Instructor
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Purpose/Content
Csci-e28 explains the structure of the Unix operating system and shows how to write system and network programs. It is appropriate for students who want to learn how to write system software for Unix or for students who want to learn about the structure of a multi-tasking, multi-user operating system. The course covers the details of the file system, terminal and device input/output, multi-tasking, interprocess communication, video displays, and network programming. Theory is presented in the context of how Unix implements the ideas. By the end of the course, students should be able to figure out how most Unix commands work and know enough about the system to draft their own version of most of them.

Preparation
You should be able to program in C or C++. You should be comfortable with pointers, structs, dynamic memory allocation, linked lists, and recursion. You do not need to have programmed in C for Unix. If you know C++, you need to write in the C subset of C++. Familiarity with Unix is helpful but not essential.

Lectures
Wednesday 8:00-10:00PM. Short break in middle. Lectures present ideas in the context of specific problems and Unix commands. Careful review of sample programs will be used to demonstrate principles and focus discussion. Many of the programs will be from the text; read before lecture and note questions.

Reading
Understanding Unix/Linux Programming by Molay is the main text. This book follows the course closely. Two other texts are not required, but are helpful additions: Advanced Programming in the Unix Environment by Stevens is more encyclopaedic - has all the info and is an excellent reference. Linux Application Development by Johnson and Troan provides supplemental information about programming for Linux.

Required Work
A final exam and six programming assignments. They are spaced evenly through the term. Most assignments build on or follow examples and ideas presented in class. Grades are based on a final exam and the programming projects. The weighting is roughly 35% exam, 65% for projects.

Final Exam
The final exam is a written, proctored exam. Students who live outside the New England area must arrange for a proctor to administer the exam. Please see the Extension School website for details.

Computer Accounts and Labs
All registered students will have an account on the Harvard instructional Unix computers. Set up your account at https://key.harvard.edu/. For details about claiming your key, visit: http://www.extension.harvard.edu/resources-policies/resources/computer-e-mail-services. Use ssh to login to nice.fas.harvard.edu. The Extension School computer lab on Church street is also available to students.

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