

cs143A: Principles of Operating Systems

Lecture: Class Logistics

Anton Burtsev
Fall 2020

Who am I?

- I build operating systems (since 2000)
- Bits of L4 microkernel, micro-ITRON, XenTT, LCDs, LVDs, RedLeaf
 - <https://www.ics.uci.edu/~aburtsev/>

Class details

- Undergraduate
 - 275 students
- Instructor: Anton Burtsev
- Meeting time: online
- 4 TAs
 - Hari, Zhaofeng, Deep, and Hans
 - Send us private message on Campuswire
- Web page
 - <https://www.ics.uci.edu/~aburtsev/143A/>

This course

- Inspired by
 - MIT 6.828: Operating System Engineering
 - <https://pdos.csail.mit.edu/6.828/2018/>
 - Adapted for undergraduate students
- We will use xv6
 - Relatively simple OS kernel (only 9K lines of code)
 - Reasonably complete UNIX kernel
 - <https://pdos.csail.mit.edu/6.828/2018/xv6.html>
- xv6 comes with a book
 - <https://pdos.csail.mit.edu/6.828/2018/xv6/book-rev11.pdf>
- And source code printout
 - <https://pdos.csail.mit.edu/6.828/2018/xv6/xv6-rev11.pdf>

More details

- 5-6 homeworks
 - Several small ones (designed to help you)
 - Create a simple Makefile, simple UNIX programs
 - Become familiar with gdb
 - Learn what's inside the program (how it gets linked and loaded)
 - Several big ones
 - Implement a shell
 - Implement a system call
 - Build POSIX threads

More details

- Small online quiz every week about the lectures
 - On Gradescope
- Midterm
- Final
- Grades are curved
 - Homework: 50%, quizzes 15%, midterm exam: 15%, final exam: 20% of your grade.
 - You can submit late homework 3 days after the deadline for 60% of your grade

Another Book

“Operating Systems: Three Easy Pieces”
(OSTEP) Remzi H. Arpaci-Dusseau and Andrea
C. Arpaci-Dusseau

- Free online version

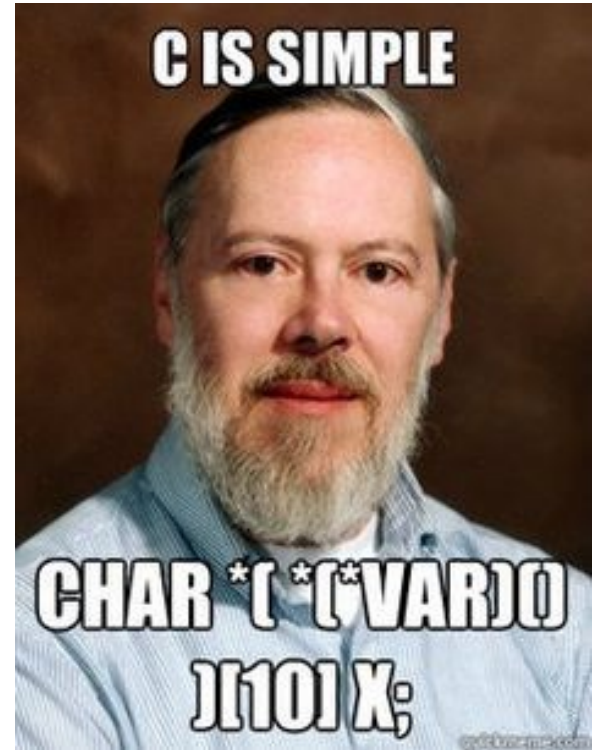
<http://pages.cs.wisc.edu/~remzi/OSTEP/>

Course organization

- Reverse classroom
 - Recorded lectures
 - High level concepts and abstractions
 - You have to watch them before coming to discussion sessions
 - Live discussion
 - Q&A
 - Problems
- Reading
 - Xv6 book + source code
 - Bits of OSTEP book
- Homeworks
 - Coding real parts of the xv6 kernel
- Design riddles
 - Understanding design tradeoffs, explaining parts of xv6

Prerequisites

- Solid C coding skills
 - Xv6 is written in C
 - You need to read, code, and debug
 - All homeworks are in C
 - Many questions will require explaining xv6 code
- Be able to work and code in Linux/UNIX
- Some assembly skills



How to succeed?

- Read the source

How to succeed (2)?

- Don't get scared
 - The class is hard
 - The goal is to teach you how real OS works, and it's non-trivial
 - Homeworks and exams are challenging
 - We're very generous graders

Demo: Hello world!

Questions?

- We can use Zoom
- Or try Campuswire

Thank you!
Questions on Campuswire!