

# CS 3400: Operating Systems

Fall 2023	Topics	Project	Reading
Aug 21-25	introduction, os interfaces	building and running xv6	xv6 ch 1, 3ep ch 1-2
Aug 28-Sep 1	processes and address spaces	hello world OS	xv6 ch 2, 3ep ch 3-5
Sep 4-8 ( <i>Labor Day</i> )		multicore, spinlocks	
Sep 11-15	stacks, context	coroutines mini-kernel	xv6 ch 3, 3ep ch 12-15
Sep 18-22	synchronization	locks	3ep ch 16-24
Sep 25-29	interrupts, context switching	kernel threads, scheduling	xv6 ch 4
Oct 2-6	virtual memory	userspace, paging	xv6 ch 5
Oct 9-13 ( <i>Fall break</i> )			
Oct 16-20	fork and exec, page tables	modes, system calls	xv6 ch 6, 3ep ch 25-30
Oct 23-27			3ep ch 31-34
Oct 30-Nov 3	userspace threads	tour rest of xv6	xv6 ch 7, 3ep ch 6-7
Nov 6-10	userspace memory management		3ep ch 8-11
Nov 13-17	file systems		xv6 ch 8, 3ep ch 35-38
Nov 20-24 ( <i>Thanksgiving</i> )		malloc and free	3ep ch 39-46
Nov 27-Dec 1	distributed file systems		xv6 ch 9, 3ep ch 47-51
Dec 4-8			

Changes to the schedule will be announced in class.

“xv6” refers to the [xv6 commentary book](#), our guide to the xv6 operating system source code.

“3ep” refers to [Operating Systems: Three Easy Pieces](#), our (free) primary text.

## Resources

- [Syllabus](#)
- [Xv6 main landing page](#)
- [Examples from class](#)
- [Multi-Threaded Programming with POSIX Threads](#)

To install the tools you need for this class using Debian 12 “Bookworm”:

```
sudo apt install git build-essential gcc-riscv64-linux-gnu gdb-multiarch qemu-system-misc
```

To start with a fresh instance of xv6:

```
git clone https://github.com/mit-pdos/xv6-riscv.git
```

In the main directory you should be able to run `make qemu` to build and launch the system. Typing `ctrl-a x` will quit.

## Presentation choices

- QNX (Nico, Tom, Brendan)
- VAX/VMS (Thomas, Chaz, Ryan L, Ryan R)
- Windows NT (Brevin, Jack, Calvin)
- ENIAC (Colby, Lexi)
- Multics (Max, Ben, Alyssa, Jerusalem)
- IBM System/360 (Hyrum, Ash, Jarod, Spencer)
- Plan 9 (Liam, Dason, Porter)

- EDSAC (Ryan C, Keaton, Gabe)