

IS 280 – Data Communications Systems

Course Syllabus and Calendar – Fall 2007

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Brigham Young University Hawaii

1 Course Overview

It is hard to imagine a world without the Internet. Networking has made the sharing of information fast. We get emails and instant messages with pictures attached instead of waiting days for postal delivery. We register “online” for classes instead of waiting “in line” to pull computer cards. We buy worldwide from ebay instead of our local bulletin board.

The world wants to be connected. It needs workers with technical skills. This course is focused on those skills: creating wiring, connecting computers, and making networks.

This course will prepare you to take other courses in the IS department. IS 386 Computer Network Servers and IS 389 Computer Network Design build on your knowledge from IS 280. In IS 386 you can develop skill and experience configuring and operating network servers. In IS 389 you can develop skill and experience configuring networking equipment such as switches, routers, and gateways.

1.1 Prerequisites

If you are an IS student, the prerequisite is IS 110 (Fundamentals of Information Systems). The purpose for this prerequisite is to ensure that you have the big picture of why networking is important and how it supports businesses and other organizations in achieving their goals.

If you are a CS student, the prerequisite is waived.

It is helpful if you have completed the IS 254 (was IS 250L) course covering computer hardware and the Microsoft Windows operating system.

1.2 The Course

- **Course Number:** IS 280
- **Title:** Data Communications Systems

- **Web:** <http://colton.byuh.edu/courses/is280/>
- **Required Text:** *CCNA Intro Exam Certification Guide*, by: Wendell Odom. ISBN 1-58720-094-5.
- **Class Time:** MWF 9:00–9:50 AM
Final Exam: Fri 14 Dec, 7:00–10:00 AM
Classroom: GCB 140

1.3 The Instructor

- **Instructor:** Don Colton
- **My email:** don@colton.byuh.edu
- **My Office:** GCB 130 B
- **Office Hours:** Daily 11:00–11:50 AM

- **Instructor:** Scott Mikolyski
- **My email:** skotay@byuh.edu
- **My Office:** GCB 117
- **Office Hours:** Daily 3:00–3:50 PM

1.4 Labs and Tutoring

- **Assistant:** to be determined
- **Tue Hours:** 3:30 to 6:00 PM
- **Wed Hours:** 6:00 to 9:00 PM
- **Thu Hours:** 9:00 to 11:59 PM
- **Location:** GCB 143

1.5 My Open-Door Policy

Colton: My office hours are shown above. You can contact me by email to make an appointment at another time. I also have an open-door policy: **If my door is open (even just a bit) feel free to knock and come in.**

2 Grading

Grading is based on a standard 60/70/80/90 model based on 1000 points. Scores below 300 points will

Grading is based on 1000 points

930+	A	900-929	A-	870-899	B+
830-869	B	800-829	B-	770-799	C+
730-769	C	700-729	C-	670-699	D+
630-669	D	600-629	D-	300-599	F

Grading Point Categories Max Pts

R	reading or TestOut videos	200 pts
L	evening lab activities	300 pts
Q	in-class Friday quizzes	100 pts
M	Midterm exam	100 pts
F	in-class Final exam	200 pts
P	two term papers	100 pts
T	Total Points Available	1000 pts

generally get a grade of UW unless the student has been making a visible effort to attend and do the work.

Points can be earned in six different categories: Reading, Labs, Quizzes, Midterm, Final, and Paper. In each category, points can be earned up to the maximum specified. Make-up credit is often available within each category, so you can still get a perfect score even if you miss a few points here or there, but extra points do not carry over to your final grade.

Some true extra credit points *may* be announced for special activities during the semester.

2.1 Chapter Readings

Chapter readings are worth a maximum of 200 points toward your final grade, according to the number of pages you read in each chapter by each chapter due date, one point per page. There are 266 total assigned pages. (The other 66 pages are “safety net” in case you miss part of some other reading.)

We will cover the following chapters of the textbook. For each chapter a date is specified. That is the date by which you must read the chapter to get the points. (If you do not read it until later, you probably get knowledge, but you get no points.)

