

Week	Date	Time	Presentation	Starts	Ends	Additional Comments
1	08/19/2021	9:35 AM - 10:50 AM	Introduction	1	14	Lecture: Syllabus, CIA Triad, Zero-day, Bugs.
2	08/23/2021	10:20 AM - 11:10 AM	Introduction Discussion	15	20	Lecture: Marketplace, Stuxnet, Areas. Demo: Seed Lab.
2	08/24/2021	9:35 AM - 10:50 AM	Memory Corruption	1	13	Lecture: Software security, Buffer overflow.
2	08/26/2021	9:35 AM - 10:50 AM	Memory Corruption	14	26	Lecture: Buffer overflow, Integer overflow.
3	08/30/2021	10:20 AM - 11:10 AM	Discussion			Demo: Buffer Overflow.
3	08/31/2021	9:35 AM - 10:50 AM	Memory Corruption	27	39	Lecture: Integer overflow, Format string vulnerability.
3	09/02/2021	9:35 AM - 10:50 AM	Memory Corruption	40	53	Lecture: Use-After-Free, Double Free.
4	09/06/2021	No Class	Labor day.			
4	09/07/2021	9:35 AM - 10:50 AM	Shellcoding	1	17	Lecture: Shellcode, Position independent code, Return-to-libc.
4	09/09/2021	9:35 AM - 10:50 AM	Shellcoding	18	35	Lecture: Return-oriented Programming, Ret2Ret, Ret2eax.
5	09/13/2021	10:20 AM - 11:10 AM	Quiz Discussion			Demo: CTF. Topics: Software attacks. Lab 1: Buffer overflow.
5	09/14/2021	9:35 AM - 10:50 AM	Race and Spray	1	19	Lecture: Race Condition. Homework 1: Software vulnerability analysis.
5	09/16/2021	9:35 AM - 10:50 AM	Race and Spray	20	27	Lecture: Heap Spray Attack.
6	09/20/2021	10:20 AM - 11:10 AM	Discussion			Demo: Return-to-libc.
6	09/21/2021	9:35 AM - 10:50 AM	Software Defense	1	17	Lecture: Canary.
6	09/23/2021	9:35 AM - 10:50 AM	Software Defense	18	34	Lecture: Shadow Stack, W^X/DEP, ASLR.
7	09/27/2021	10:20 AM - 11:10 AM	Discussion			Demo: Vulnerability Marketplace.
7	09/28/2021	9:35 AM - 10:50 AM	Software Defense	35	50	Lecture: Obfuscation, Reference monitor. Homework 2: Shellcoding.
7	09/30/2021	9:35 AM - 10:50 AM	Program Analysis	1	21	Lecture: Program analysis, Static analysis.
8	10/04/2021	10:20 AM - 11:10 AM	Quiz Discussion			Topics: Software defense mechanism. Lab 2: Return-to-Libc. Demo: Format string.
8	10/05/2021	9:35 AM - 10:50 AM	Program Analysis	22	36	Lecture: Dynamic analysis, Sanitizer.
8	10/07/2021	9:35 AM - 10:50 AM	Program Analysis	37	43	Lecture: Concolic analysis.
9	10/11/2021	10:20 AM - 11:10 AM	Midterm Exam			Topics: Introduction, Memory Corruption, Shellcoding, Race and Spray, Software Defense, and Program Analysis.
9	10/12/2021	9:35 AM - 10:50 AM	Fuzzing	1	22	Lecture: AFL fuzzer.
9	10/14/2021	9:35 AM - 10:50 AM	Cryptography	1	15	Lecture: Intro Crypto, Stream Cipher, Block Cipher.
10	10/18/2021	10:20 AM - 11:10 AM	Discussion			Demo: AFL fuzzer.
10	10/19/2021	9:35 AM - 10:50 AM	Cryptography	16	33	Lecture: Public-private Key, Hash function, Signature, PKI.
10	10/21/2021	9:35 AM - 10:50 AM	Code Injection	1	17	Lecture: SQL Injection.
11	10/25/2021	10:20 AM - 11:10 AM	Quiz Adjustment			Topics: Software bug detection and cryptography. Lab 3: Format string.
11	10/26/2021	9:35 AM - 10:50 AM	Code Injection	18	38	Homework 3: Hands-on cryptography.
11	10/28/2021	9:35 AM - 10:50 AM	Advanced Web Attacks	1	18	Lecture: XSS.
12	11/01/2021	10:20 AM - 11:10 AM	Discussion			Demo: Web attack.
12	11/02/2021	9:35 AM - 10:50 AM	Advanced Web Attacks	19	27	Lecture: XSS.
12	11/04/2021	9:35 AM - 10:50 AM	Advanced Web Attacks	28	45	Lecture: XEE,Serialization.
13	11/08/2021	10:20 AM - 11:10 AM	Discussion			Demo: Compiler instrumentation.
13	11/09/2021	9:35 AM - 10:50 AM	Mobile Security	1	17	Lecture: Threats, Android OS, Permission Delegation, Malware, STAMP.
13	11/11/2021	9:35 AM - 10:50 AM	Network Security	1	18	Lecture: Network threats, Physical attacks, packet sniffing, smurf attacks, ARP spoofing, SYN flood attack.
14	11/15/2021	10:20 AM - 11:10 AM	Quiz Adjustment			Topics: Web security, and Mobile security. Lab 4: Cross-Site Scripting.
14	11/16/2021	9:35 AM - 10:50 AM	Network Security	19	30	Lecture: TCP connection spoofing, DDoS, DNS attack, BGP security.
14	11/18/2021	9:35 AM - 10:50 AM	Network Security	31	40	Lecture: Firewall, IDS.
15	11/22/2021	10:20 AM - 11:10 AM	Discussion			Demo: Rust Language.
15	11/23/2021	9:35 AM - 10:50 AM	Hardware, IoT, and CPS Security	1	16	Lecture: Secure boot, Side channel attack, Meltdown, Spectre, IoT security. Homework 4: Paper review on fuzzing.
15	11/25/2021	No Class	Thanksgiving.			

16	11/29/2021	10:20 AM - 11:10 AM	Quiz Adjustment			Topics: Network security and protocols; Hardware, IoT, CPS security.
16	11/30/2021	9:35 AM - 10:50 AM	Isolation	1	16	Lecture: Confinement, Jailkit.
16	12/02/2021	9:35 AM - 10:50 AM	Isolation	17	31	Lecture: VM, TEE.
17	12/06/2021	10:20 AM - 11:10 AM	Adjustment			
17	12/07/2021	9:35 AM - 10:50 AM	Data Security	1	18	Lecture: AI security, Privacy, Forensics.
-	12/15/2021	N/A	Final Exam			Topics: Everything.
-	12/20/2021	N/A	Grades Due			