

# Outline for April 1, 2022

**Reading:** *text*, §3–6

**Assignments:** Homework and Extra Credit 1, due Apr 11

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1. Operating system overview
  - (a) I/O functions
    - i. Read data: polling, interrupts
    - ii. Direct memory access (DMA)
  - (b) Process functions
    - i. Create, delete, schedule
    - ii. Synchronize, communicate
  - (c) Memory functions
    - i. Share memory among many processes: address transformation
    - ii. Memory management
  - (d) Secondary storage functions
    - i. Space management and addressing
    - ii. When to move data; scheduling
  - (e) User interface functions
    - i. Enable users to run processes easily
  - (f) Other desirable features
    - i. Efficient
    - ii. Reliable
    - iii. Maintainable
    - iv. Small
2. Process as an abstraction
  - (a) Process is representation of a program executing
    - i. Address space
    - ii. State information (frame, stack pointer, etc.)
    - iii. resources
  - (b) CPU virtualized, so process thinks only it is using the CPU
  - (c) Scheduling policy decides which process gets CPU, and for how long
3. Process APIs
  - (a) Create process (`fork()`), delete process (`_exit()`), pause process (`wait()`, `waitpid()`)
  - (b) Miscellaneous process control
  - (c) Process status
4. Process status
5. Process table entry