**BUS499 Data Communications and Networking**          Richard Asplund
Winter 2014                                           Office 3-301A
Tuesday/Thursday 12:10-2:00pm                         E-Mail: rasplund@calpoly.edu
Room 3-303                                            Office Hours  Tues/Thurs  2pm-3pm
                                                             or arrangement

## TEXT

Fitzgerald, Jerry & Dennis, Alan. _Business Data Communications and Networking, 11<sup>th</sup> Edition_, Hoboken, New Jersey, John Wiley & Sons, 2011.

Handouts and selected readings from:

Russinovich, Mark & Solomon, David, _Windows Internals_, 6<sup>th</sup> Edition. Redmond, Washington, Microsoft Press, 2012

## Overview of Lecture Topics

Networking Technology, hardware, media, concepts
OSI Reference Model, standards and protocols
Ethernet, Wireless Technologies and protocols
TCP/IP and UDP Protocols
Domain Name Service
Application Architectures
World Wide Web

Network Security – securing your Network
Why networks need security
Security threats
Denial of Service
"Malware" - Trojans, viruses, rootkits, worms, phishing
Protection – encryption, standards – DES, Triple DES, AES, RSA

The History of Operating Systems, Network Operating Systems
Operating System Standards, POSIX
Windows basics, installation planning, installation and testing
Windows File Systems
Installing and running Windows 2008 Server
X500 and Active Directory, planning a domain
Windows server administration
Web servers and application software on networks
Windows Security – Securing your Servers – user authentication

The history of Linux, GNU project and the Free Software Foundation.
Linux distributions and installation
Linux administration basics
Linux Web Servers
Linux in a Windows Network, Samba
Linux Security – Securing your Servers

**Schedule**

| Date | Reading Assignment | Notes |
|------|-------------------|-------|
| Jan  7 | F&D Chapter 1 | Overview of Networking, class requirements |
| Jan  9 | F&D Chapter 2 | Application Layer |
|  | F&D Chapter 3 | OSI Model, Network Hardware, |
| Jan 14 | F&D Chapter 4 | Data Link Layer |
| Jan 16 | F&D Chapter 5 | Network and Transport Layer |
|  |  | TCP/IP, Domain Name Service |
| Jan 21 | Read Chapter | No Class (Tuesday is Monday) |
|  | F&D Chapter 6 | Wireless LANS |
| Jan 23 | F&D Chapter 7 | Backbone Networks |
| Jan 28 | F&D Chapter 8 | Wide Area Networks |
| Jan 30 | None | **Quiz 1** |
|  |  |  |
| Feb  4 | F&D Chapter 10 | Network Security |
| Feb  6 |  | Intrusion Prevention |
| Feb 11 | None | **Quiz 2** |
|  |  |  |
| Feb 11 | Handout | Introduction to Windows Server |
| Feb 13 | *Russinovich | Chapter 1, Concepts |
|  | *Russinovich | Chapter 2, System Architecture |
| Feb 18 | *Russinovich | Chapter 12, Files Systems |
|  |  |  |
| Feb 20 | Handout | Directory Services – Active Directory |
| Feb 25 | None | **Quiz 3** |
|  |  |  |
| Feb 25 | Handout | Introduction to Linux |
|  | Linux101.pdf | Linux 101 |
| Feb 27 | Linux101.pdf | System Administration |
| Mar  4 | linux.org=advanced | Linux Security |
| Mar  6 |  | **Quiz 4** |
|  |  |  |
| Mar 11 | None | Technology Presentations |
| Mar 13 | None | Technology Presentations |

**Final Exam:** Tuesday, March 20, 2014 Time: 1:10pm - 4:00pm.

* indicates document is available online at "flash.cob.calpoly.edu"
+ indicates document is available online at "www.linux.org"

Consistent attendance is mandatory.
There will be no make-up exams **without prior arrangement**.

The above schedule and procedures are subject to change in the event of extenuating circumstances.