Computer and Operating Systems Fundamentals II
CFS 264

Course meetings: Wednesday evenings, 6 pm – 9:20 pm

Instructor: Jeremy MountainJohnson

Office Hours: By appointment only

E-mail: jeremy.mountainjohnson@metrostate.edu

Tentative schedule: See page 8 of this syllabus

Course Description

This course covers the fundamental concepts of a multi-user operating system. The topics discussed in the course are conventional computer organization and architecture, memory management, process handling, disk and file management and control, and peripherals operation. Students also have the opportunities to learn the techniques and procedures of system installation, configuration, administration, and trouble shooting. The operating systems illustrated in the course are Linux and UNIX.

Prerequisite: ICS 140 Programming Fundamentals and the equivalent knowledge of CFS 262 Computer and Operating Systems Fundamentals I.

Course Objectives

By the end of this course, you should be able to:

- Knows the primary principles and foundations of a multi-user operating system.

- Understands the standards for a layered network.

- Understands the theory of distributed file systems.

- Familiar with the typical implementations operating systems.

- Familiar with the typical implementations file systems.

- Knows the procedures and tools for trouble-shooting in a distributed environment.

- Be able to perform basic tasks of system installation, configuration, and administration.

- Can identify different file systems, recognize various data types, and find the location of a target document.

- Knows the fundamental system security and application protection issues in a distributed/networked system.

- Knows how to learn new technology through the foundation and theories learned from this class.

- Gains a fundamental understanding of *nix operating systems that helps facilitate other learning outcomes.

Your Reading Material

Required reading material:
- *UNIX: the textbook* by Syed M. Sarwar, Robert Koretsky, and Syed A. Sarwar, Second Edition, Addison Wesley, 2005

Optional reading material (from CFS 262 course):
- Operating Systems: A Systematic View by William S. Davis and T. M. Rajkumar, Sixth Edition, Addison Wesley, 2005.

In addition, online web sites may also be required for specific assignments with timely notification.

Course Evaluation and Structure

Your letter grade will be based on the following items:

Points Distribution:

Labs	120
Quizzes	110
Homework	60
Discussion	60
Midterm	100
Final (comprehensive)	150
Total	**600**

Grading scale:

Percentage of eligible points	Letter grade
94-100%	A
90-93%	A-
87-89%	B+
84-86%	B
80-83%	B-
77-79%	C+
74-76%	C
70-73%	C-
60-69%	D
Below 60%	F

All grades will be awarded based on a normal distribution, sometimes referred to as a curve system. Note that if a straight percentage evaluation shows generally higher letter grades than the curve it will be used instead to insure fairness.

A letter grade of "D" may require the student to retake the class to fulfill the student's major requirements. Please see your advisor or review your specific program documentation for more information if needed.

Discussion Homework:

▪ Discussions require a valid initial response and at least one follow up response to another posting (two total postings- *minimum*) for full credit (no partial credit).

▪ Discussions open at 6 pm the day of class and will close at 6 pm the following class session.

▪ Please try to have your initial responses in by the weekend, allowing the weekend for others to post responses.

▪ The instructor may add additional bonus points to the discussions (will be noted accordingly in the forums and discussed in class).

▪ Answers may sometimes be similar in nature to other students however copying is not permitted.

▪ Sample question:

You are requested to backup files on a Linux workstation to another mounted network share. How would you do this and why?

Simplistic but still valid initial example:

I would use the cp command to do this.
cp * /mnt/backup
The * will copy everything and the /mnt/backup is the destination folder.

Valid response:

In my initial response I used rysnc to do this. You could use cp, but you won't get everything even with just the * for wildcard. I would recommend you use -v for progress, and also -a to create a backup, like this:
cp -av * /mnt/backup

Book Homework and Lab Assignments:

- Homework and labs are to be turned in before the beginning of the class meeting in which they are due (by 6 pm). All homework and labs must be submitted through the assigned D2L drop box. Please ensure that all submitted work is scanned with an up-to-date virus scanner.

- Please submit your homework in doc or docx only.

- Absolutely no homework will be accepted late without previous approval.

