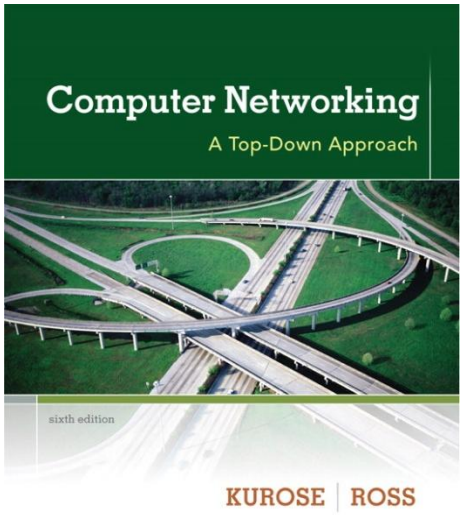
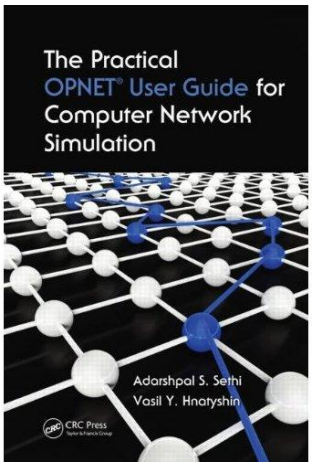
Data Communication and Networking
Fall 2013
Syllabus





Course Title:	Data Communication and Networking
Instructor:	Dr. Vasil Y. Hnatyshin
Contact Information:	Department of Computer Science, 3rd floor, Robinson Building
Email:	hnatyshin@rowan.edu
Phone:	(856) 256-4758
Office Hours:	***Tues./Thurs***.: 3:30 pm – 4:30 pm
Meeting times:	***Tues./Thurs***.: 5:00 PM - 6:15 PM
Location:	***Tuesday***: Wilson Hall 105 ***Thursday***: Robinson Hall 201A
Required Book:	"Computer Networking: A Top-Down Approach," 6/E, by James F. Kurose and Keith W. Ross
Supplementary Book:	**"**The Practical OPNET User Guide for Computer Network Simulation," by Adarshpal S. Sethi and Vasil Y. Hnatyshin

Catalog Description: CS 06.410 - Data Communications and Networking (3 credits)

Students in this upper-division course will study the principles of data communications and important network architectures and protocols. Its topics include: the advantages of networking, major network architectures, protocol reference models and stacks, the Data Link Layer, the Network Layer, the Transport Layer, and the Internet. Additional topics may include: local, metropolitan and wide area networks; wireless, telephone and cellular networks; network security; and network programming. Students complete a networking team project.

Class Policies

Expected Work and Grading:

Final	**25%**
Midterm	**20%**
Unannounced weekly quizzes	**20%**
Laboratory and other assignments	**30%**
Attendance and class participation	**5%**

The Final Letter Grade is assigned based on the following numeric grade to letter grade conversion table:

F	D-	D	D+	C-	C	C+	B-	B	B+	A-	A
< 60	60-63	64-66	67-69	70-73	74-76	77-79	80-83	84-86	87-89	90-93	>= 94

Assignments/Exams Description:

- **Assignments/Labs**: Assignments may be programming projects, short written/oral homework, or presentation on a selected research topic. If you miss a class/lab in which work is assigned, you are still responsible for handing in the work by the due date. Each assignment will be due by the beginning of the lecture/lab period. For certain assignments you will be allowed to work in groups. Each group will submit a single set of solutions, and will be graded as a group. When working as a group each member of the group is expected to contribute. Members of the group who do not contribute will receive 0 points for the assignment.
- **Quizzes**: All quizzes will be unannounced and will emphasize the material that was covered during recent lecture and lab sessions. Make up quizzes will only be given if the instructor was notified in advance of a reasonable absence or in extenuating circumstances.
- **Exams**: Midterm exam will be held during the lab period and will require students to write a program. Final exam will be a written exam (i.e. pen and paper) and it will be conducted at the time scheduled by Rowan University registrar office.
- **Class participation/Attendance:** Attendance is mandatory. The attendance/class participation portion of the course grade will be computed based on the number of missed classes and student's contribution to class discussion. See official Rowan University Attendance policy at:

  http://www.rowan.edu/open/provost/policies/documents/AttendancePolicy-FacultyandStudentsResponsibilities-webrevS2009.pdf
- **Late Assignment Submission Policy:** Assignments not submitted on time will receive zero as a grade. However, most professors are reasonable people. If for some reason, you believe you will not be able to turn in homework on time, let me KNOW AHEAD OF TIME and I MAY give you an extension.
- **Policy on Plagiarism:** Plagiarism is a form of academic dishonesty which includes but is not limited to submitting someone else's work as your own and working on the individual assignments in groups. It is college policy that students who commit an act of academic dishonesty may be subject to failure in the course, suspension from the College, or both. See the official Rowan University Academic Integrity Policy at:

  http://www.rowan.edu/open/provost/policies/documents/AcademicIntegrityPolicy_RAIVForm_AIVProcessOverviewFlowChart.pdf

If you use materials that you've obtained on the Internet, from a book, etc., for example as part of a programming assignment, you must include an appropriate reference. To use such materials without proper attribution is a form of plagiarism. I will make a reasonable effort to catch plagiarizers, and it will not be tolerated.

