Introduction to UNIX

COP 3353, Spring 2011
Department of Computer Science, Florida State University

Class time and location

Tuesday, 9:30AM-10:20 AM, 201 Milton Carothers Hall (MCH). (Note that this is a one-credit hour course.)

Instructor

• Instructor: Xiuwen Liu (pronounced as Shu-wen Lea-l).
• Email: liux@cs.fsu.edu (most effective way to contact me).
• Office: 166 Love Building; Phone: (850) 644-0050.
• Office Hours: Tuesday and Thursday, 10:45-11:45 AM and by appointments.

Teaching Assistant

• Teaching assistant: W. Falcon Street.
• Email: wfs10@fsu.edu.
• Office: 104B Love Building (inside room 104).
• Office hours: Wednesday, 12:00noon-2:00PM and by appointments.

Class Home Page

This web site contains the up-to-date information related to this class such as news, announcements, assignments, lecture notes, and useful links to resources that are helpful to this class. Besides the web pages, Blackboard will be used to communicate changes and updates and post grades for this class; in particular, I will send emails using email addresses in the Blackboard system and **please make sure that your email address on record is current.**

Rationale

While operating systems and platforms based on menus and graphical user interfaces are sufficient for certain applications, they do not provide the flexibility and freedom beyond predefined choices. On the other hand, UNIX operating systems (including various derivatives) provide the flexibility to their users so that problems can be solved more effectively and efficiently. Additionally, they allow the users to specify flexible application dependent choices, integrate and combine different commands (through pipes and input/output redirections), and provide inherent programmability through shell programming. They also provide opportunities for users to understand how various features are implemented, leading to deeper understanding of various aspects of computer systems.

Course Description

This course covers the basic aspects of how to use a UNIX operating system effectively, including common UNIX commands and utilities, components and commands of file systems,
input/output redirection and pipes, process management, editing programs (pico, vi, and emacs), basic shell programming, makefile and related utilities, and version control.

**Prerequisites**
Basic knowledge using a computer system.

**Course Objectives**
Upon successful completion of this course of study, the student will:

- Know how to create a UNIX account.
- Know how to navigate through the file system on a UNIX system.
- Know how to use pico, vi, and emacs to edit files on a UNIX system.
- Know how to properly set permission for files and directories on a UNIX system.
- Know how to properly use common UNIX commands for solving various problems.
- Know how to properly use input/output redirections and pipes to combine UNIX commands.
- Know how to specify regular expressions to be used with UNIX commands.
- Know how to run processes in background and basic job control and process management.
- Know how to implement basic shell programs.
- Know how to set up a makefile and use make utilities.
- Know how to set up and use version control utilities.
- Know how to read and understand UNIX manual pages.
- Know how to set up a X window system, create and use windows via utilities and programs.

**Textbook and Course Materials**

Optional reading, “UNIX Power Tools,” 3rd Edition, O’Reilly, 2002 by Shelley Powers, Jerry Peek, Tim O’Reilly, and Mike Loukides. (Note that the materials in this book are not required for the exams and assignments of this course and but it provides useful features and tips from experts for effective problem solving on UNIX systems.)

In addition to the textbook, papers and notes from the literature will be distributed occasionally along the lectures, including the following journal:

- *IEEE Computers.*

**Student Responsibilities**
Attendance is required for this class. In case that it is necessary to skip a class, students are responsible to make up missed materials. All submitted assignments must be done by the author(s). It is a violation of the Academic Honor Code to submit other’s work and the instructor of this course takes the violations very seriously.
Excused absences include documented illness, deaths in the immediate family and other documented crises, call to active military duty or jury duty, religious holy days, and official University activities. Accommodations for these excused absences will be made and will do so in a way that does not penalize students who have a valid excuse. Consideration will also be given to students whose dependent children experience serious illness.

Assignments and Projects

There will be a number of exercises as checkpoints and will be graded for completeness only and no feedback will be given. About six homework assignments will be given and they need to be turned in. There will be a midterm exam and a final exam.

Grading Policy

Grades will be determined as follows:

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<tr>
<th>Assignment</th>
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<tbody>
<tr>
<td>Exercises*</td>
<td>10 %</td>
<td>Midterm Exam</td>
<td>20 %</td>
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<tr>
<td>Homework Assignments*</td>
<td>40 %</td>
<td>Final Exam (cumulative)</td>
<td>30 %</td>
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Grading will be based on the weighted average as specified above and the following scale will be used (suppose the weighted average is \( S \) in 100 scale)

