

Welcome to

Advanced Systems Programming

COMS 4995-008

Spring 2024

<https://cs4157.github.io/www/2024-1/>

Teaching Staff

Instructors:

Hans J. Montero

Jae Woo Lee

Contributors:

Jan Janak

Tal Zussman

John Hui

Teaching assistants:

Jeremy Carin *

Andy Cheng *

Denzel Farmer

Peter Ma

Sarah Yang

(*) Head TA

Teaching Staff

Hans J. Montero (just call me 'Hans')

Adjunct Instructor

Software Engineer @ Google – distributed file system

Previously...

- CS @ Columbia SEAS: BS'21, MS'22
- TA'd various systems CS classes: AP, OS, PLT, c2cpp
- Co-taught COMS 4118 Operating Systems I, Spring 2023

...more info at <http://cs.columbia.edu/~hans/>

Teaching Staff

Jae Woo Lee

- Senior lecturer in Computer Science
 - Teaching first, research second
- Just call me Jae (pronounced 'Jay')
 - Note that this is NOT a general rule – address instructors as Professors unless told otherwise
- Contact: jae@cs.columbia.edu / 715 CEPSR

Background

- Undergrad in Columbia College
- Many years of professional experience
 - Designing and coding large-scale software systems
 - Running a startup company
- Came back to Columbia for Ph.D.
- More info at <http://www.cs.columbia.edu/~jae/>

Course Homepage

`cs4157.github.io/www/2024-1/`

Please see the homepage for:

- Lecture schedule and notes
- Office hours calendar
- Exam dates and assignment deadlines
- Other course material

Course Prerequisites

1. Solid C programming experience

- **DON'T TAKE THIS CLASS IF YOU DON'T KNOW C COLD!**

2. UNIX environment

- Must be **comfortable** with command line interface

3. Computer Architecture

- **Basic knowledge** of computer hardware: register, cache, etc.
- Should be able to **read simple assembly code**: load, store, add, jmp, etc.

4. Data Structures

- Nothing fancy, but must be **solid on the basics**: list, tree, stack & queue, map

Columbia courses:

For #1 and #2:

W3157 Advanced
Programming

For #3:

W3827 Fundamentals
of Computer Systems

For #4:

W3134

Data Structures

Mailing Lists

[Cs4995] (whole class) cs4995@lists.cs.columbia.edu

[W4995-TA] (teaching staff) cucs4995-tas@googlegroups.com

Look for subject tags in brackets, e.g.:

- [Cs4995] [ANN] [EXAM1] Exam 1 Grades Published
- [Cs4995] [HW2] waitpid clarification

(Listservs prepend list tag to your subject, don't add it yourself)

Learn to manage high volume of emails – **set up Gmail filters**

At the very least, ensure you won't miss any **[ANN]s**

Mailing List Etiquette

Do:

- Ask & answer non-personal questions on class listserv
- Provide helpful tips & links for classmates
- Be considerate & friendly

Don't:

- Ask questions without first trying to solve it yourself
- Post code or critical info that leads directly to solution
- Be impatient & rude

Prefer using class listserv over TA listserv

- We may redirect general questions to class listserv with your ID redacted

Anonymous feedback form available – see course homepage

Textbooks

Advanced Programming in the UNIX Environment (APUE)

3rd Edition, 2013, Addison-Wesley – by W. Richard Stevens,
Stephen A. Rago

Computer Systems: A Programmer's Perspective (CSAPP)

3rd Edition, 2015, Pearson – by Randal E. Bryant, David R.
O'Hallaron

Various other online guides, blog posts, and original papers

Lectures and Review Sessions

In-person lectures: **Wed 4:10pm - 6:40pm, 451 CS Building**

- Auditors are welcome to lectures & listserv, but no GitHub repos, no HW/exam submissions, no TA access

Optional review sessions may be held by TAs over the semester – details TBA

Lectures will be recorded and be made available shortly afterwards

Exams

Two **synchronous** and **in-person** exams:

- Midterm: Wednesday March 6, 4:20pm
- Final: Wednesday May 8, 4:20pm

No make-up and no alternative exams

- Please don't take ASP now if you can't make these times

Extended-time exams at ODS/CARDS must overlap with official exam time by at least an hour

- You may not be able to have a class before/after ASP

Homework

5-6 assignments

Group assignments, work in team of up to three people

Assignments carry different weights

We reserve the right to drop assignments (after the deadline passes)

Late policy: 20% penalty after deadline up to 24 hours; zero afterwards

Grading Policy

Homework (35%) + Midterm (30%) + Final (35%)

Letter grades are curved – no predetermined letter grade cutoffs. Expect mean/median to be around B/B+

(Grading policy may be subject to change)

Zero Tolerance on Cheating

REQUIRED READING:

