UNIX System Administration

CS 470

Dr. John Carroll — 594-7242

Fall 2016

Required:
(about $40 on the internet; enter 0-13-148005-7 at addall.com) Notes: A collection of the
annotated diagrams, scripts, and labs presented in class — available at Cal Copy, 5187 College
Ave, 619-582-9949
Recommended:
A good UNIX text, such as one of the following:
A Practical Guide to the UNIX System, Mark Sobell
An Introduction to UNIX with X and the Internet, Paul Wang

Course Content:
NOTE: The effective prerequisite for this course is knowledge of C and UNIX. You should know
csh and sh shell programming as well as C programming, and already be familiar with standard
UNIX tools such as sed, grep, diff, awk, ftp, rcs and make.

Each qualified student will be provided with an account on several Linux machines, and will have
superuser access on at least one. This course will use several PCs running Linux Mint 17.2, and
some servers.

A basic knowledge of C is assumed; while no C will be written, a major part of the course
involves the compilation of software packages written in C. Hence, specific UNIX tools useful to
software engineering, such as rcs and make, will be used extensively.

Hands-on labs will include installation of the operating system from a USB drive or DVDrom,
kernel configuration/optimization, adding/deleting user accounts, installing and managing periph-
ernals, networking, virtualization, and routine backups and restorations.

Advanced programming using the UNIX C shell and bash shell will be presented, along with sed,
awk, expect and other relevant languages. Networking topics will include TCP/IP, Samba, NFS,
ftp, and http. Security issues will be presented. Mail will be discussed from both a user’s and
an administrator’s point of view. The Internet archives will be explored to acquire large software
packages (such as ctwm and the Apache web server), which will then be compiled and installed.

Grading:
There will be 12 (or more) structured assignments (labs), compilations, installations, and shell
programming projects. Some of these will be individual assignments, and some will instead be the
responsibility of a team. These assignments will comprise about 40% of your total points. The
midterm will comprise approximately 20% of your grade, and the (comprehensive) final will account
for the remaining 40% of your grade. There will be no make-up exams. In unusual circumstances
(to be determined by me), you might be allowed to take an oral makeup at the end of the semester.
Similarly, assignments and labs will be due on the advertised dates, with no deadline extensions
possible (but partial credit will be awarded for the portions of the labs/assignments completed at the deadline).

**Letter grades:**
90% and above is guaranteed at least an A-
80% and above is guaranteed at least a B-
70% and above is guaranteed at least a C-
60% and above is guaranteed at least a D-

Obligatory “Student learning outcomes” statement:
Ability to integrate concepts from previous CS core courses and software engineering principles and apply to the development of a team project.
Ability to troubleshoot practical operating system malfunctions
Ability to compile, install, and test software packages
Ability to network machines, file systems, databases, etc.
Ability to appreciate and implement sound security practices
Ability to use revision control software to track and document system changes

Obligatory “Accommodating students with disabilities” statement:
If you are a student with a disability and believe you will need accommodations for this class, it is your responsibility to contact Student Disability Services at (619) 594-6473. To avoid any delay in the receipt of your accommodations, you should contact Student Disability Services as soon as possible. Please note that accommodations are not retroactive, and that accommodations based upon disability cannot be provided until you have presented your instructor with an accommodation letter from Student Disability Services. Your cooperation is appreciated.