If for some reason you are still less than 200 points by the end of the semester, you can make up points by watching TestOut videos. Each Networking video you watch completely is worth (min/5) points, rounded up. So, for example, if a video is 3 minutes long, it is worth 1 point. If it is 6 minutes long, it is worth 2 points. If it is 9 minutes long, it is still worth 2 points. To get these points, you

Assignment Calendar

due	pts	note
Sep 03		Labor Day Holiday
Sep 06	50 L	lab
Sep 05	9 R	ch 1, pp 5-13
Sep 07	10 Q	quiz
Sep 13	50 L	lab
Sep 14	10 Q	quiz
Sep 20	50 L	lab
Sep 21	10 Q	quiz
Sep 24	39 R	ch 12, pp 319-357
Sep 27	50 L	lab
Sep 28	10 Q	quiz
Oct 04	50 L	lab
Oct 05	10 Q	quiz
Oct 08	39 R	ch 15, pp 435-473
Oct 08	25 R	ch 4, pp 81-105
Oct 11	50 L	lab
Oct 12	10 Q	quiz
Oct 19	100 M	midterm
Oct 25	50 L	lab
Oct 26	10 Q	quiz
Nov 01	50 L	lab
Nov 02	10 Q	quiz
Nov 05	22 R	ch 2, pp 15,20-40
Nov 05	28 R	ch 3, pp 47-73
Nov 08	50 L	lab
Nov 09	10 Q	quiz
Nov 12	27 R	ch 5, pp 114-140
Nov 15	50 L	lab
Nov 16	10 Q	quiz
Nov 19	18 R	ch 6, pp 149-166
Nov 23		Thanksgiving Holiday
Nov 26	21 R	ch 9, pp 234-254
Nov 26	13 R	ch 10, pp 263-275
Nov 30	10 Q	quiz
Dec 03	25 R	ch 11, pp 283-307
Dec 07	? R	TestOut credit due
Dec 14	200 F	final exam 7-10 AM

must report your watching to Bro Colton in writing (email is okay, but verify that I got it) by the last day of class.

2.2 Lab Activities

You will sign up for a regular scheduled lab time: Tuesday from 3:30 to 6:00, Wednesday from 6:00 to

9:00, or Thursday from 9:00 to midnight. Labs will typically have up to ten students in each one. Labs meet weekly for up to three hours, but usually much less.

Lab activities are worth a maximum of 300 points toward your final grade.

In any particular week if you have a conflict with your regular time, you can attend one of the other labs if you get permission from the Lab Assistant (based on space available).

For this semester we have eight labs planned. Each lab will be worth 50 points. If you complete six out of the eight labs, you should have a perfect score.

2.3 Friday Quizzes

Friday Quizzes are worth a maximum of 100 points toward your final grade. Eleven quizzes are planned, worth 10 points each. They will be on the following days: Sep 7, 14, 21, 28, Oct 5, 12, 26, Nov 2, 9, 16, and 30. The quiz will be the last half hour of class and will cover materials studied during the previous week or two.

Networking, like many classes, involves a lot of vocabulary with specialized meanings. A big part of the Friday Quizzes may be involved with explaining vocabulary terms like “WiFi” or “Router” to an appropriate level of detail.

Some techniques are also studied and may be tested during these quizzes, such as, given an IP address and a net mask, calculate the broadcast address.

2.4 Midterm Exam

The midterm exam is worth a maximum of 100 points toward your final grade. The exam will be given in the testing center (probably), on or about Oct 19, but you will have several days to complete it.

Points will be on the basis of your raw score that gets scaled. Basically I chop off the top 15 percent of the class (those over achieving curve-raisers) and make the next score equal to 100 percent. The top 15 percent is 3 in a class of 20, or about 5 in a class of 30.

2.5 Final Exam

The final exam is worth a maximum of 200 points toward your final grade. The exam will be given in

the regular classroom during the regular final exam time.

Points will be on the basis of your raw score that gets scaled. Basically I chop off the top 15 percent of the class (those over achieving curve-raisers) and make the next score equal to 100 percent. The top 15 percent is 3 in a class of 20, or about 5 in a class of 30.

2.6 Term Papers

Two term papers are worth a maximum of 100 points toward your final grade. Each paper is worth 50 points.

There will be an Ethics Paper that will look at questions of right and wrong surrounding a networking question. You must write a statement in support of the question, and a statement in opposition to the question. The exact topic and due date will be given later.

There will be a Network Design Paper that will look at how to implement a network for your parents or friends. You will be given a set of requirements. Your paper will tell specifically how to meet those requirements. The exact requirements will be given later.

3 Expected Outcomes

This course is intended to give students an understanding of networking and telecommunications. The expected outcomes for this course are that the student will be able to do the following.

1. Explain the history of networks, and the Internet.
2. Explain the different objects, media, and devices necessary for telecommunications, including local and wide area networks.
3. Explain how to install the equipment necessary to implement a telecommunication system, e.g., cables, modems, Ethernet connections, hubs, switches, and gateways.
4. List network architectures, topologies, and protocols.
5. Identify network standards and standardization bodies.
6. Explain logical addressing (IPv4), subnetting, network classes, private IP addresses, and MAC addresses.
7. Design, install, configure, and manage a simple LAN, install services, and connect the LAN to the

Internet. (This outcome may be better associated with the IS250L or IS386.)

