

# CSCI 170 OUTLINE

## INTRODUCTION TO UNIX OPERATING SYSTEM

TEXT: UNIX the Textbook Sarwar/Koretski/Sarwar

SUPPLEMENTARY TEXT: Programming with GNU Software Loukides/Oram

**Approved:**

**Effective: FALL 2007**

MATERIAL TO BE COVERED	SECTIONS FROM TEXT	TIME LINE
Overview of operating systems, UNIX history and computer system hardware. UNIX software architecture, the UNIX kernel, the system call interface, language libraries, interprocess communication. Introduction to UNIX shells: Bourne shell, C-shell, Korn and Bash shells. Shell start-up files and environment variables. Shell methacharacters. Some useful general purpose commands: creating and displaying directories and files, printing files, creating aliases.	1, 2, 3, 4	7.5 Hours
Editing text files: usage and configuration of vi and emacs editors. UNIX e-mail. Using telnet and FTP on UNIX. Installing LINUX and Solaris.	5, 6	5 Hours
File and file system. Type of files: simple file, directory, link, special device, named pipe. File system structure and organization. Some standard directories. File representation and storage in UNIX. File Security. Password based, encryption and access permission protection. Changing access privileges. ACL. Special access bits: SUID, SGID, sticky bit. Advanced file processing. Regular expressions. Compressing, sorting, searching files. Hard links vs. soft links. Comparison of FS implementation based on I-nodes and FAT32.	7, 8, 9, 10, 11	6.25 Hours
Redirection and piping. Standard files. Redirection with file descriptors. Redirection and piping combined. Running multiple processes simultaneously. UNIX process states. Process attributes. Process and job control. UNIX daemons. Sequential and parallel execution of commands. Sending signals to processes. Abnormal process termination. The X-windows system. setting xhost.	12, 13, 21	2.5 Hours
Computer networks and internetwork. Network models. Internet services. The inet daemon. The client-server model. The TCP/IP protocol suite. TCP and UDP. Routing and IP address. Testing a connection, tracing the route. NFS, NIS and AutoFS.	14	3.75 Hours
UNIX system tools for software development. The SUN pro compilers and the SUN Workshop IDE. The GNU developer tools: editors, compilers, debuggers, profilers, version control and other tools. Detailed covering of gcc, make, gdb, ddd, gprof, RCS, SCCS and other tools. (All 9 chapters of **)	20, 1** - 9**	10 Hours
Bourne shell programming. Running scripts, shell variables, command substitution, exporting environment, reading from stdin, passing arguments to shell scripts. The if, ifelif, for while, until, break, switch and case commands. Advanced topics: numeric data processing, interrupt processing, the exec command and file I/O functions. Programming Korn and C-shell.	15, 16	5 Hours

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\*\*\* 1 Hours = 1 hour of face time. \*\*\*\*This outline allows for 3 hours review and exams.

16 Week Term: 1 week = 2.8333 hours (face time) 6 Week Term: 1 week = 7.5 hours (face time)

Keep in mind that most holidays affect M/W or MWF classes, so this timeline, NOT the topical outline may need adjustment. At least one to three exams plus a comprehensive final will be given during the semester.

Submitted by: Pop