

Operating Systems!

Course Wrap-Up

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Montana State University

CS 460 - Operating Systems

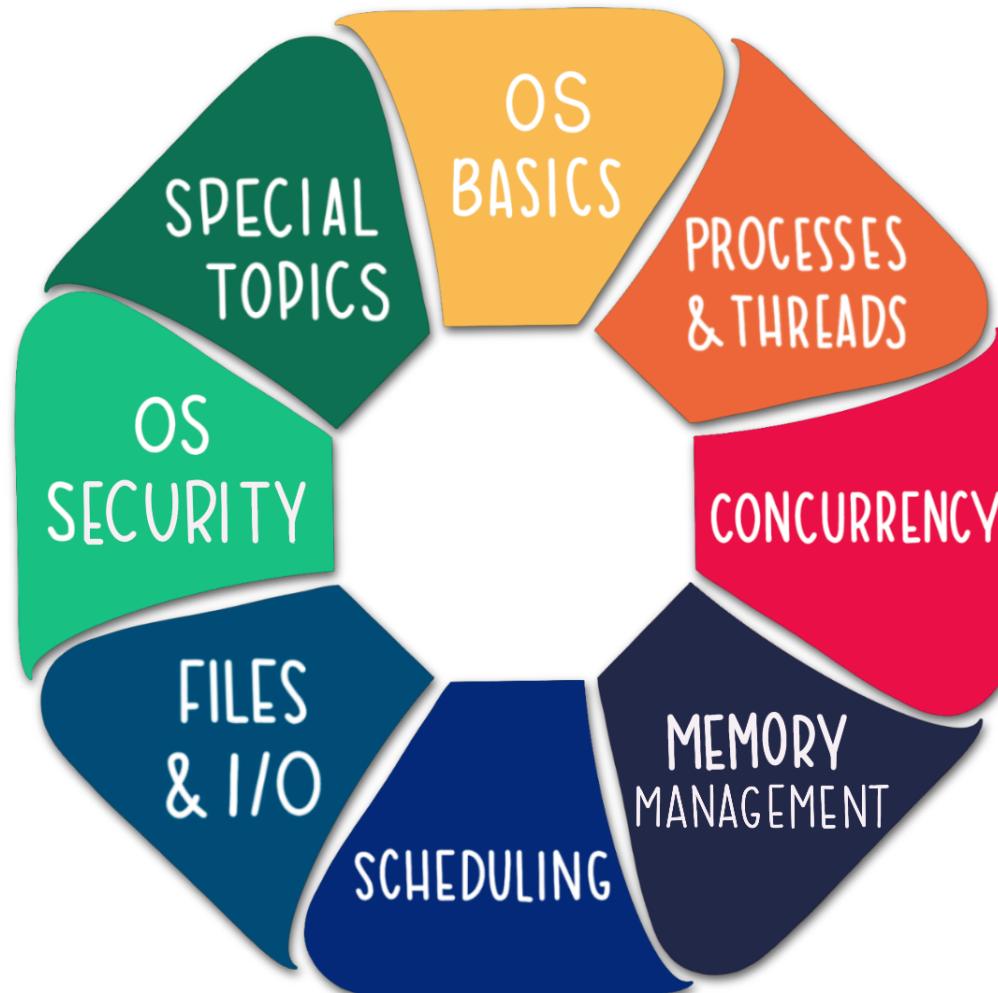
Fall 2020

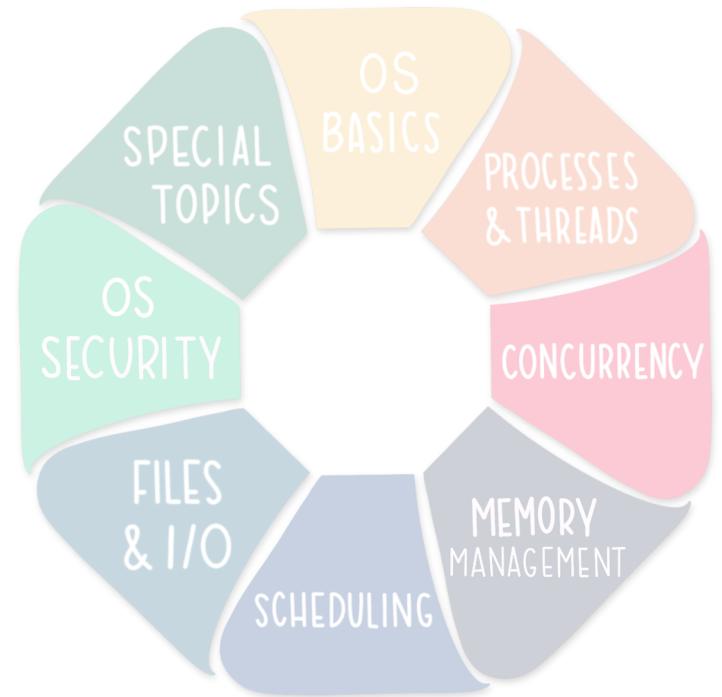
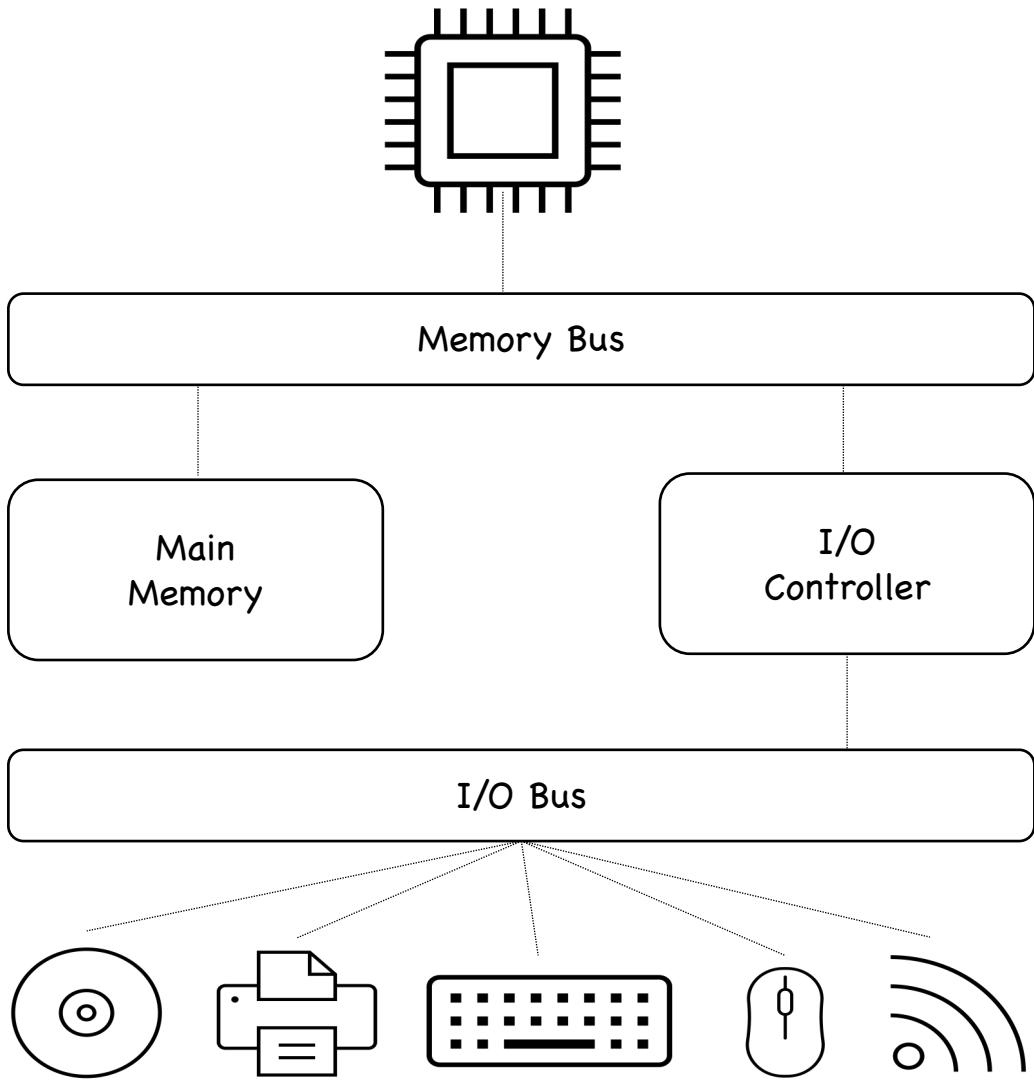
<https://www.cs.montana.edu/cs460>

