CSCI 0060: Practical System Skills

Instructor: Leonhard Spiegelberg (lspiegel@cs.brown.edu), CIT 351
Time: TTh 4-5:30p
Location: CIT 477
Course site: https://cs.brown.edu/courses/cs0060/index.html

Description: An introduction to develop hands-on-computing skills necessary to comfortably work within a UNIX-like operating system. Topics include the shell, its filesystem, bash scripting, SSH, version control, as well as how to locally develop, deploy and publish a website.

Intended Audience: Students with little to no knowledge on how to effectively work within a UNIX-like shell environment. Course is open to anyone who is interested to learn more about how to become a competent Unix user. To benefit the most from this course, students should have some previous programming experience.

Time requirements: Students will spend 3 hours per week in class, 1 hour per week at recitation, and 5 hours per week on homework. In addition, they should expect to spend 15-20 hours each on two midterms and one final project. This course will be full credit and require 180 hours of work over the semester.

Course Goals: By the end of this course, students will be comfortable navigating the UNIX file system, understand its user and file permissions, be able to use grep/sed with basic regular expressions, be introduced to version control via git, create simple bash scripts and also learn how to make use of bash scripts to deploy e.g. a website. After taking the course students will have a deeper understanding on how to work within a shell environment.

For additional information on our policies, including inclusivity and accessibility policies as well as a detailed grade breakdown, please see the course missive. For information on collaboration in the course, please see the course collaboration policy.

Course Schedule (Tentative)

Week	Content
Week 0 (9/5-9/9)	Course introduction
Week 1 (9/10-9/17)	Intro to UNIX - A short history of UNIX - Working with files - Users and file permissions
Week 2 (9/17-9/23)	Bash scripting - Streams and pipes - Shell scripts - Functions and arrays
Week 3 (9/24-9/30)	Working remotely / secure shell - SSH protocol - File transfer - Managing processes - Navigating multiple processes
Week 4 (10/1-10/7)	Text processing - Basic text commands - Editing files - Regular expressions
Week 5 (10/8-10/14)	Websites - What happens when you visit a website? - HTML - CSS - Interactive websites
Week 6 (10/15-10/21)	Version control - Git commands - Local changes - Branches - Git workflows
Week 7 (10/22-10/28)	Python & backends - Intro to Python - Intro to Flask Midterm 1
Week 8 (10/29-11/4)	Dynamic Websites

	- Client-side scripting & Javascript - DOM & JSON - Web frontend & backend - RESTful API design
Week 9 (11/5-11/11)	Databases & DataFrames - SQL - split, apply, combine patterns
Week 10 (11/12-11/18)	Topics I
Week 11 (11/19-11/25)	Topics II Midterm 2
Week 12 (11/26-12/2)	Thanksgiving break
Week 13 (12/3-12/9)	Final projects
Week 14 (12/10-12/16)	Final projects