8. Identify common network services including: file, print, mail, communication, and Internet services.

9. Identify the importance of DHCP and DNS servers.

10. Identify the responsibilities inherent in providing network services including: security, privacy, reliability, and performance.

11. Explain the economics of networks in organizations, e.g., total cost of ownership, and cost-benefit analysis.

12. Demonstrate the use of common network applications such as: SSH, Telnet, FTP, remote access, e-mail, and IP telephony.

13. Demonstrate how to use TCP/IP utilities like: ping, trace route, netstat, nslookup, whois, ipconfig, and ifconfig.

4 Additional Statements

All syllabi are encouraged or required to address certain topics. These are generally considered to be common sense, but we find that it is useful to mention them explicitly anyway.

4.1 Accommodating Special Needs

I am personally committed to making this course as easy as possible (but no easier). To this end, I give many quizzes in the testing center without time limits. To fully teach important concepts, I give lab work, but it is not constrained by the amount of time available in class. I publish important assignments on my web site so you do not have to rely on note taking or memory to know what you need to do. I allow an unlimited number of attempts on labs that are graded by GradeBot, and make it available 24 hours a day throughout the semester. I believe that many cases of special needs are already accommodated by these practices.

For in-class examinations (three midterms and one final exam) I apply a strict time limit and do not allow outside resources. To avoid giving an unfair advantage, I require those who need a special accommodation to establish their rights by working through the BYUH Special Needs Coordinator.

Brigham Young University Hawaii is committed to providing a working and learning atmosphere which

reasonably accommodates qualified persons with disabilities. If you have any disability that may impair your ability to complete this course successfully, you are invited to contact the Students With Special Needs Coordinator, Leilani A'una at 293-3518. Reasonable academic accommodations are made for all students who have qualified documented disabilities.

4.2 Plagiarism

<http://en.wikipedia.org/wiki/Plagiarism> has a wonderful article on plagiarism. Read it if you are not familiar with the term. Essentially, plagiarism is when you present the intellectual work of other people as though it were your own. This may happen by cut-and-paste from a website, or by group work on homework. In some cases, plagiarism may also create a violation of copyright law. If you borrow wording from someone else, identify the source.

Intentional plagiarism is a form of intellectual theft that violates widely recognized principles of academic integrity as well as the Honor Code. Such plagiarism may subject the student to appropriate disciplinary action administered through the university Honor Code Office, in addition to academic sanctions that may be applied by an instructor.

Inadvertent plagiarism, whereas not in violation of the Honor Code, is nevertheless a form of intellectual carelessness that is unacceptable in the academic community. Plagiarism of any kind is completely contrary to the established practices of higher education, where all members of the university are expected to acknowledge the original intellectual work of others that is included in one's own work.

In this course group work is permitted and encouraged but you are not allowed to turn in work that is beyond your understanding, whether you give proper attribution or not. Make sure you understand what you are submitting and why each line is there.

Faculty are responsible to establish and communicate to students their expectations of behavior with respect to academic honesty and student conduct in the course. Observations and reports of academic dishonesty shall be investigated by the instructor, who will determine and take appropriate action, and report to the Honor Code Office the final disposition of any incident of academic dishonesty by completing an Academic Dishonesty Student Violation Report. If the incident of academic dishonesty involves the violation of a public law, e.g., breaking and entering into an office or stealing an examination, the act

should also be reported to University Police. If an affected student disagrees with the determination or action and is unable to resolve the matter to the mutual satisfaction of the student and the instructor, the student may have the matter reviewed through the university's grievance process.

4.3 Sexual Harassment

BYUH's policy against sexual harassment complies with federal Title IX of the Education Amendments of 1972 to protect university students from student-to-student sexual harassment both in and out of the classroom setting. Any incidents of such student-to-student harassment should be reported to either the Director of Human Resources (293-3713) or the Honor Code Office (293-3531). Allegations of sexual harassment are taken seriously. Upon receiving a report of sexual harassment, the Director of Human Resources will take appropriate action to resolve and correct conditions resulting from individual perceptions or from inappropriate behavior.

4.4 Syllabus is Subject to Change

It is possible that I will revise aspects of the course as we go along. Any changes I make are likely to be to your advantage. If any of my changes seems unfair to you, let me know. I will try to correct it.