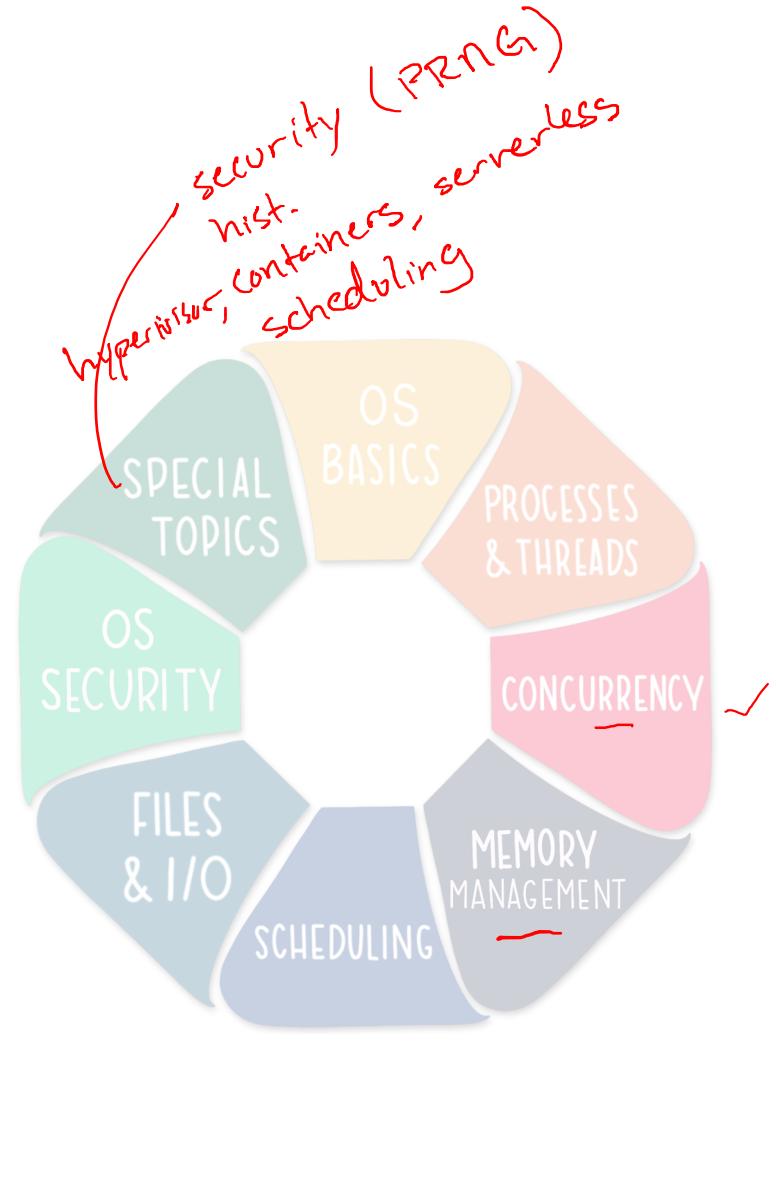
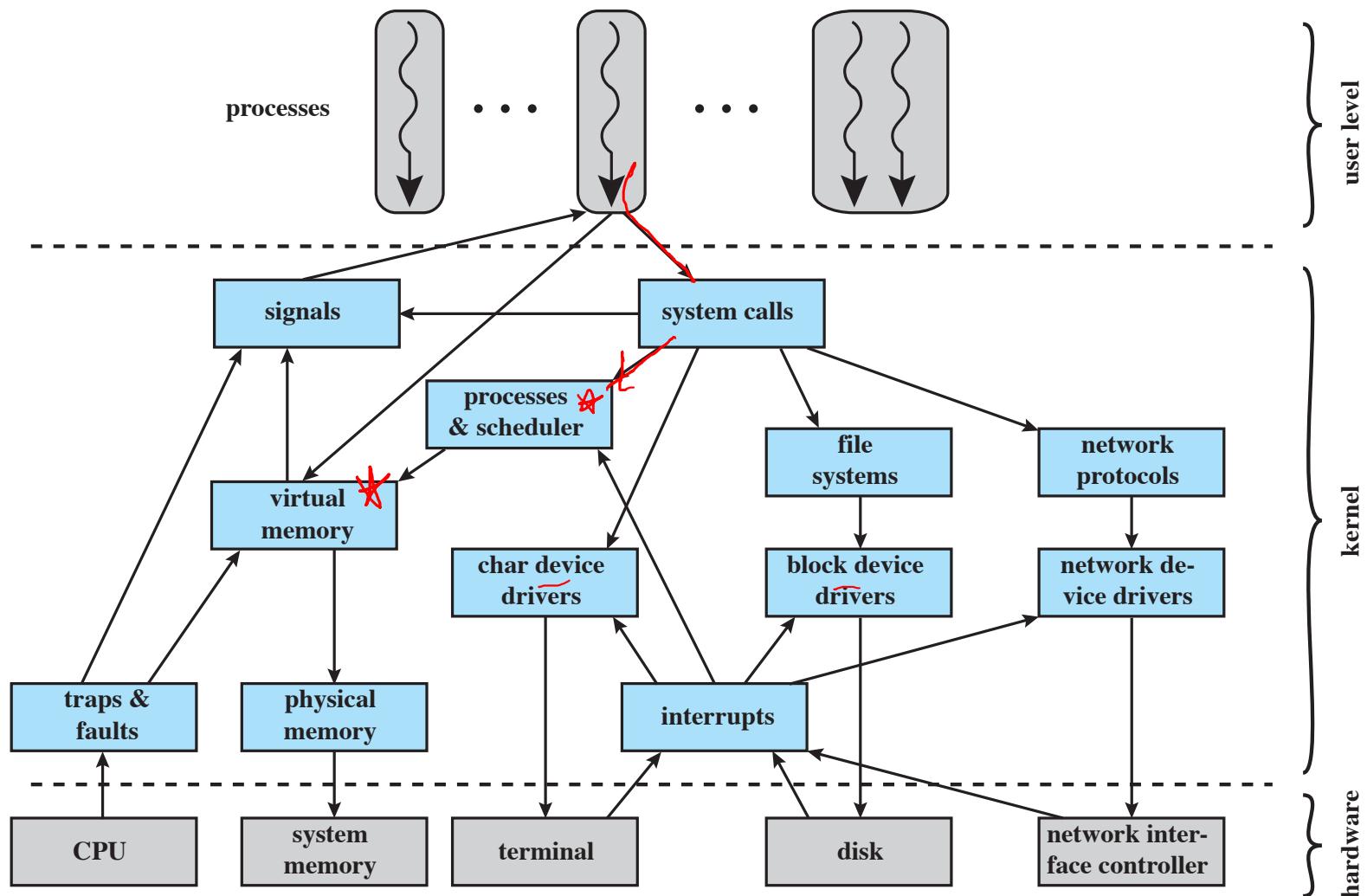
Some diagrams and notes used in this slide deck have been adapted from Sean Smith's OS courses @ Dartmouth. Thanks, Sean!

