Welcome to

Advanced Systems Programming

Spring 2025
COMS 4995-008

https://cs4157.github.io/www/2025-1/

Teaching Staff

- TAs:
  - Annie Wang aw3515@barnard.edu
  - Denzel Farmer df2817@columbia.edu
  - Kyra Ramesh Krishna kr3026@barnard.edu
  - Robert Fornos rf2830@columbia.edu

- Email to all teaching staff:
  - ta-4157@googlegroups.com

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/2025-1/`

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

Whole class: cs4157@lists.cs.columbia.edu
Teaching staff: ta-4157@googlegroups.com

- Subject tags in brackets:
  - [cs4157] – prepended automatically to all class listserv emails
  - [ANN] – important announcements by teaching staff
  - [HW2], [EXAM1], etc.

- Learn to manage high volume – setup Gmail filters

- At the very least, do not 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 listserv with ID redacted

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 Auditing

In-person lectures: **MW 2:40-3:55pm, 633 Mudd**

- Recordings will be available on CW shortly afterwards
- Optional review sessions by TAs may be held – details TBA

Auditors are welcome to lectures & listserv

- But no GitHub repos, no HW/exam submissions, no TA access

Exams

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

- Midterm: Wednesday **March 26, 2:40-3:55pm**
- Final: Wednesday **May 14, 1:10-2:40pm** (90 min)

No make-up and no alternative exams

- Please do not take ASP this semester 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

CVN students: see remote proctoring procedure at the end

Homework and Grading

- 6 group assignments
  - Work in team of up to three people
  - We reserve the right to drop hw (after the deadline passes)
  - 20% late penalty after deadline up to 24 hours; zero afterwards
- Homework (1/3) + Midterm (1/3) + Final (1/3)
  - Letter grades are curved
  - No predetermined cutoffs
  - Expect mean/median to be around B/B+
  - Grading policy may change later

Zero Tolerance on Cheating

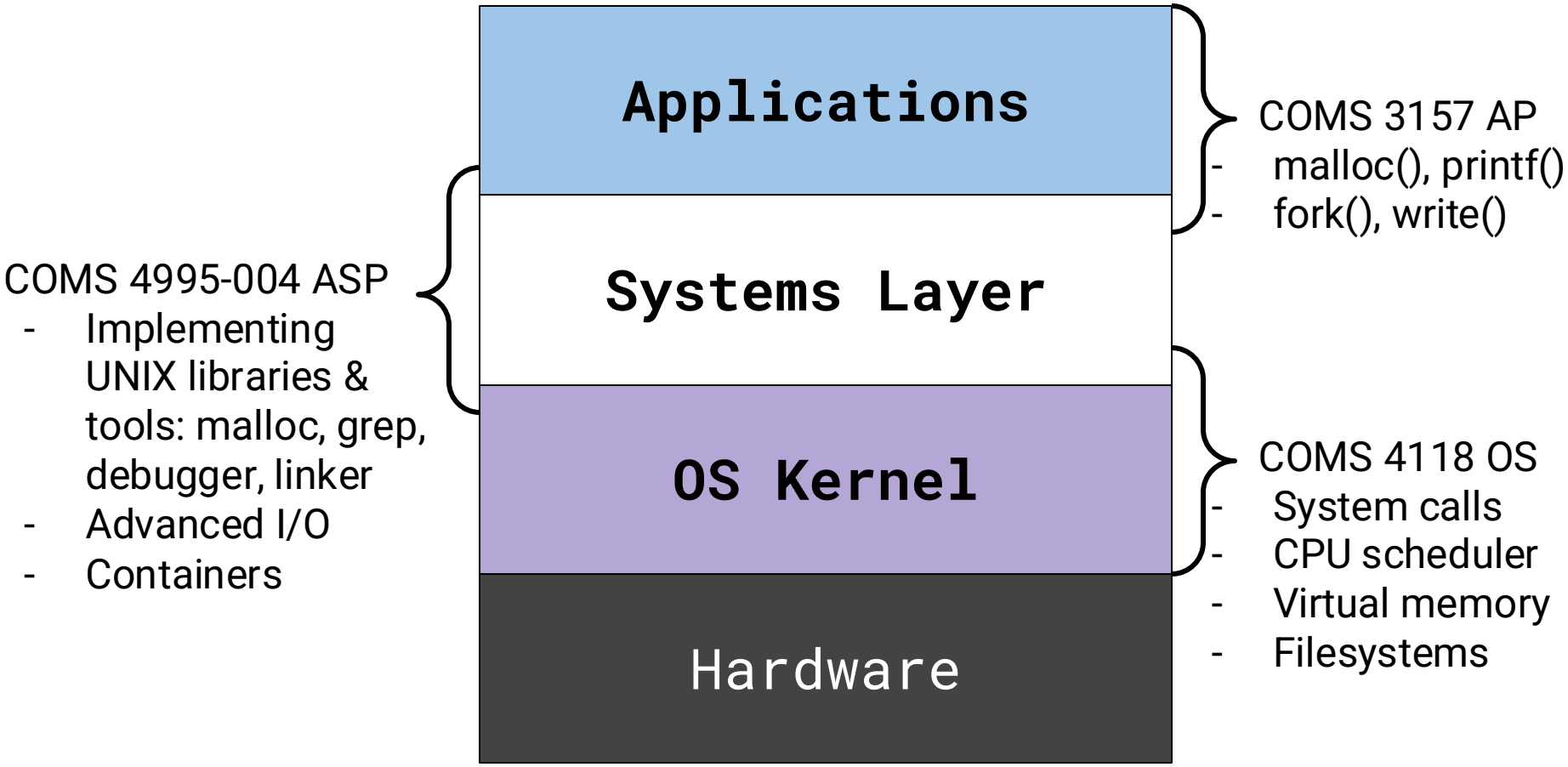
REQUIRED READING:
http://www.cs.columbia.edu/~jae/honesty.html

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 cs4157 ListServ TODAY:
https://lists.cs.columbia.edu/mailman/listinfo/cs4157

- In the textbox “Your name (optional)” put **Your Full Name (UNI)**
  - For example: Jae Woo Lee (jwl3)
- You must reply to the confirm email (which might be in your spam folder)
- Then receive “Welcome to the "Cs4157" 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 up to 3 – feel free to advertise on listserv with [LFG]

For CVN students only

- Remote exam proctoring procedure
  - We send exam PDF a few min before exam
  - You go print exam and come back within a few min
  - You are in a zoom session with video, microphone, and speaker ON
  - Your zoom camera is placed at a distance so we can watch your entire surroundings
  - **You must have access to a printer**
- Send me remote proctoring request
  - Email subject: [4157] UNI: Request for Remote Exams
  - Confirm that the procedure above will work for you
  - **Deadline for request: Friday 1/24**