

Linux System Administration Decal

Fall 2019

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 labs over the semester in each track. Labs will be graded on completion, due two weeks after they are released, and will be worth 1 point each. Students may drop up to two labs.

In addition, lecture attendance is mandatory and will be tracked. Students are allowed two unexcused absences. Students with more than two unexcused absences will NP the course. Students should notify instructors at least 24 hours in advance if they cannot make a lecture. Instructors may excuse students for these absences at their discretion (e.g. due to exam conflicts, illness, etc.)

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.

Expected Schedule (week-by-week):

This is a lecture and lab-based course. There are no required readings, but you will probably end up doing a lot of reading anyways as you figure out how to get things to work. Generally, each week will have one lecture and one lab related to the lecture.

Beginner Track:

1. 09/03, 09/05 - Info Session
2. 09/10 - History of UNIX, Intro to Shell, FOSS
3. 09/17 - Core Shell
4. 09/24 - Shell Scripting
5. 10/01 - Compiling, Distro, and Packaging
6. 10/08 - Networking 101
7. 10/15 - Processes
8. 10/22 - Services
9. 10/29 - Security Fundamentals
10. 11/05 - Version Control and Backups
11. 11/12 - Cloud, Containers, and Config Management

Advanced Track:

1. 09/03, 09/05 - Info Session
2. 09/12 - Advanced Introduction to UNIX
3. 09/19 - DIY Linux Pre-Install
4. 10/03 - Linux Post-Install
5. 10/10 - Networking 102
6. 10/17 - Processes and Services
7. 10/24 - Developing at Scale
8. 10/31 - Networked Services
9. 11/07 - Advanced Security
10. 11/14 - Config Management