- Homework assignments and labs will be graded in no later than two weeks after they are submitted.

- All work is to be the student's own work. It is fine to get and give help as these are valuable learning experiences, but the final work is to be the student's. Failure to comply with this will result in a failing grade for those assignments and possible academic penalties.

Quizzes:

- Quizzes will be given throughout the course. All quizzes are closed note/closed book and student independent effort. NO TALKING UNTIL ALL STUDENTS ARE DONE.

- Quizzes will be given at the beginning of class. You MUST be present in class to have the quiz count toward your grade.

- Late or makeup quizzes will not normally be accepted.

- Please ensure that you are in class on time. Latecomers may not be permitted to take the quiz.

Attendance/Missing Class:

- Attendance is expected on a weekly basis. Failure to attend most classes will adversely impact your overall grade, possibly resulting in a failing grade. Some degree of attendance is taken every week, and students are expected to abide by university policies. Missing the first two weeks will result in being dropped from the course.

- If for any reason you need to miss a class, please let the instructor know via e-mail beforehand whenever possible. You can have a classmate pick up materials for you or check D2L for the lecture materials. Also, please make arrangements to borrow or copy a classmate's notes from that session.

Exams:

- Two exams will be given: one midterm and one final. Both will cover material discussed up to and including the exam date.

- Students must be in class to take the exams and get credit – a sign-in sheet will be circulated prior to the exams.

- Exams are closed note/closed book and student independent effort. NO TALKING DURING EXAMS.

- If you are unable to take a test during the scheduled time, contact the instructor as soon as possible. Your makeup exam will be probably given through the services of the Minneapolis or St. Paul testing centers (651-793-1460).

- The makeup exams will be different from the ones that are given during the scheduled time.

- Each student can only have *one* chance to have his/her makeup exam granted.

Course Distribution and Access

- The administration of this course emphasizes electronic distribution of materials and electronic interaction among all participants. As a consequence, every student should have a Metropolitan State email address and access to the World Wide Web. ALL EMAIL COMMUNICATIONS BETWEEN THE STUDENT AND THE INSTRUCTOR MUST BE THROUGH METROPOLITAN STATE EMAIL.

- We will be using the D2L site associated with this course for all distribution of materials, assignment submission, quizzes and examinations. Students who are not familiar with the use of D2L are encouraged to become familiar with it as soon as possible. Staff is available at the university to assist you.

Course Resources

Lab Resources:

The lab will be accessible during class hours and by appointment. I have previously worked out a courtesy that security will **usually** have the room opened up 30 minutes prior to class starting. This is not a requirement that it be opened this early, so do not assume this will always be the case.

We will be using sdf.org for access to a UNIX based system to complete the labs. This will be accessible during and outside of the lab.

Student equipment:

Access to the Internet at home is highly recommended. If you do not have an Internet connection, please plan on utilizing the University's computer labs to complete all assignments.

Low cost Internet access may be available to you; if interested speak with the instructor or Information Technology during the first week of class.

Support Software:

Some programs will be used to support the coursework. These are:

- Putty, a free SSH terminal client program to connect to a UNIX server

- Screen Capture solutions including MWSnap for Windows

- LibreOffice – a productivity suite for those who do not have access to or wish to purchase Microsoft Office. Students electing to use LibreOffice are encouraged to go to the website http://www.libreoffice.org and become familiar with how to download, install and use this software.

Course and School Policies

Disability:

- The current phone number for Disability and Special Services is 651-793-1540/1525.

- The TTY number (for hearing impaired) is 651-772-7723.

- The Fax number is 651-793-1547.

- Email: disability.services@metrostate.edu

Plagiarism and Dishonesty:

> The Student Code of Conduct (http://www.metrostate.edu/applications/drep/files/ACF1D4.pdf) says in part:

"Any student engaged in the following behaviors is subject to the disciplinary sanctions outlined in this policy.

