
csce215 — UNIX/Linux Fundamentals

Spring 2022 — Lecture Notes: Welcome

This document contains slides from the lecture, formatted to be suitable for printing or individual reading, and with some supplemental explanations added. It is intended as a supplement to, rather than a replacement for, the lectures themselves — you should not expect the notes to be self-contained or complete on their own.

(0.1) Course website

Everything you need to know about the course is on the course website:

<http://cse.sc.edu/~jokane/215>



- We will **not** use Blackboard.
- We will use `dropbox.cse.sc.edu` only for submitting assignments and tracking grades.
- **All** of the materials for the course will be **only** on the course website.

(0.2) What is this course about?

This is a course about using the **Linux** operating system, with a focus on its **command line** interface.

A computer's **operating system** is the fundamental software that controls the computer's hardware resources including CPU, memory, storage, USB devices, power system, etc.



A **command line interface** is a mechanism for telling a computer what to do, using text input.

```
$ echo hello, world
hello, world
```

(0.3) *What is this course really about?*

This is a course about a specific way of thinking about interacting with computers.

Emphasis on:

- Interfaces based on **streams of text**.
- **Small, simple** tools that can be combined as needed.

Result: A system where things are **easier to automate** and more **repeatable**.

The computer exists to work for us; not us for the computer. If you are doing something repetitive for the computer, you are doing something wrong. Stop what you're doing and find out how to do it right.

— Mattox's Law of Computing

(0.4) *What is Linux? (also UNIX?)*

UNIX is a family of operating systems initially developed at AT&T in the late 1960's.



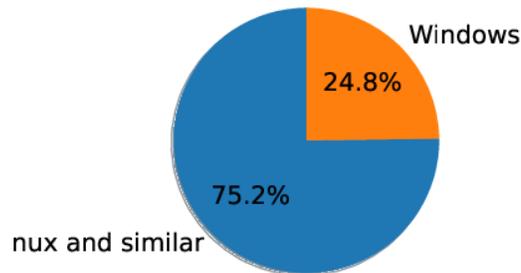
Linux is a specific open-source Unix-like operating system, started in 1991 by Linus Torvalds.



For the sorts of things we'll see in this class, the terms UNIX and Linux are functionally interchangeable.

(0.5) *Who cares?*

Linux is the operating system of the internet. Approximately 3 out 4 public servers run Linux or a similar operating system.



See for example, the statistics reported here: https://en.wikipedia.org/wiki/Usage_share_of_operating_systems

If are interested in work that touches the internet in any meaningful way, knowing Linux will be an important skill for your career.

(0.6) *Who cares?*

Linux is the operating system of many embedded devices.



If are interested in work that touches 'non-traditional' computers in any meaningful way, knowing Linux will be an important skill for your career.

(0.7) *Space robots!*



(0.8) *Two types of material*

We will learn lots of things this semester, but there will be too many commands, options, and details to expect to remember everything.

Some things are so important that you should be able to do them **from memory**. These will show up on the **assignments** and the **final exam**. We'll mark them with a **brain** symbol.



Some things are useful, but can be **looked up** when you need them. They'll show up only in the assignments. We'll mark these with a **reference** symbol.



(0.9) Who is teaching the course?



Jason O'Kane
Professor



Yong Zhao
PhD Student in Deep Learning and Material Informatics
Graduate Teaching Assistant



Rashmi Ravindranath

Graduate Teaching Assistant



José Gonzalez

Junior Computer Engineering Major
Undergraduate Teaching Assistant

(0.10) *Assignments and grading*

The course will consist of **9 lectures**, **9 assignments**, and a **final exam**.

- **Lectures:** Engaged attendance: 4 points
- **Labs:** Attend and participate: 4 points
- **Assignments:** Complete and submit assigned tasks correctly: 92 points
- **Final Exam:** 100 points, exclusively from 📖 material.

(0.11) *How to get an A*

A few easy suggestions that may help your grade.

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- Show up.
 - Do everything.
 - Read and follow the instructions.

For the assignments and the final, we'll grade based on correctness, not on effort.

(0.12) *External sources*

Knowing how to find and utilize information from external (i.e. web-based sources) is an essential skill.

- Therefore, **it is acceptable** in the assignments in this course to use Google or other search engines to find out how to do something.
- We will learn some specific strategies for seeking helpful reference information; you should leverage these skills when you complete the assignments.

HOWEVER!

You are expected to perform those searches **for yourself** and to complete the lab assignment **independently**, with the assistance of the instructor and the TAs.

(0.13) *Collaboration*

Discussions with your classmates or others should remain at a very high level, and must not include any specific details of the solutions.

An acceptable, high-level discussion:

I started by googling 'linux sort numeric' and found an option to sort in numeric order.

An unacceptable, detailed discussion:

I used 'sort -n | uniq' and that seems to work.

(0.14) *Academic integrity*

It is **NOT acceptable** in this course...

- to copy/paste commands or code into your terminal or editor.
- to submit work completed by anyone else as your own.

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- to make your own work available to anyone else.
 - to distribute or post the materials for the course in any venue.

In the unlikely event that violations of these expectations occur, they will be considered cheating and reported to the Office of Academic Integrity.