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<thead>
<tr>
<th>Score</th>
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<td>93 ( \leq S )</td>
<td>A</td>
<td>80 ( \leq S ) ( &lt; 83 )</td>
<td>B-</td>
<td>67 ( \leq S ) ( &lt; 70 )</td>
<td>D+</td>
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<tr>
<td>90 ( \leq S ) ( &lt; 93 )</td>
<td>A-</td>
<td>77 ( \leq S ) ( &lt; 80 )</td>
<td>C+</td>
<td>63 ( \leq S ) ( &lt; 67 )</td>
<td>D</td>
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<tr>
<td>87 ( \leq S ) ( &lt; 90 )</td>
<td>B+</td>
<td>73 ( \leq S ) ( &lt; 77 )</td>
<td>C</td>
<td>60 ( \leq S ) ( &lt; 63 )</td>
<td>D-</td>
</tr>
<tr>
<td>83 ( \leq S ) ( &lt; 87 )</td>
<td>B</td>
<td>70 ( \leq S ) ( &lt; 73 )</td>
<td>C-</td>
<td>( S ) ( &lt; 60 )</td>
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*Special note: If you have been using Linux at home and routinely use UNIX commands for various tasks, please talk to the instructor by the beginning of the second class and alternative assignments are available in place of exercises and homework assignments.

Late Penalties

Exercises are due by the beginning of the class on the due date and no late exercise submissions will be accepted for grading unless prior arrangement has been made. Homework assignments are due at the beginning of the class on the due date and homework assignments turned in late, but before the beginning of the next scheduled class, will be penalized by 10%; homework assignments that are more than one class period late will NOT be accepted.

Submission and Return Policy

All tests/homework will be returned as soon as possible after grading but no later than two weeks from the due date.

Tentative Schedule

- Week 1: Introduction (Preface and Chapter 1).
• Class organization.
• General introduction to UNIX.

- Week 2: Working with files and directories (Chapter 3 and Chapter 4).
- Week 3: Creating and editing files using pico and file related commands (Chapter 4).
- Week 4: Editing files using vi and emacs.
- Week 5: Redirecting I/O (Chapter 5).
- Week 6: Shell variables and customization (Chapter 3).
- Week 7: Process management (Chapter 7).
- Week 8: Midterm exam review.
- Week 9: Midterm exam (Tuesday, March 1, 2011, in class).
- Week 10: Spring break.
- Weeks 11-13: Shell programming.
- Week 14: Makefile and version control utilities.
- Week 15: Introduction to X Window System and Networking (Chapter 2 and Chapter 6).
- Week 16: Summary and final exam review.
- Final exam week: Final exam (Tuesday, April 26, 2011, 10:00 AM - 12:00 noon).

Academic Honor Code

The Florida State University Academic Honor Policy outlines the University’s expectations for the integrity of students’ academic work, the procedures for resolving alleged violations of those expectations, and the rights and responsibilities of students and faculty members throughout the process. Students are responsible for reading the Academic Honor Policy and for living up to their pledge to “. . . be honest and truthful and . . . [to] strive for personal and institutional integrity at Florida State University.” (Florida State University Academic Honor Policy, found at http://dof.fsu.edu/honorpolicy.htm)

Assignments/projects/exams are to be done individually, unless specified otherwise. It is a violation of the Academic Honor Code to take credit for the work done by other people. It is also a violation to assist another person in violating the Code (See the FSU Student Handbook for penalties for violations of the Honor Code). The judgment for the violation of the Academic Honor Code will be done by the instructor and a third party member (another faculty member in the Computer Science Department not involved in this course). Once the judgment is made, the case is closed and no arguments from the involved parties will be heard. Examples of cheating behaviors include:

- Discuss the solution for a homework question.
- Copy programs for programming assignments.
- Use and submit existing programs/reports on the world wide web as written assignments.
- Submit programs/reports/assignments done by a third party, including hired and contracted.
- Plagiarize sentences/paragraphs from others without giving the appropriate references. Plagiarism is a serious intellectual crime and the consequences can be very substantial.

Penalty for violating the Academic Honor Code: A 0 grade for the particular assignment/quiz/exam and a reduction of one letter grade in the final grade for all parties involved for each occurrence. A report will be sent to the department chairman for further administrative actions.
Accommodation for Disabilities

Students with disabilities needing academic accommodations should: 1) register with and provide documentation to the Student Disability Resource Center (SDRC), and 2) bring a letter to the instructor indicating the need for accommodation and what type. This should be done within the first week of class. This syllabus and other class materials are available in alternative format upon request.

For more information about services available to FSU students with disabilities, contact the Assistant Dean of Students:

Student Disability Resource Center
97 Woodward Avenue, South
108 Student Services Building
Florida State University
Tallahassee, FL 32306-4167
(850) 644-9566 (voice)
(850) 644-8504 (TDD)
sdrc@admin.fsu.edu  http://www.disabilitycenter.fsu.edu/