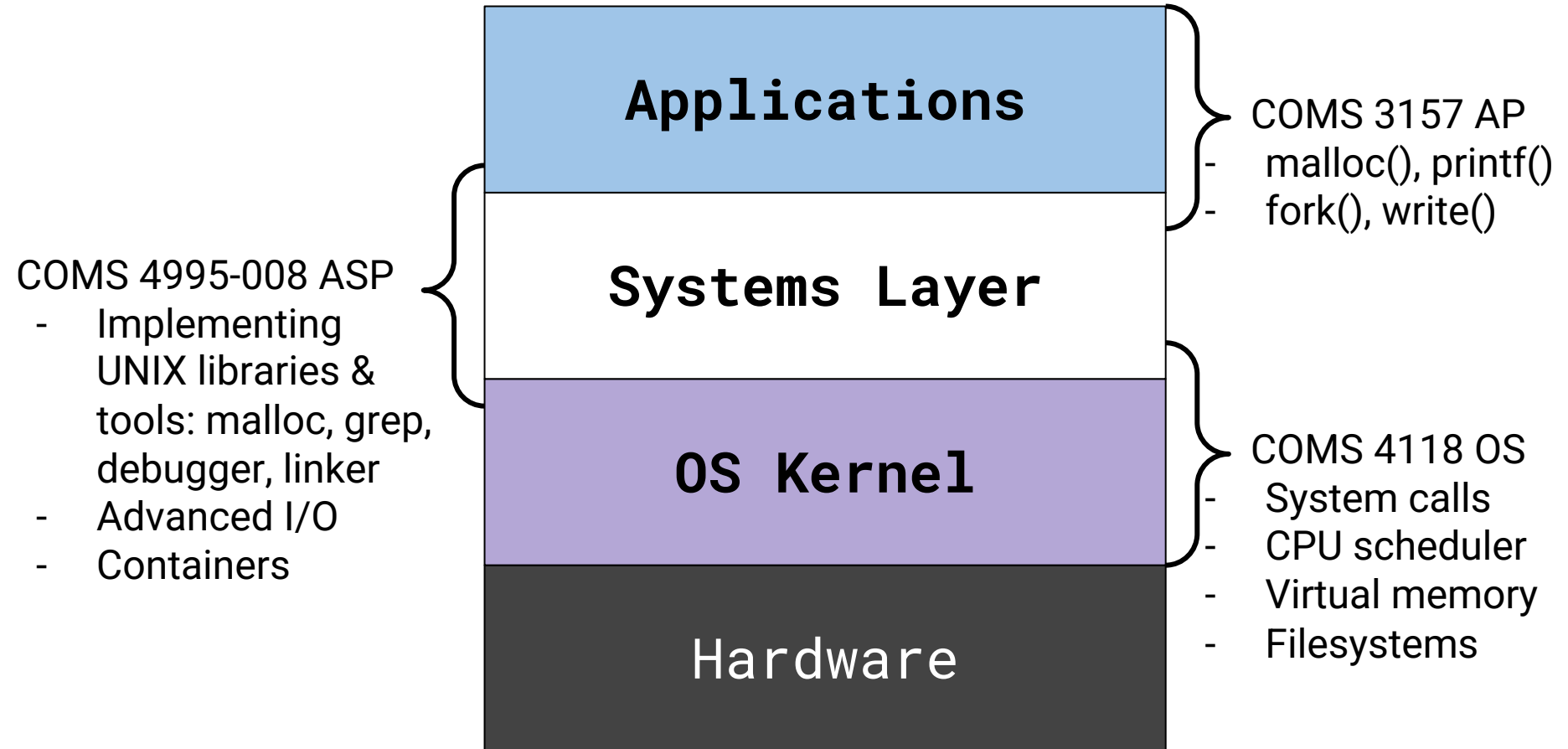
<http://www.cs.columbia.edu/~jae/honesty.html>

You are cheating if you:

- Take code from other people, the Internet, or AI
- Look at solutions that your friend has from previous semester
- Upload any class materials (including your own code) to public repository (e.g. GitHub) during or after this semester

Don't become a human being that AI can replace!

Advanced Systems Programming



Let's get to work! (1/2)

1. Subscribe to the Cs4995 ListServ TODAY:

<https://lists.cs.columbia.edu/mailman/listinfo/cs4995>

- In the textbox "Your name (optional)" put **Your Full Name (UNI)**
 - For example: Hans Montero (hjm2133)
- You must reply to the confirm email (which might be in your spam folder)
- Then receive "Welcome to the "Cs4995" mailing list"
 - This email contains your password for accessing archives of past postings
- All emails to listservs or teaching staff **MUST** include your UNI

Let's get to work! (2/2)

2. Read the following two documents:

- <http://www.cs.columbia.edu/education/honesty>
- <http://www.cs.columbia.edu/~jae/honesty.html>

3. See course home page for **HW0 and reading assignments**

4. Start forming groups of 3 – feel free to advertise on listserv with [LFG]