A. Acts of dishonesty, including, but not limited to the following:
- Cheating or plagiarism; including submission of work that was already submitted for credit in a previous course at Metropolitan State without consent of the second instructor. Plagiarism includes but is not limited to use by direct quotation or paraphrase of the published or unpublished work of another person without full and clear acknowledgement, and unacknowledged use of materials (such as papers or other materials) prepared by another person or agency;"

Cheating and dishonesty will not be tolerated. While collaboration on assignments in and out of class is fine, every student must make certain to turn in their own work, give credit to others when they are supposed to, and take the quizzes and tests without help from others or by using unauthorized aids.

Discrimination and Harassment:

All students, faculty, and visitors at Metropolitan State University have a right to be free from illegal discrimination, harassment, and coercion. Please report any suspected violations to the appropriate school authorities.

Assistance:

- The instructor's primary goal is to assist students in learning fundamental concepts and skills that will support the student through the remainder of the student's scholastic and professional career.

- The instructor is available to discuss individual concerns during office hours and/or by appointment.

- Students are encouraged to address any issues that may hinder or inhibit their ability to learn and do well in the class as early as the issue is suspected.

Modifications:

The instructor reserves the right to modify the syllabus at any time.

Ownership:

Many of the materials in the class are covered under copyrights of the respective owners. Similarly, the course instruction is not part of the public domain. No portion of the course lecture may be recorded or reproduced without permission of the instructor or any copyright holders. Note taking and fair use are permitted.

Confidentiality:

Students are encouraged to bring forth relevant topics. Some of these topics may be from individual experiences and may involve non-public information or represent potentially embarrassing situations. For example, during our lecture on network vulnerabilities a student may describe how his or her employer was a victim of a network intrusion attack. Necessarily, we must all respect that such information is sensitive and what is discussed in class stays in class.

Course Prerequisites:

- *ICS 140 Programming Fundamentals*

- *CFS 262 Computer and Operating Systems Fundamentals I or equivalent knowledge*

A core understanding of general computer use is expected. If you do not have a basic technological knowledge of computing you will likely struggle greatly with this course and need to spend more than an average amount of time on the assignments. Metropolitan State University DOES NOT provide tutors for this course. **Please be prepared, the instructor is not expected to provide you with a very basic understanding of computing skills outside of UNIX, you should already have this foundation.**

Course Schedule		
Date	**Topics**	**Reminders**
May 9	Syllabus and course overview UX: Chapter 0: A Quick Start UX: Chapter 1: Introduction	Welcome to CFS 264!
May 16	UX: Chapter 2: Brief History of Unix UX: Chapter 3: Getting Started Homework and Lab 1	Quiz 1
May 23	UX: Chapter 5: Editing Text Files in Unix Homework and Lab 2	Quiz 2 Homework & Lab 1 due
May 30	UX: Chapter 4: UNIX Shells | Chapter 6: Unix Email Homework and Lab 3	Quiz 3 Homework & Lab 2 due
June 6	UX: Chapter 7: Files and File System Structure Homework and Lab 4	Quiz 4 Homework & Lab 3 due
June 13	UX: Chapter 8: File Security Homework and Lab 5	Quiz 5 Homework 4, Lab 4 due
June 20	UX: Chapter 9: Basic File Processing Midterm Prep Homework and Lab 6	Homework & Lab 5 due
June 27	Midterm Exam	Quiz 6 Homework & Lab 6 due
July 4	No class – July 4 Holiday	
July 11	UX: Chapter 10: Advanced File Processing Homework and Lab 7	
July 18	UX: Chapter 11: File Sharing Homework and Lab 8	Quiz 7 Homework & Lab 7 due
July 25	UX: Chapter 12: Redirection and Piping Homework and Lab 9	Quiz 8 Homework & Lab 8 due
Aug 1	UX: Chapter 15: Intro to Bourne Shell Programming Homework and Lab 10	Quiz 9 Homework & Lab 9 due
Aug 8	UX: Chapter 13 Processes Homework and Lab 11	Quiz 10 Homework & Lab 10 due
Aug 15	UX: Chapter 14 Networking and Internetworking Homework and Lab 12 Final Prep	Quiz 11 Homework & Lab 11 due
	Final exam	Homework & Lab 12 due