

Welcome to

# Advanced Systems Programming

COMS 4995-004

Fall 2024

<https://cs4157.github.io/www/2024-9/>

# Teaching Staff

## Instructors:

Hans J. Montero

Jae Woo Lee

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## Contributors:

Jan Janak

Tal Zussman

John Hui

## Teaching assistants:

Brennan Xavier McManus

Shreya Somayajula

Annie Wang

# 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](mailto: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/>

# Teaching Staff

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

Adjunct Instructor

Software Engineer @ Google, Colossus file system

Previously...

- CS @ Columbia SEAS: BS'21, MS'22
- Teaching Assistant: AP, OS, PLT, c2cpp
- Adjunct Instructor: OS (Spring 2023), ASP (Spring 2024)

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

# Course Homepage

[cs4157.github.io/www/2024-9/](https://cs4157.github.io/www/2024-9/)

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](mailto:cs4995@lists.cs.columbia.edu)

[W4995-TA] (teaching staff) [cucs4995-tas@googlegroups.com](mailto: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, 833 Mudd**

- 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 October 30, 4:20pm
- Final: Wednesday December 18, 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:**

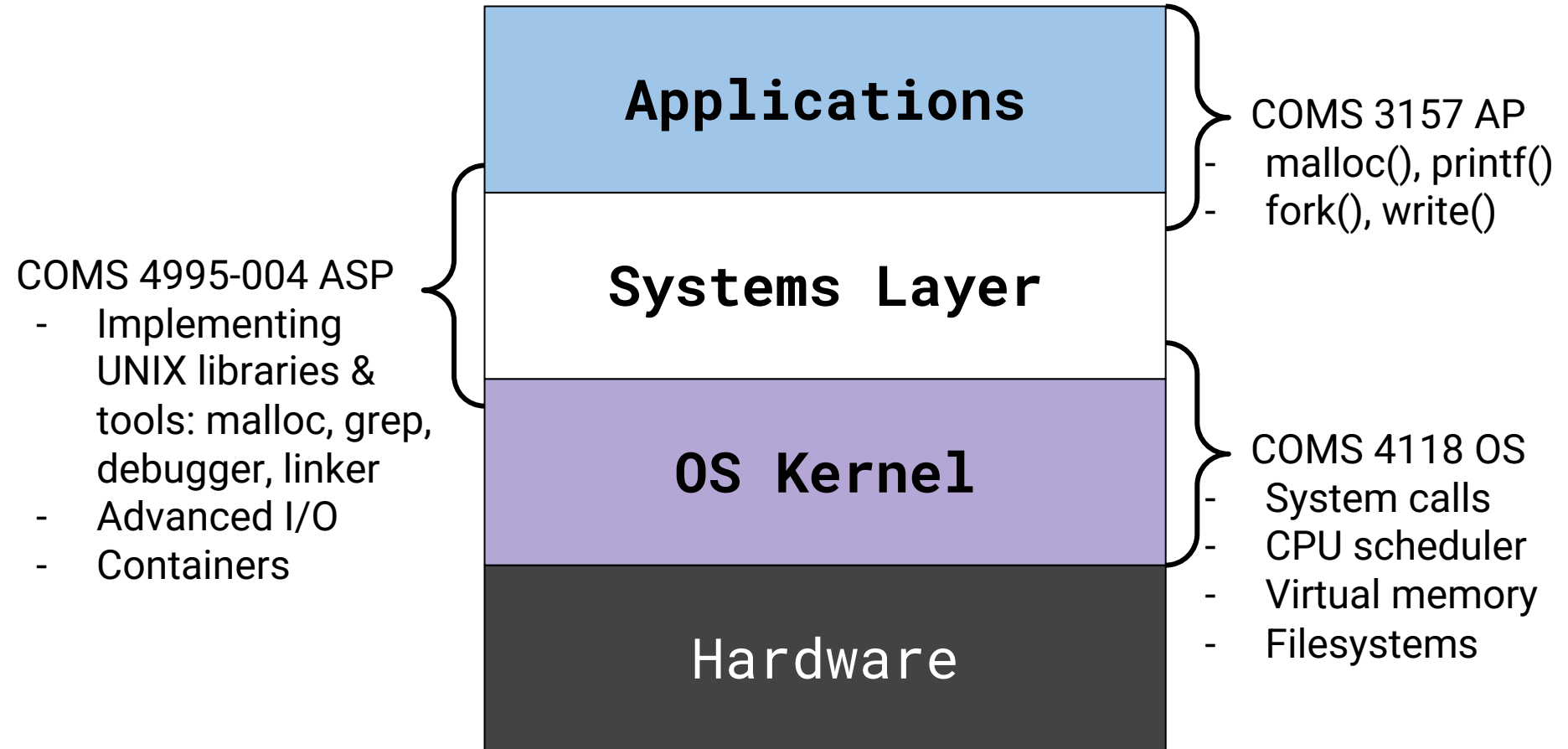
<http://www.cs.columbia.edu/~jae/honesty.html>

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 up to 3 – feel free to advertise on listserv with [LFG]