CS183
UNIX System Administration

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What is Systems Administration?

“System administration is the field of work in which someone manages one or more systems, be they software, hardware, servers or workstations. Its goal is ensuring the systems are running efficiently and effectively.” [1]

[1] https://en.wikiversity.org/wiki/System_administration

I worked as a system administrator for years

- I am a 5th year PHD candidate; hopefully, I'll graduate this year :-)
- I have taught/TAd:
  - CS202 (Advanced Operating Systems), CS166 (Database Management Systems), CS100 (Software Construction), CS005 and CS10B (Introduction to Computer Programming)
- My research is on the System and Network Security
  - Software Testing, System Introspection, Network Inspection and Malware Analysis
  - Speaker at academic and corporate security conferences such as Usenix Security and BlackHat
- I worked as a network administrator for 4 years
- I enjoy reading poems, playing poker, playing pool etc

EVERYTHING WORKS FINE:"WHAT DO WE EVEN PAY YOU FOR?"
SOMETHING ISN'T WORKING:"WHAT DO WE EVEN PAY YOU FOR?"
MEMEFUL.COM

Essential Duties of a Sysadmin

- Controlling Access
- Adding Hardware
- Automating Tasks
- Overseeing Backups
- Installing and Upgrading Software
- Monitoring
- Troubleshooting
- Maintaining Local Documentation
- Vigilantly Monitoring Security
- Tuning Performance
- Developing Site Policies
- Working with Vendors
- Fire Fighting

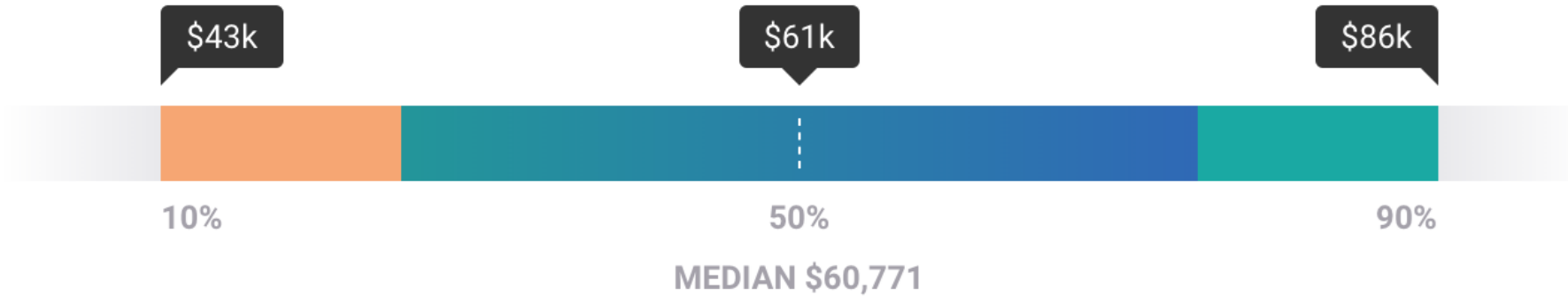
Average Systems Administrator Salary

$60,771

Avg. Salary Show Hourly Rate

$2,367	$1,959	$2,989
BONUS	PROFIT SHARING	COMMISSION

The average pay for a Systems Administrator is $60,771 per year.