- **More on attendance**: It is unlikely that you'll be able to complete the assignments and pass the exams without regular attendance. Since many quizzes will be unannounced, you may miss a quiz if you miss a class. Please inform the instructor in advance, preferably by email, if you will be absent from a class or lab session.
- **Missing exams or class due to illness:** It is important to get a note from student health services, or your personal doctor, or other form of documentation if you miss a class or a lab meeting. If you are not feeling well on a given day, please email or call me ahead of time. In this case, if you miss a quiz, I may let you make that quiz up. If you have to miss an exam (and I hope you will not) re-tests will be given only in cases of extreme hardship as defined by the rules of Rowan University, and I always require documentation of the reasons for your absence.
- **Email:** E-mail is a primary form of communication with me outside the class periods and official office hours. I often send email messages to the class to make important course announcements (i.e. changes in the due dates, additional assignments, etc.). I send course email announcements to the Rowan University Web Email account. You are required to read your email daily (not including holidays and weekends). (If you are not on campus every day and are unable to read your email from home, please let me know immediately and we'll work something out). The Rowan Web Email system will allow you to automatically forward your email to another account so you can read your mail somewhere else more frequently. Early in the semester you may receive an assignment via email that WILL NOT BE ANNOUNCED IN CLASS to ensure that you are reading your email.
- **Blackboard:** I may be using Blackboard software package to maintain course information such as syllabus, assignments, solutions, lecture notes, etc. More information to come.
- **Withdrawal from the class**: Drop/Add period ends on **September 9!** During the first half of the semester, a student can withdraw from a course by filing the appropriate form at the Registrar's office; all such withdrawals will be approved. The last date for "automatic" approval for the **Fall 2013** semester is **October 21** (student and professor's signatures are required). After this date, no withdrawals will be approved without extenuating circumstances beyond the control of the student, such as serious illness, that prevent completion of the course. **October 22 - November 20**, you will also require Department chairperson's signature on the withdrawal form, **November 21 - December 19** you will also require Department chairperson's and Dean's signatures on the withdrawal form. This is a policy of the Rowan University and there are no exceptions.

  http://www.rowan.edu/provost/registrar/RIG/Fall%202013RIG.pdf

- **Classroom Decorum:** In order to show proper respect for the instructor and for your fellow students, please observe the following:
  - Be on time! Class will begin promptly at the scheduled time. Allow yourself enough time to park and get to class, ready to learn, before the period begins. Quizzes will be given at the start of the class so if you are late you may miss a quiz.
  - Do not eat in class. It's very distracting, especially since other students may be hungry too!

    - Do your best to remain in the room during the period. Exiting and entering during the period breaks the concentration of your fellow students, and makes it hard for you to get the full value of the class.
    - Turn off all cell phones, pagers, and anything else that would cause a distraction to yourself or others around you.

- **Getting Help:** I have scheduled office hours for your convenience; please take advantage of them. In addition, I can always be reached quickly via email or telephone (see contact information above). If you are having a problem with the course, the sooner we discuss it the more likely we'll be able to deal with it.

NOTE: ***Questions about the assignment asked less than 24 hours before is due date may receive no answer.***

Course Topics

- Computer Networks and the Internet: Introduction (Chapter 1)
    - Network Edges
    - Network Core
    - Introduction to Network Performance
    - Network Layers, OSI and TCP/IP Reference models
    - History of the Internet
- Application Layer (Chapter 2)
    - Network Application Architectures
    - Applications: HTTP, FTP, e-mail (SMTP), DNS, P2P
    - Socket Programming
- Transport Layer (Chapter 3)
    - Transport-layer Services
    - Connectionless transport: UDP
    - Reliable data transfer
    - Connection-oriented transport: TCP
    - Congestion control
- Network Layer (Chapter 4)
    - Introduction to forwarding and Routing
    - Virtual Circuits and Datagram Networks
    - IP: datagram format, addressing, ICMP, IPv6
    - Routing Algorithms
    - Internet Routing
- Link Layer (Chapter 5)
    - Introduction to Link Layer
    - Error detection/correction
    - Medium Access Protocols
    - Switched LAN
- Other topics (Chapters 6 – 9)
    - Wireless Networks
    - Multimedia Networks
    - Network Security
    - QoS and Network Management