

Linux Systems Administration DeCal

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decal.ocf.berkeley.edu | decal@ocf.berkeley.edu

Course Description:

This course will cover the basics of administering a Linux-based server environment in the manner of the EECS Instructional Servers (hivexx.cs.b.e) and the Open Computing Facility (tsunami.ocf.b.e, etc.). By the end of this course, we expect you to be completely comfortable using GNU/Linux, understand in a broad sense how the system's various parts work together, e.g. init, filesystems, services, daemons, etc., understand basic networking, have a good sense about maintaining system security, understand system administration essentials in general and have a practical taste of what sysadmins do in industry.

An important skill for system administrators is the willingness to quickly learn about new and unfamiliar technologies, so while we expect many students will be in CS, the only real prerequisite for this course is a desire to learn. We know potential students will have differing backgrounds in terms of CS and sysadmin experience, therefore, we will be teaching this course in two tracks: a beginner's track which will focus more on introducing new users to Linux, and an advanced track that will cater to students with more experience using Linux. Both tracks will get started fast and move quickly - there's a lot of material to cover.

Course Goals:

By the end of this course, you should be able to take a blank computer and turn it into a reliable general-purpose Linux server. You will also learn how to configure servers for special purposes, have a sysadmin's knowledge and understanding of services/daemons, authentication, networking, databases and other utilities as well as how to configure them to fit your needs. The most important skill you will learn is how to effectively diagnose, troubleshoot, and resolve problems that will inevitably arise in the process of using your computer.

Grading, Attendance, and Collaboration:

As with all Decals, this course will be offered only on a P/NP basis. There will be approximately 10 required labs over the semester in each track. Labs will be graded on completion, due one week after they are released, and will be worth 1 point each. Students must complete all required labs to pass the course, but will be allowed up to 2 late labs (turned in any time before Finals week).

Class will be held weekly in-person in the OCF lab (171 MLK) Tuesdays and Thursdays from 8:10-9pm. At least 8 attendances are required for a passing grade. Alternate participation assignments will be offered for those who are unable to attend.

Additionally, students will complete a weekly lab activity outside of class, which should take approximately 5 hours per week. Students are free to work together on labs (debugging, advice, hints, clarifications, etc.), but lab submissions must be written up individually. Copying

solutions is strictly prohibited and may result in a NP grade and/or referral to the Center for Student Conduct.

Expected Schedule (week-by-week):

This is a lecture and lab-based course. While there are no required readings in the traditional sense, we will provide weekly resources that will be helpful towards completing lab assignments. If you choose not to use them, that's fine too- but we expect that you will need to do lots of reading anyways to research specific concepts further. Generally, each week will have one lecture and one lab related to the lecture.

Week	Beginner Track	Date	Advanced Track	Date
0	Info Session	01/25	Info Session	01/27
1	History of UNIX, Intro to Shell, FOSS	02/01	Advanced Introduction to UNIX	02/03
2	Core Shell	02/08	Packages	02/10
3	Shell Scripting	02/15	DIY Linux Pre-install	02/17
4	Compiling, Distro, and Packaging	02/22	Linux Post-Install	02/24
5	Networking 101	03/01	Networking 102	03/03
6	Processes	03/08	Processes and Services	03/11
7	Services	03/15	Developing at Scale	03/17
8	Spring Break	03/22	Spring Bring	03/24
9	Security Fundamentals	03/29	Networked Services	03/31
10	Version Control and Backups	04/05	Advanced Security	04/07
11	Cloud, Containers, and Config Management	04/12	Config Management	04/14
12	Guest Lecture	04/19	Guest Lecture	04/21