

CS 635
Media Technologies
Monday 6 – 9 pm A1
117 SCI

- 23 Jan – Introduction to a Survey of Media Access Protocols
The IPC Model in Detail
Reminder of the Basics
The Check List
Phases – Enrollment, Allocation, Data Transfer
Mechanisms – Delimiting, Data Corruption Detection, Segmentation/Reassembly,
Concatenation/Splitting, Sequencing, Flow Control, Retransmission Control.
Bounds on Timers
QoS/Congestion Control
Security
- 30 Jan – Wireline I - Basics of the Physical Layer
Read Stallings, Chapters 3, 4, 5 and 8.
(Chap 8 is optional)
Nyquist, Shannon, Fourier Series
Modulation
Twisted Pair Basics Elementary Media Layer
- 06 Feb – Basic Data Link Error and Flow Control
Guest Lecture: Alan Kilian, IoT, Logmein
Read Stallings, Chapters 6 and 7
- 13 Feb – Addressing for the Media Layers
- 20 Feb – NO CLASS President's Day
- 21 Feb – TUESDAY CLASS – Guest Speaker: Fred Goldstein, The Regulatory World
- 27 Feb – Guest Speaker – Tony Taub Comcast
- 06 Mar – NO CLASS SPRING BREAK
- 13 Mar – 802.11 Fundamentals and Details
Stallings Chapter 13.
Read Gast: Chapters 3 and 4.
- 20 Mar – 802.11 Contention Free Mode and Management
Read Gast: 8, 9, 21.
Guest Speaker: Charles von Lichtenberg, BU Campus Network

27 Mar – Ethernet, VLANs, Shortest Path Bridging
Read Stallings 11 and 12.

03 Apr – An Overview of Network Management
IoT and RFIDs, etc.

10 Apr – MPLS and Cellular Chapter 10
Read Stallings Chapters 9 and 23

17 Apr – NO CLASS – Holiday

19 Apr – WEDNESDAY CLASS
WiMax, etc.

25 Apr – Project Presentations

08 May – Final Exam

Textbooks

There are no good networking textbooks. They are all written for a trade school, not a university, and they are full of errors. I have listed the following two textbooks:

Stallings, W. Data and Computer Communications, 10th Ed. Prentice Hall, 2013.

Gast, Matthew. 802.11 Wireless Networks, 2nd Ed, O'Reilly, 2005.

Optional: Allan, David and Bragg, Nigel. 802.1aq Shortest Path Bridging: Design and Evolution: The Architect's Perspective, Wiley, IEEE Press 2012.

(I don't like requiring 3 books, so I won't. But this one could be useful beyond this course. If I can I will provide pages from it.)

Course Mechanics

- **Grading:** The course will be based on class participation (5%) and exams (40%). Homework (15%) and projects (40% are expected to be submitted by their due dates. Late submission grades will be scaled accordingly. Exams will be open book.
- **Homework:** Homework will be due at the beginning of class the week after it was assigned. (Exams and holidays may modify that slightly.) Homework may be submitted in class or via Dropbox on Blackboard. (Email is okay, but has proved unreliable. Hence, dropbox is preferred.) (Don't use spaces or “#” in file names submitted to Dropbox. The Blackboard programming staff weren't that good.) Also file names should be more descriptive than “homework1” or “hw1”. You aren't the only one submitting homework! ;-)

Late homework will be penalized 20% for being one business day late and will not be accepted thereafter. You are encouraged to work together to learn the material

and to discuss approaches to solving homework problems. However, *you must come up with and write up the solutions on your own*. Two identical homeworks will reward both students with a zero and a reprimand (see below).

Note: With homework being 15% your grade, it does not affect your grade much. The purpose of the homework is to help you ensure that you understand the material. Cutting and pasting answers from the web may be quick and you may get a good grade, but it won't matter much if you haven't understood the material and don't score well on the exams. If I find you copying from Stalling's answers or other blatant examples, that homework will get a zero and strong talking to from me. A second time, it will be reported as plagiarism to the University. The University does not go easy on such infringements.

Administration

- **Office Hours:** Before or after class is best. I will generally be on campus well before class. Contact me by email if you wish to see me before class.
- **Email:** You are required to periodically check your email since that is the way many assignments will be distributed. Questions via email are always good. If the question/answer has general interest, I will broadcast it to the class (leaving the questioner anonymous); if the solution is very involved, we may need to go over it in person. Also, please check your email for unexpected occurrences like errors in assignments, cancellations, etc. Check blackboard frequently as well.
- **Course Web Site:** We will use Blackboard (blackboard.bu.edu). I will use it to post class notes, lab and homework assignments, homework solutions, and other course information.
- **Incompletes:** Incompletes will only be granted in accordance with university policy, which (broadly) requires a major crisis near the end of the semester.
- **Course Notes:** Class notes will be posted before the class. You are encouraged to annotate them during class.
- **Academic Honesty:** Please read the university academic code of conduct. If something is not clear, then ask. In particular, plagiarism is regarded as a serious offence and students engaging in this activity will be reported. If you use a source, cite it. (Not related to academic Honesty, but germane. I do not consider wikipedia an authoritative source on any subject. It may be used to find more primary sources or cite it to illustrate opinions. But it cannot be considered definitive.)

- **In Class Distractions:** Please turn off cell phones and close laptops at the start of class. If you must text during class, please leave the class to do it. If you need to leave the class to text, there is no need to return to the class.
- **Instructor Errors:** Don't be shy! If you see me make a mistake, please let me know right away. If you are not sure, that's even better – it might give me a chance to clarify something. Class lecture is a test to see if you are listening. ;-)

Keys to Success in this (and most other) Course(s)

Attendance! Coming to class is important. Some of the material (and much of the perspective) in this course will be found nowhere else.

Do the readings! Work out the examples as you read. If you are not positive that you understand something completely, try inventing and solving your own problems.

Take notes! In particular, print out the course notes ahead of time and annotate them during class.

Participate! Ask questions; talk with your fellow students. Be active.

Keep up! Before each class, read over the notes from the previous class.

Allocate enough time! Much of the material is time-consuming to master. There is a big difference between “kind of” understanding a subject and “really” understanding it.

How do you know that you know the material? A good metric is whether you would feel comfortable standing in front of a class explaining it. Another is whether you think that you could explain it to a job interviewer!

(Not So) Picky Things I REALLY Care About

- **Punctuality.** Please come to class on time. Unfortunately, unlike coming late to a movie, coming in late to class distracts the presenter as well as the presentees. Unfortunately, given some of you are coming from work and Boston traffic being what it is, this may be hard. Let me know if you *can't* make it. We will assume you are coming!
- **Preparation.** Come to class prepared. If you haven't reviewed new terminology, etc. it makes it very difficult to follow what's going on. (The six Ps: Proper Preparation Prevents Poor Performance)
- **Presence.** Frankly, I don't care. If you can pass the exams without coming to class that is fine. (I know I shouldn't say this. But it was our attitude when we were in school so I can't in all honesty require it from you.) However in this class especially, much of the important information isn't in the textbook and it could show up on an exam. If you decide to take me up on this, you better be good.

Like showing your work with homework, if I know who you are I can better gauge your work. If you make yourself just a number, I will tend to see you that way.

- Participation. The best way to learn is to be involved. Conversely, being distracted is the worst. In particular, working on homework during class the day it is due is unacceptable. Get involved. I think this subject is really fascinating from a number of perspectives: scientific, historical, social, political, epistemological, etc. This stuff is fun.
- Powers of 2 and logs. Know them up to 2^{59} (at least) and why this is important.
- Your success!! If you are having problems, come see me! (and sooner rather than later.)