

# IT 280 – Data Communication Systems

## Course Syllabus and Calendar – Winter 2011

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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 much faster than it was before. We get emails and instant messages with pictures attached instead of waiting days for postal delivery. We register “on-line” for classes instead of waiting “in line” to pull computer cards. We buy worldwide from eBay or locally from Craig’s List instead of visiting our local bricks-and-mortar store.

People want to be connected. The world 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 understand, set up, and operate your own home network, or small business, or Internet Café. You will understand the fundamentals of networking and what things are necessary for success with those activities.

Building on that foundation, this course will prepare you to take other courses in the IT major. IT 426 Computer Network Servers and IT 480 Computer Network Design build on your knowledge from IT 280. In IT 426 you can develop skill and experience configuring and operating network servers. In IT 480 you can develop skill and experience configuring networking equipment such as switches and routers.

#### 1.1 Prerequisites

Before taking this class, it helps to understand the big picture of why networking is important and how it supports people, businesses, and organizations in achieving their goals.

It is helpful but not required for you to have completed the IT 224 course covering computer hard-

ware and the Microsoft Windows operating system.

#### 1.2 The Course

- **Course Number:** IT 280
- **Title:** Data Communications Systems
- **Web:** <http://colton.byuh.edu/courses/it280/>
- **Course Description:** Theory and foundation for network management including data communications hardware and software, network configuration and design, network protocols, and network security and control.
- **Classroom:** GCB 111
- **Start/End:** Jan 5 to Apr 6, 2011
- **Class Time:** TTh 1:50 – 3:20 PM
- **Final Exam 1:** Fri Apr 8, 3:00-4:50 PM

#### 1.3 The Instructor

- **Instructor (me):** Don Colton
- **My email:** [doncolton2@gmail.com](mailto:doncolton2@gmail.com)
- **Website:** <http://colton.byuh.edu/>
- **Website:** <http://doncolton.com/>
- **My Office:** GCB 128
- **Office Hour:** MWF 12:10 – 1:10 PM
- **Office Hour:** TTh 12:40 – 1:40 PM

#### 1.4 Labs and Tutoring

- **Assistant:** Greg Kioa
- **Mon Hours:** 5:00 to 7:00 PM
- **Tue Hours:** 6:30 to 8:30 PM
- **Wed Hours:** 9:00 to 11:00 PM
- **Location:** GCB 101

### 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

## 2 Grading

Grading uses a standard 60/70/80/90 model based on 1000 points.

Points are generally earned at the rate of about 40 per day, based on in-class activities and successful completion of lab activities.

I will maintain an online gradebook so you can see how your points are adding up and so you can compare your points with other students in the class (without seeing any names).

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

### 2.1 Lab Activities

You will sign up for a regular scheduled lab time. Labs have up to fifteen students in each one. Labs meet weekly for up to two hours.

Lab activities are hands-on experiences.

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 Teaching Assistant (based on space available).

## 3 Course Calendar

The course calendar is still under development. If you come to class each time and read the emails that I send you, there should be no problem.

Some students will have a Monday lab day. If your lab comes on a holiday, you are invited to attend one of the other labs that week.

## 4 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.

## 5 Standard 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.

### 5.1 Dress and Grooming Standards

The dress and grooming of both men and women should always be modest, neat and clean, consistent with the dignity adherent to representing The Church of Jesus Christ of Latter-day Saints and any of its institutions of higher learning. Modesty and cleanliness are important values that reflect personal dignity and integrity, through which students, staff, and faculty represent the principles and standards of the Church. Members of the BYUH community commit themselves to observe these standards, which reflect the direction given by the Board of Trustees and the Church publication, "For the Strength of Youth." The Dress and Grooming Standards are as follows:

**Men.** A clean and neat appearance should be maintained. Shorts must cover the knee. Hair should be clean and neat, avoiding extreme styles or colors, and trimmed above the collar leaving the ear uncovered. Sideburns should not extend below the earlobe. If worn, moustaches should be neatly trimmed and may not extend beyond or below the corners of mouth. Men are expected to be clean shaven and beards are not acceptable. (If you have an exception, notify the instructor.) Earrings and other body piercing are not acceptable. For safety, footwear must be worn in all public places.

**Women.** A modest, clean and neat appearance should be maintained. Clothing is inappropriate when it is sleeveless, strapless, backless, or revealing, has slits above the knee, or is form fitting. Dresses, skirts, and shorts must cover the knee. Hairstyles should be clean and neat, avoiding extremes in styles and color. Excessive ear piercing and all other body piercing are not appropriate. For safety, footwear must be worn in all public places.

### 5.2 Accommodating Special Needs

I am personally committed to making this course as easy as possible (but no easier). 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 believe that many cases of special needs are already accommodated by these practices.

For overall fairness 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 at 808-675-3518. Reasonable academic accommodations are made for all students who have qualified documented disabilities.

### 5.3 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.

**On exams you are required to work from personal memory, using only the resources that are normally present on your computer. This means the exams are closed book and closed notes. However, you are nearly always allowed (and encouraged!) to test your program by actually running it on the computer where you are sitting. Students caught cheating on the final exam may receive a grade of F for the semester, no matter how many points they may have earned, and they will be reported to the Honor Code office.**

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.

## 5.4 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 (675-3713) or the Honor Code Office (675-3531). 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.

## 5.5 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.