



**Department of Physics,
Computer Science & Engineering**

CPSC 410 – Operating Systems I

Introduction

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Topics

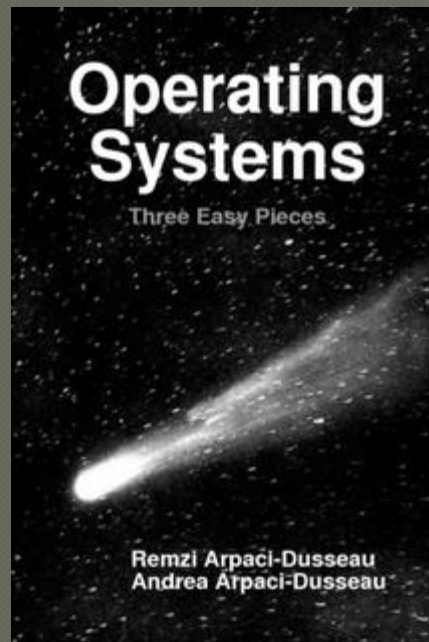
- Admin
 - prereqs, text, eval, etc...
- What is an Operating System (OS)?
- History of OS
- OS Lessons and Challenges
- Tangent-How is an OS loaded?
- Closing remarks
 - OS & Software Engineering

Admin: Your Background

- Some high level programming language
- CPEN 214, CPSC 327 (C++)

Admin: Text

- Free online text (Can also get a hardcopy)
- <http://pages.cs.wisc.edu/~remzi/OSTEP/>





Admin: Text

◉ Three sections

- Virtualization
 - Architecture, process scheduling, memory management
- Concurrency
 - Threads, deadlock, critical sections, mutual exclusion, etc.
- Persistence
 - I/O

Admin: Evaluation

- Multiple projects  Probably 3 but may be as many as 5
- 1 midterm  Lateish in the semester
- 1 final

Admin: What you get from this class

- ◉ Some C++ experience
- ◉ How an OS works (multitasking)
- ◉ Process scheduling
- ◉ Memory Management
- ◉ I/O management and File Management
- ◉ Threads and concurrency



Most Useful

Admin – Linux

- I'm using Ubuntu 18.04 LTS

Admin – Linux – Why?

- ◉ Most of the worlds OSs are based on unix like kernels (Mac, Android, Linux)
- ◉ Client side, games, laptops , desktops
 - Windows
- ◉ Handsets
 - -Android
- ◉ Servers
 - Linux
- ◉ Most high performance remotely hosted (cloud) machines are linux (AWS, paperspace, etc)
- ◉ See Linux - tutorials on course website
- ◉ In class demo

Admin: Language

● C++

- A brief review
- One C++ starter project
- The rest will be OS specific

● Why C++

Admin: Compiling and debugging

- C and C++ both compile to an executable
- Can use many compilers (clang, gcc, G++ ...)
- We will use gcc version 7.4.0
- I'll show you how to use gcc and g++
- And 1 IDE for C++
 - And I hope to demonstrate the advantage of an IDE

Admin: Development Environment

- Could use vim, g++, gdb, valgrind, tmux for a command line only dev environment
- Or an Integrated Development Environment (IDE)
- Lots to choose from, Codeblocks, Netbeans, Ms Visual Studio, Eclipse CDT...Clion
- We will use Eclipse CDT

Admin - Git

- You will use version control professionally, best to learn it now
- See 'Git-The simple guide' on course website
- In class demo