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2020

The Zoom link for the 1-2:30p lecture is in a Piazza post. Links to notes etc. on future days are copies of materials from 2019 6.S081. We will update the notes as the course progresses. The lecture notes may help you remember the lecture content, but they are *not* a replacement for attending lectures.

Monday	Tuesday	Wednesday	Thursday	Friday
aug 31 Reg Day	sep 1	sep 2 **LEC 1 (rtm):** Introduction and examples (handouts: xv6 book) video **Preparation**: Read chapter 1 (for your amusement: Unix) **Homework 1 due:** Question **Assignment**: Lab util: Unix utilities	sep 3	sep 4
sep 7 Labor Day	sep 8	sep 9 **LEC 2 (TAs/dm):** C and gdb (pointers example) **Preparation**: 2.9 (Bitwise operators) and 5.1 (Pointers and addresses) through 5.6 (Pointer arrays) and 6.4	sep 10 **DUE**: Lab util	sep 11

		(pointers to structures) by Kernighan and Ritchie (K&R) **Assignment**: Lab syscall: System calls		
sep 14 **LEC 3 (fk):** OS organization and system calls (boards) video **Preparation**: Read chapter 2 and xv6 code: kernel/proc.h, kernel/defs.h, kernel/entry.S, kernel/main.c, user/initcode.S, user/init.c, and skim kernel/proc.c and kernel/exec.c **Homework 2 due:** Question	sep 15	sep 16 **LEC 4 (fk):** Page tables (boards) video **Preparation**: Read Chapter 3 and kernel/memlayout.h, kernel/vm.c, kernel/kalloc.c, kernel/riscv.h, and kernel/exec.c **Homework 3 due:** Question **Assignment**: Lab pgtbl: Page tables	sep 17 **DUE**: Lab syscall	sep 18
sep 21 **LEC 5 (TAs/nk):** Calling conventions and stack frames RISC-V (slides) video **Preparation**: Read Calling Convention	sep 22	sep 23 **LEC 6 (rtm):** Isolation & system call entry/exit (video) **Preparation**: Read Chapter 4, except 4.6 and kernel/riscv.h, kernel/trampoline.S, and kernel/trap.c **Homework 4 due:** Question **Assignment**: Lab traps: Trap	sep 24 **DUE**: Lab pgtbl	sep 25
sep 28 **LEC 7 (fk):** Q&A labs (boards) video **Homework 5 due:** Question	sep 29	sep 30 **LEC 8 (fk):** Page faults (boards) video **Preparation**: Read Section 4.6 **Homework 6 due:** Question **Assignment**: Lab lazy: Lazy allocation	oct 1 **DUE**: Lab trap	oct 2 ADD DATE
oct 5 **LEC 9 (fk):** Interrupts (boards) video **Preparation**: Read Chapter 5 and kernel/kernelvec.S, kernel/plic.c, kernel/console.c, kernel/uart.c, kernel/printf.c **Homework 7 due:** Question	oct 6	oct 7 **LEC 10 (fk):** Multiprocessors and locking (boards) video **Preparation**: Read "Locking" with kernel/spinlock.h and kernel/spinlock.c **Homework 8 due:** Question **Assignment**: Lab cow: Copy-on-write fork	oct 8 **DUE**: Lab lazy	oct 9
oct 12 Indigenous Peoples Day	oct 13 Monday schedule Hacking day: no class meeting; work on the lab	oct 14 **LEC 11 (rtm):** Thread switching (video) **Preparation**: Read "Scheduling" through Section 7.4, and kernel/proc.c, kernel/swtch.S **Homework 9 due:** Question **Assignment**: Lab thread: Multithreading	oct 15 **DUE**: Lab cow	oct 16
oct 19 **LEC 12 (rtm):** Q&A labs (video) **Homework 10 due:** Question	oct 20	oct 21 **LEC 13 (rtm):** sleep&wakeup and code (video) **Preparation**: Read remainder of "Scheduling", and corresponding parts of kernel/proc.c, kernel/sleeplock.c **Homework 11 due:** Question **Assignment**: Lab lock: Parallelism/locking	oct 22 **DUE**: Lab thread	oct 23
oct 26 **LEC 14 (fk):** File systems (boards) (video)	oct 27	oct 28 **LEC 15 (fk):** Crash recovery (boards) video	oct 29 **DUE**: lab lock	oct 30

Preparation: Read kernel/bio.c, kernel/fs.c, kernel/sysfile.c, kernel/file.c and "File system" (except for the logging sections) **Homework 12 due:** Question		**Preparation**: Read kernel/log.c and the logging sections of "File system" **Homework 13 due:** Question **Assignment**: Lab fs: File system		
nov 2 **LEC 16 (rtm):** File system performance and fast crash recovery (video) **Preparation**: Read Journaling the Linux ext2fs Filesystem (1998) **Homework 14 due:** Question	nov 3	nov 4 **LEC 17 (fk):** Virtual memory for applications (boards) (sqrt example) (baker example) video **Preparation**: Read Virtual Memory Primitives for User Programs (1991) **Homework 15 due:** Question **Assignment**: Lab mmap: Mmap	nov 5 **DUE**: Lab fs	nov 6
nov 9 **LEC 18 (rtm):** OS Organization (video) **Preparation**: Read The Performance of micro-Kernel-Based Systems (1997) **Homework 16 due:** Question	nov 10	nov 11 Veteran's Day	nov 12	nov 13
nov 16 **LEC 19 (rtm):** Virtual Machines (video) **Preparation**: Read Dune: Safe User-level Access to Privileged CPU Features (2012) **Homework 17 due:** Question	nov 17	nov 18 **DROP DATE** **LEC 20 (fk):** Kernels and HLL (slides) video **Preparation**: Read the Biscuit paper (2018), FAQ **Homework 18 due:** Question **Assignment**: Lab net: Network stack	nov 19 **DUE**: Lab mmap	nov 20
nov 23 - nov 29 Thanksgiving				
nov 30 **LEC 21 (rtm):** Networking (video) **Preparation**: Read Receive Livelock (1996) **Homework 19 due:** Question	dec 1	dec 2 **LEC 22 (rtm):** Meltdown (video) **Preparation**: Read Meltdown (2018) **Homework 20 due:** Question	dec 3	dec 4
dec 7 **LEC 23 (rtm):** RCU notes, 2018 slides (video) **Preparation**: Read RCU paper (2013), FAQ **Homework 21 due:** Question	dec 8 **DUE**: Lab net	dec 9 LAST DAY OF CLASSES **LEC 24 (fk):** Q&A (video) **Homework 22 due:** Question	dec 10	dec 11

Questions or comments regarding S6.081? Send e-mail to the course staff at *6S081@lists.csail.mit.edu*.

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