

## CS 449: Final Review

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## ON THE FINAL

### Topics I

- Linking
  - Static
  - Dynamic
    - Dynamic loading
- Function calls
  - Calling convention: arguments & return values
  - Stack frames/Activation records
  - Function pointers
    - qsort

### Topics II

- Processes
  - Fork()
  - Address space, pages
- Dynamic Memory management
  - Stack
  - Heap
    - Malloc/free
    - Bitmaps
    - Linked Allocation – Best fit, first fit, next fit, worst fit

### Topics III

- System Calls
- Threading
  - Kernel Threads/User Threads
  - Thread vs process state
- Pthreads
  - Creating, yielding, joining
- Synchronization
  - Mutex, Condition Variable
  - Producer/Consumer

### Topics IV

- Networking
  - Sockets: client and server
- Device Drivers
- C and Development miscellany
  - Makefiles, header files, static keyword, extern
  - Conditional Compilation
  - Errors with perror and errno
  - Buffering

**NOT ON THE FINAL**

Not on test

- C Language stuff from first third
- Signals
- x86 assembly
- Binary/executable formats

**WHERE TO GO FROM HERE**

- **Architecture**
  - **1541 Introduction to Computer Architecture:** prerequisites: CS0445, CS0447; offered each term
  - **1567 Programming and System Design Using a Mobile Robot:** prerequisites: CS0441, CS0445; this is an honors course and admission is by special permission from the instructor only; offered once each year
- **Operating Systems**
  - **1550 Introduction to Operating Systems:** prerequisites: CS0447, CS0449; offered each term
  - **1651 Advanced Systems Software:** prerequisite: CS1550 or permission of instructor; offered once each year

- **Compilers/Programming Languages**
  - **1621 Structure of Programming Languages:** prerequisites: CS0441, CS0445; offered fall term
  - **1622 Introduction to Compiler Design:** prerequisites: CS0441, CS0447; offered spring term
- **Parallel Computing**
  - **1645 Introduction To High Performance Computing Systems:** prerequisite: CS0447 and CS1501; offered every other year
  - **1538 Introduction to Simulation:** prerequisites: CS0447, one statistics course; seldom offered

- **Networking**
  - **1652 Data Communications and Computer Networks:** prerequisite: CS1550; offered once per year