IS 450/650
"Data Communications and Networks"
Summer 2012
MW 6–9:10
ITE 459

Instructor: Jeff Martens
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URL: `http://userpages.umbc.edu/%7ejmartens/`
Schedule: `http://userpages.umbc.edu/%7ejmartens/sched.pdf`

Office hours: after class and by appointment.

Textual materials:
The text is Kurose and Ross *Computer Networking: a Top-Down Approach*, sixth edition[1].

Course Objectives:

- To understand the issues involved in designing and building networks and systems using networks.
- To understand data communication across networks and internetworks.
- To understand layered protocols and software—how they work and why they are used.

In this course the emphasis is very much upon engineering and scientific **principles**, and very much **not** on current technologies.

Course Rationale:
Where does this course fit into the curriculum?

- This is the first in a series of data communications and networking courses, two of which are required for the BS in IS.
- Networking is fundamental to information systems in general, and understanding it in some depth is most useful.
- This course lays a foundation for that understanding.

Catalog description:

> IS 450 Data Communications and Networks (Credits: 3) This is an introductory survey course in data communications and networking. It surveys basic theory and technology of computer networking. A single networking protocol stack is also covered in depth. **Prerequisites:** Completion of the IS B.S. gateway (calculus, programming, basic computer organization) plus MATH 215 or 221.

Note the prerequisites. Graduate students without appropriate background *must* work through the remedial materials at the course web page. Though this course is an introduction to networking, it is *not* an introductory course; note the course number.

Course Outline:
The course will cover the the text approximately in order. Some sections will be skipped, and we may not cover the last chapters in depth. Dates are approximate and subject to change.

Date	Topic	Chapter or Sections	
2012-07-09	Intro	1	
2012-07-11	Application & Transport Layers	2.1, 2.5, 2.6	3.1, 3.2, 3.3
2012-07-16	Transport Layer	3.5, 3.6, 3.7	
2012-07-18	Network Layer	4.1, 4.2	4.4.1
2012-07-23	Network Layer	4.4.2, 4.4.3	
2012-07-25	Network Layer	4.4.4, 4.4.5	
2012-07-30	Network Layer	4.5, 4.6, 4.7	
2012-08-01	Link Layer	5 thru 5.4	
2012-08-06	Link Layer	5.5	
2012-08-08	Wireless	6	
2012-08-13	Security	8	
2012-08-15	Final Exam	Final	SCEQs

Lecture notes and other materials will be on Blackboard, and there are supplementary materials at `http://userpages.umbc.edu/%7ejmartens/courses/is450/`

Reading the text and working exercises from the text are important. Keep up with the reading, doing each reading before it is discussed in class. Please feel free to send me comments and questions about the reading and class via e-mail, and to visit me during office hours.

Grades:
The course grade will be based 50% on a number of homework exercises and 50% on a final examination. No electronics will be allowed on the final, so even though you are free to use calculators, Google, etc., on the homework assignments, be very aware that these resources will not be available during the final. The final will be cumulative, closed notes, and closed book.

The **final** is on **Wednesday August 15** during regular class time.

Each homework assignment will clearly state the number of points that assignment is worth. Homeworks will typically be due electronically at 6 p.m. on a Monday or Wednesday. Blackboard will cut off submissions at 6 p.m. Since there is always a chance that Blackboard's clock may differ from yours, or that Blackboard may experience difficulties, be sure to submit early. **NO late homeworks will be accepted.** The overall homework score will be based on the total number of points earned across all the homework assignments.

Academic Integrity:
Each student should read and consider the following message from the Provost, which can also be found at `http://www.umbc.edu/provost/integrity/quote2.html`:

> "By enrolling in this course, each student assumes the responsibilities of an active participant in UMBC's scholarly community in which everyone's academic work and behavior are held to the highest standards of honesty. Cheating, fabrication, plagiarism, and helping others to commit these acts are all forms of academic dishonesty, and they are wrong. Academic misconduct could result in disciplinary action that may include, but is not limited to, suspension or dismissal. To read the full Student Academic Conduct Policy, consult the UMBC Student Handbook, the Faculty Handbook, or the UMBC Policies section of the UMBC Directory."

During Tests and Quizzes
Clear off your desk, no talking once I begin distributing the test, no cell phones, and no texting. If a cell phone rings or I see anyone even look at a cell phone it's mine until after the test—or longer if there's test-related text on it, forcing me to turn the cell over to the **Academic Conduct Committee**. Any communications among students once the test is distributed may be interpreted as cheating.

Use the restroom before the test. Wandering in and out of the classroom is unacceptable during either a test or a lecture. If you have a problem that requires that you leave the room during a test, please see Student Support Services and get it excused before the test.

I expect that work submitted for this class will be your own. The assignments are meant to be **your own work**. In particular, do not plagiarize from other sources, particularly electronic ones.

Electronic Devices:

No computers, PDAs, or cell phones (including **texting**) are allowed in class. If I see a laptop open, I will ask the owner to close it. As a department we have noticed that students using computers in class have lower grades, on average, than other students. Being in class is a good start, but being mentally present is better yet. Recent research suggests that no one multitasks well, though many think they do.

Your **cell phone** will not ring in class.

No electronic devices of any type will be allowed during **tests**. Cell phone **screens** must not be visible during a test. If a cell screen is visible, I will flip it over so it is not; I may also look carefully at the screen before flipping it over.

Electronic Mail

- Note that I cannot send personal information regarding a student to a non-UMBC e-mail account. If an e-mail comes from a non-UMBC address, I have no way of knowing who really sent it. Thus, students are strongly encouraged to use their UMBC accounts for class- and advising-related correspondence.
- Since most students in this course are IS majors, it is appropriate to enforce some minimal e-mail standards:
  - Properly configure your e-mail client or web-mail account. In particular, your name should be in the e-mail header.
  - Write e-mails in grammatically-correct English and use a spell checker. Your keyboard should be capable of generating both upper and lower case letters; take advantage of this.

Attendance is very important. As Woody Allen observed, *Eighty percent of success is showing up.* Absences often result in lower grades. If you are not able to come to class, contact me. Remember that absence from class does not excuse one from assigned work, and students who miss class should obtain class notes from other students, not from the instructor.

Inclement Weather:

- Any work due or test scheduled on a class date that has been canceled due to inclement weather will be due the next class meeting.
- Be familiar with the UMBC Inclement Weather/Emergence Policy: `http://www.umbc.edu/facultystaff/snowpolicy.html`.
- If class is canceled, watch Blackboard for possible additional readings and alternate graded materials to make up for missed class periods.

Student Support Services
UMBC is committed to eliminating discriminatory obstacles that disadvantage students based on disability. Student Support Services (SSS) is the UMBC department designated to receive and maintain confidential files of disability-related documentation, certify eligibility for services, determine reasonable accommodations, develop with each student plans for the provision of such accommodations, and serve as a liaison between faculty members and students regarding disability-related issues. If you have a disability and want to request accommodations, contact SSS in the Math/Psych Bldg., room 213 or at 410-455-2459. SSS will require you to provide appropriate documentation of disability. If you require accommodations for this class, make an appointment to meet with me to discuss your SSS-approved accommodations.

References

[1] James F. Kurose and Keith W. Ross. *Computer Networking: a Top-Down Approach Featuring the Internet*. Pearson, Upper Saddle River, NJ, sixth edition, 2013.