Average Development Operations (DevOps) Engineer Salary

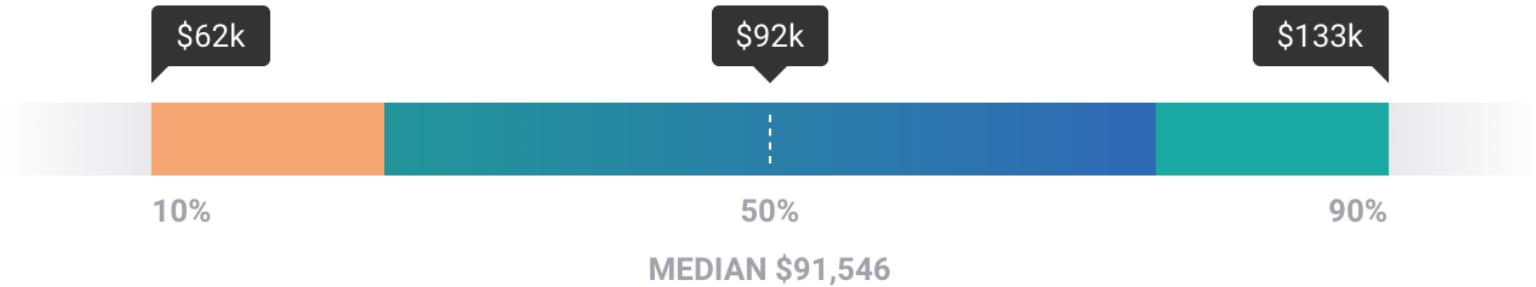
$91,546

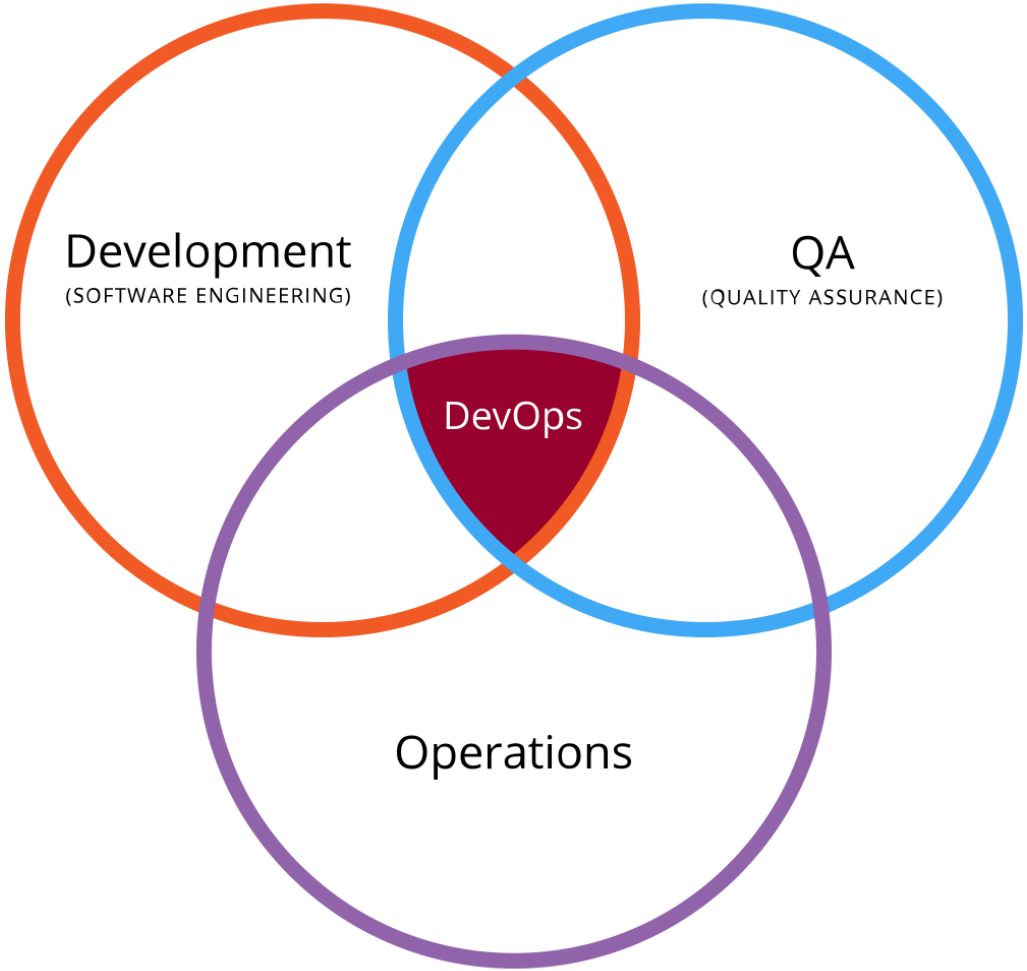
Avg. Salary Show Hourly Rate

$6,008 BONUS

$4,981 PROFIT SHARING

The average pay for a Development Operations (Devops) Engineer is $91,546 per year.





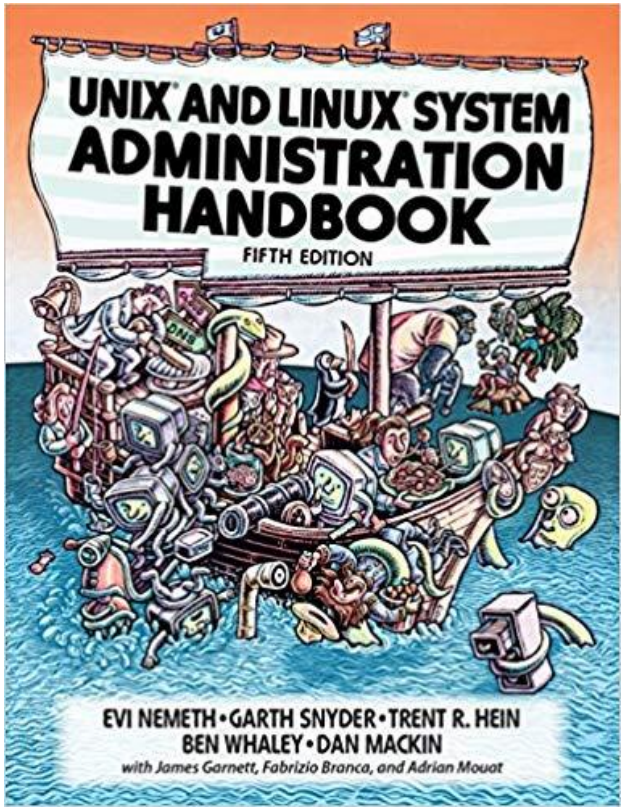
Recommended Courses:

Computer Networks (CS 164)

Computer Security (CS 165)

Database Management Systems (CS 166)

Course Text



Unix and Linux System Administration Handbook (5th Ed) by Evi Nemeth, Garth Snyder, Trent Hein, Ben Whaley and Dan Mackin

Not required, but the standard text for this course at basically every university

There is **a lot** in this book we will not be able to cover in this course

A few copies are also available to checkout in the library for up to 3 days

Grade

Assignments		Percentages
Labs		50%
Final Project	Proposal (Beginning of Week 6)	10%
	Submission and Demo to TA	25%
	In Class Presentation	5%
Pop Quizzes		10%
Attendance (optional)		10%
	Total	110%

Please do not email me about permissions to miss the lectures, it’s completely up to you.

Course Schedule

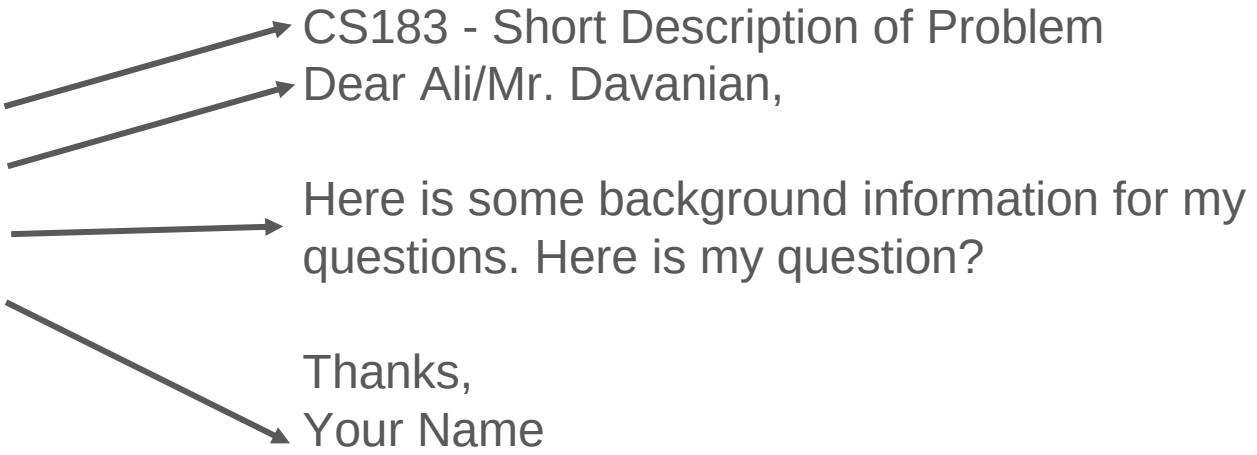
Week	Lectures	Labs & Assignments
1	Introduction - Linux Boot Systems	VirtualBox and CentOS setup
2	Shell Scripting	Introduction to Scripting
3	Access Control - Process Control	Introduction to Scripting
4	Filesystem - Software Management	Filesystems and Permissions
5	User Management	Software Management
6	Intro to Networks - L1 and L2 Networks	Password Vulnerability – Project Proposal
7	L1 and L2 Networks – VLAN	LAMP server
8	L3 Networks - Modern L3 Networks	Project Collaboration
9	L4 Networks - Virtualization & Container Services	NIS server and client
10	Final Presentations	Process Management – Final Presentations

Communications

- Please (PLEASE) use Slack
  - https://join.slack.com/t/slack-gpb3257/shared_invite/zt-w306mkqe-sI~WmrAxU0IFa1rlnk5~sw
  - Your question is probably the question of others too
  - Everyone can help you with the answer (I, TAs and other students)
- Please contact the right person for your questions:
  - **Teaching Assistant** - Questions about lab grades, requesting a lab absence, or to transfer lab sections
  - **Course Grader** - Questions and disputes about assignment grades or questions about assignment testing procedures
  - **Gradescope Regrade Request** - Exam grade disputes

Email

1. Subject
2. Salutation
3. Body
4. Signature



If you go by a different name than appears on iLearn, make sure to include your registered name in any emails about grades

My office hours

- Only Via zoom:
  - https://ucr.zoom.us/j/2253960406
  - Tuesdays from 11 AM to 12
  - Thursdays from 11 AM to 12
- If you need to meet me in-person, please email me.

Cheating

Cheating will result in an F in the course and follow up with judicial review

NO EXCEPTIONS!

Things to Review

Basic Linux Commands

Command Line Text Editor (vim recommended)

Scripting Language Basics (bash + Python/Perl/Ruby)

CentOS 7

Linux operating system used throughout this course

Based off the Fedora linux lineage, making it (or its close cousins Fedora and Red Hat) very stable and a staple for large companies

Questions?