Exam #1

- Closed book
- Mix of short answer ~ 40%
- Longer ~ 60%

Exam #1 Topics

- Kernel and Processes
- Threads and Concurrency
- Synchronization
- Multi-object synchronization
- Scheduling
- Address Translation
- Virtual Memory

Exam #1

- What to study?
  - Your notes!
  - Skim book chapters: focus on sections we talked about in class – ignore topics we did not cover
  - Do not need to memorize minor code details

- How to study?
  - Look at homework questions in the book
  - Look at exercises in the book

Exam #1 Content

- Short question examples:
  - Contrast kernel threads with user threads – list pros of each.
  - Why is reader-writer synchronization unfair?
    - How could you make it fair?
  - What is the key insight behind the MCS protocol?
  - Contrast Hoare and Mesa semantics for CVs?
  - Why must there be a stub for process or thread create function?
  - Why must there be a stub for system calls?

Exam #1 Content

- Longer
  - Given a paging, segmentation, or multi-level AT, or some combination …
    - sketch it out, how would you translate a VA to a PA, …
  - Given this job arrival pattern: compare scheduling algorithms: measure one or more metrics
  - Use little law to do some simple queueing analysis
  - Explain the code fragment for the lock implementation(s) discussed in class
  - Run the Banker's algorithm on a resource request trace

Exam #1 Content

- Longer
  - Analyze this code for safety, progress, deadlock
- Given a memory access pattern
  - Analyze behavior of various page replacement strategies

Good luck!