**CSCI 2930: Practical System Administration**

**Exam 2 Review**

**Spring 2014**

For Exam 2, there will be a myriad of questions from throughout the semester, starting with networking (where we left off with on the last exam). This review is structured differently – all of this information is available in the slides from our lectures or from our labs. This will only note what is important to review while you’re studying and anything special that comes up.

**Networking**

* Layer 1 - Physical cables:
  + IEEE standards that were discussed in class
  + Maximum length for Ethernet
  + The differences between single mode and multimode fiber
  + The physical structure of a fiber cable (core and cladding diameters)
  + Crossover cables
* Layer 2 / 3 – Devices and addressing:
  + Which OSI layers that different devices operate at
  + Cisco’s Three Tier Architecture
  + MAC Addresses and their OSI layer
  + IP Addressing
  + Subnetting

**Operating Systems**

* OS Components:
  + Kernel
  + Networking
  + Security
  + User Interface
* Examples:
  + UNIX (System V)
  + UNIX-like (BSD)
    - FreeBSD, NetBSD, OpenBSD
      * Slices
    - GNU/Linux Distributions
      * Red Hat, CentOS, Debian, Fedora, openSUSE
  + Windows
    - XP/2003 R2, 7/2008 R2, 8/2012
* Linux Commands:
  + Touch
  + Df
  + gpart
* Command concepts:
  + Commands
  + Options
  + Pipes

**Storage**

* RAID
  + Striping
  + Mirroring
  + Parity
  + RAID levels
* Media
  + Tapes
  + Magnetic Hard Drives
  + Solid State Drives
* Enterprise Storage
  + SAN
  + NAS

**Security**

* Firewalls
* IDS / IPS
  + Methods of detection
* ACLs
* SUDO
* Defense In-Depth
* Layers

**Disaster Recovery**

* Strategies:
  + RTO
  + RPO
* Service Level Agreements
  + Availability Percentage
  + Downtime per year
  + MTBF
* Backup Levels
  + Full, Differential, Incremental
* Backup Hardware
  + Tape drives, Tape libraries, Virtual tape libraries
  + Tape Standards
    - LTO
    - SDLT
    - DAT