

# Exam 1 Review

## CS 537: Introduction to Operating Systems

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# Administrivia

- Code reviews are ongoing
- P4 assigned next Tue, Feb 27th
- Midterm 1
  - Regular Time: Feb 23rd, 5:45-7:15, Humanities 2650 (Lec 001), Humanities 3650 (Lec 002)
  - McBurney Time: Feb 23rd, 5:45-8pm, CS 1221
  - 60 questions, T/F and multiple choice
- Next week: Tej will start talking about concurrency

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<https://forms.gle/s2FypSv62STFzeFf9>



# Major concepts

- CPU virtualization
  - What is a process?
  - `fork()`, `exec()`, `wait()`
  - Mechanisms for limited direct execution
  - Scheduling policies (FCFS, SJF, STCF, RR, MLFQ) and metrics (turnaround time, response time)
- Memory virtualization
  - Address space
  - Base/Bounds
  - Segmentation
  - Paging
    - TLB
    - Multi-level page tables
  - Swapping, copy-on-write, larger pages

## Questions you should be able to answer

- How does the operating system appear to run two processes on one CPU?
- If I'm scheduling jobs, how should I schedule them? (What does the answer depend on?)
- Why is paging better than segmentation? When is base/bounds better than paging?
- If all the processes could just get along, why have virtual memory at all?
- Processes need to run efficiently, but not be able to observe or modify unrelated processes. What does the OS need to get right for this to happen?