, and make sure that you don't do someone else's work. Should you discover that a program in one of the textbooks is similar enough to an assignment to provide a useful starting point, that is fine—if you understand it fully and cite it. In all cases, simply be sure that you acknowledge clearly whatever help you receive.

There are two things that you can do that will eliminate the bulk of the temptations in this area. The first is to avoid procrastination: assignments are given with plenty of time for you to ask questions in class or in my office. The second is to be careful how you ask for help: do not ask other students to tell you the solutions to assigned problems; ask questions to figure out what it is you do not yet understand and in order to understand it. (When giving help, don't be lazy and give away the answers; help your fellow students to learn.)

You are also responsible for ensuring that your work for this course isn't available for others to copy without your permission. You will need to make sure that file and directory permissions are set properly in the lab.

Special circumstances and needs Wheaton College is committed to providing reasonable accommodations for students with disabilities. Any student with a documented disability needing academic adjustments is requested to contact the Academic and Disability Services Office as early in the semester as possible. Call 630.752.5941 or email jennifer.nicodem@wheaton.edu for further information.

Gender-neutral language For academic discourse, spoken and written, the faculty expects students to use gender inclusive language for human beings.

Schedule

Here is the initial class schedule; additions and changes will show up online. In the readings column, “KR” refers to chapters in Kurose and Ross, “M” refers to chapters in Matthews.

Date	Reading	
Jan 11	KR 1, M 1	Review and overview
13		
15		
18	<i>MLK Holiday</i>	
20		
22		
25		
27	KR 2, M 2	Layers application layer
29		Exam
Feb 1		
3		
5		
8		
10	KR 3, M 3	transport layer
12		
15	<i>Presidents Day</i>	
17		
19		Exam
22	KR 4, M 4	internetwork layer
24		
26		
29		
Mar 2	KR 5, M 5	link layer
4		
Mar 7–11	<i>Spring break</i>	
14		
16		
18		Exam
21	KR 8, M 6	security
23		
25	<i>Good Friday</i>	
28		
30		
Apr 1		
4		explorations
6		Exam
8		
11		
13		
15		
18		
20		
22		
25		project presentations
27		
29		review
1:30–3:30pm, Tues 3 May		Final exam