Today

- Announcements
 - *Almost done* grading Exam #2
 - *Almost done* grading Final Projects -> Awards!
 - Course eval deadline extended: 11/25/2020 @ 12PM
- Class
 - **Today:** class + office hours
 - **Wednesday:** both class + office hours canceled







Next Steps

Gimme More OS!

- Follow up with course resources:

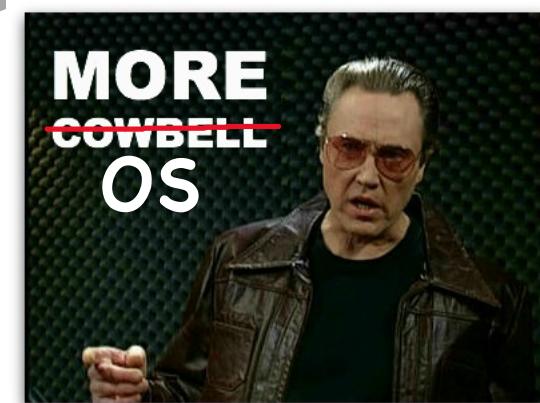
<https://www.traviswpeters.com/cs460-2020-fall/resources>

- Look over links from **Tools and Technical References**

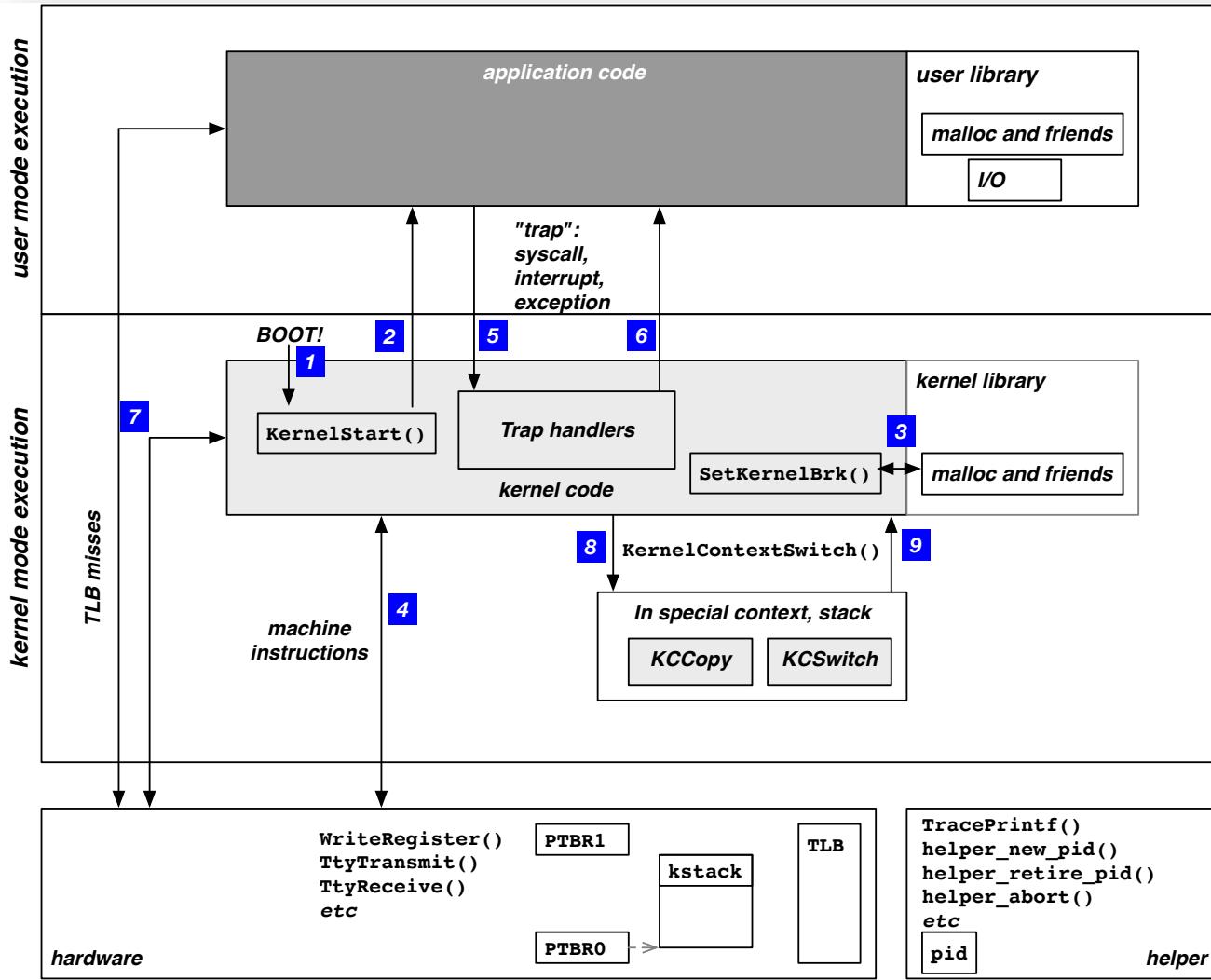
- Digging into the Linux kernel
 - More on system programming

- Spend time looking into **Articles, Research Papers, Feeds, Reading Lists**

- performance
 - recent analysis of syscalls
 - new paradigms (e.g., containers, serverless)
 - bleeding-edge designs and security features
 - architecture and hardware issues



Got Time Over Winter Break? *Try Yalnix!*



Yalnix! (≈ 6 checkpoints)

1. sketch/pseudocode kernel data structures, traps, syscalls, major functions
2. get yalnix to boot (setup virtual memory + interrupt vector) & run “Idle” process
3. get a true “Init” process to run
4. implement fork(), exec(), wait()
5. implement some I/O
6. implement other syscalls (e.g., Process Coordination, I/O, IPC, Synchronization)
7. + other fun ideas!

REMINDER!

Take Computer Security Next Semester!

CSCI 476/594 (Computer Security / Advanced Security) - Spring 2021 - Tu/Th @ 3:05-4:20pm

- **Introduction & Security Overview/Basics**
 - basic concepts
 - linux security basics
- **Software Security**
 - classics attacks: : Set-UID attacks, env. variable attacks, buffer overflow attacks (, format string attacks)
 - recent issues in SW: return-oriented programming, Shellshock attack
- **Network & Web Security**
 - SQL injection attacks, XSS
 - sniffing, spoofing, and network attacks (e.g., TCP/IP)
- **Crypto**
 - symmetric & asymmetric cryptography
 - encryption & decryption
 - digital signatures
- **Recent Topics (as time permits, e.g., side-channel attacks)**