15-213/14-513/15-513: Intro to Computer Systems, Spring 2022

Notes on links

- **pptx** links are to Powerpoint versions of the lectures
- **pdf** links are to Adobe Acrobat versions of the lectures
- **code** links are to directories containing code used for class demonstrations
- **tar** links are to archive files in TAR format. Use the `tar` command on a linux machine to unpack these

- 15-213 / 15-513 lectures are presented by Prof. Zack Weinberg (zw), Prof. Dave Andersen (dga), or Prof. Brian Railing (bpr) as indicated in the schedule. All lectures are recorded and posted on Panopto.
- 14-513 lectures are presented by Prof. David Varodayan. All lectures are recorded and posted on Panopto.

- All times (unless otherwise noted) are in Eastern Time.

Schedule **(subject to change)**

Date		Lecture/Recitation	Instructor	Reading	Labs
Jan	17	*Recitation 1:* ***No recitation — Semester starts with first lecture***			
Jan	18	Overview (pptx, pdf, video 15213, video 14513)	zw/da/bpr	1	L0 (cprogramminglab) out (pdf, tar)
Jan	20	Bits, Bytes, & Integers I (pptx, pdf, video 15213, video 14513)	zw	2.1	L1 (datalab) out (pdf, tar)
Jan	23	**Bootcamp 1: Linux, Command Line, Git** (slides, pdf, tar, video)			
Jan	24	*Recitation 2: Introductions* (slides)			
Jan	25	Bits, Bytes, & Integers II (pptx, pdf, video 15213, video 14513)	zw	2.2-2.3	L0 due
Jan	27	Machine Prog: Basics (pptx, pdf, video 15213, video 14513)	dga	3.1-3.5	L2 (bomblab) out (pdf, tar)
Jan	30	**Bootcamp 2: Debugging & GDB** (slides, pdf, tar, video)			
Jan	31	*Recitation 3: Datalab and Data Representations* (slides, pdf)			
Feb	1	Machine Prog: Control (pptx, pdf, video 15213, video 14513)	dga	3.6	
Feb	3	Machine Prog: Procedures (pptx, pdf, video 15213, video 14513)	zw	3.7	L1 due
Feb	7	*Recitation 4: Bomb Lab* (slides, pdf, tar)			
Feb	8	Machine Prog: Data (pptx, pdf, video 15213, video 14513)	zw	3.8-3.9	
Feb	10	Machine Prog: Advanced (pptx, pdf, video 15213, video 14513)	zw	3.10	L2 due, L3 (attacklab) out (pdf, tar)
Feb	13	**Bootcamp 3: GCC & Build Automation** (slides, pdf, tar, video)			
Feb	14	*Recitation 5: Attack Lab and Stacks* (slides, pdf, tar)			
Feb	15	The Memory Hierarchy (pptx, pdf, video 15213, video 14513)	dga	6.1-6.3	
Feb	17	Cache Memories (pptx, pdf, video 15213, video 14513)	dga	6.4-6.7	L3 due, L4 (cachelab) out (pdf, tar)
Feb	20	**Bootcamp 4: C Programming** (slides, tar, video)			
Feb	21	*Recitation 6: C Review* (slides, pdf, tar)			
Feb	22	Design and Debugging (pptx, pdf, video 15213, video 14513)	dga		
Feb	24	Code Optimization (pptx, pdf, video 15213, video 14513)	zw	5	
Feb	28	*Recitation 7: Caches & Blocking* (slides)			
Mar	1	Dynamic Memory Allocation: Basic (pptx, pdf, video 15213, video 14513)	zw	9.9	
Mar	3	Dynamic Memory Allocation: Advanced (pptx, pdf, video 15213, video 14513)	zw	9.10-9.12	L4 due, L5 (malloclab) out (pdf, tar)

Mar	7	***No recitation — spring break***			
Mar	8	**No class — spring break**			
Mar	10	**No class — spring break**			
Mar	14	*Recitation 8: Malloc lab (Part I)* (slides)			
Mar	15	Linking (pptx, pdf, video 15213, video 14513)	zw	7	
Mar	17	Virtual Memory: Concepts (pptx, pdf, video 15213, video 14513)	dga	9.1-9.6	
Mar	20	**Bootcamp 5: Malloc** (slides)			
Mar	21	*Recitation 9: Malloc lab (Part II)* (slides, tar)			
Mar	22	Virtual Memory: Systems (pptx, pdf, video 15213, video 14513)	dga	9.7-9.8	L5a Due
Mar	24	ECF: Exceptions & Processes (pptx, pdf, video 15213, video 14513, stack-cache, float, assembly)	zw	8.1-8.4	
Mar	28	*Recitation 10: Processes, signals* (slides, tar)			
Mar	29	ECF: Signals & Nonlocal Jumps (pptx, pdf, video 15213, video 14513)	zw	8.5-8.8	L5b Due, L6 (tshlab) out (pdf, tar)
Mar	31	System Level I/O (pptx, pdf, video 15213, video 14513)	dga	10	
Apr	4	*Recitation 11: Shell lab* (slides)			
Apr	5	Network Programming (Part I) (pptx, pdf, video 15213, video 14513)	dga	11.1-11.4	
Apr	7	**No class — Carnival**			
Apr	11	*Recitation 12: Networking and Proxy* (slides, tar)			
Apr	12	Network Programming (Part II) (pptx, pdf, video 15213, video 14513, lecture code)	dga	11.4-11.6	L7 (proxylab) out (pdf, tar)
Apr	14	Concurrent programming (pptx, pdf, video 15213, video 14513)	dga	12.1-12.3	L6 Due
Apr	18	*Recitation 13: Synchronization* (slides)			
Apr	19	Synchronization: Basic (pptx, pdf, video 15213, video 14513)	zw	12.4, 12.5.1-3	
Apr	21	Synchronization: Advanced (pptx, pdf, video 15213, video 14513)	zw	12.5.4-5, 12.7-8	L7a due
Apr	25	*Recitation 14: Exam review* (slides)			
Apr	26	Thread-Level Parallelism (pptx, pdf, video 15213, video 14513)	dga	12.6	
Apr	28	Future of Computing (pptx, pdf, video 15213)	dga		L7b due
May	1	**Final Exam Review** (slides)			
May	6	**Final Exam: 1–4pm**			