Syllabus

Week 1:  Dates: Oct. 2  
Topics: Overview of computer security; access control matrix  
Reading: text, §1, 2

Week 2:  Dates: Oct. 7, Oct 9  
Topics: HRU result; ACL, C-lists, lock-and-key, PACLs  
Reading: text, §3.1–3.2, 15; paper [TL13]

Week 3:  Dates: Oct. 14, Oct. 16  
Topics: Policy models: general, confidentiality, integrity, availability; domain-specific  
Reading: text, §4.1–4.4, 5.1–5.2.2, 5.3, 6.1–6.2, 6.4, 7; papers [PS04, WB04]  
Due: Project selection (due Oct. 16); Homework 1 (due Oct. 16)

Week 4:  Dates: Oct. 21, Oct. 23  
Topics: Malware; vulnerabilities: models, classification schemes  
Reading: text, §22, 23; papers [KCR+10, KWG+12]

Week 5:  Dates: Oct. 28, Oct. 30  
Topics: Assurance and formal verification  
Reading: text, §18; paper [M79]  
Due: Homework 2 (due Oct. 30)

Week 6:  Dates: Nov. 4, Nov. 6  
Topics: Basic cryptography: classical, public key, digital signatures  
Reference: text, §9, 10; papers [M78, RSA78]  
Due: Project progress report (due Nov. 6)

Week 7:  Dates: Nov. 13; no class on Nov. 11 (Veteran’s Day)  
Topics: Authentication  
Reading: text, §12; paper [HO12]  
Due: Homework 3 (due Nov. 13)

Week 8:  Dates: Nov. 18, Nov. 20  
Topics: Basic intrusion detection: types, methods  
Reading: text, §25

Week 9:  Dates: Nov. 25; no class on Nov. 27 (Thanksgiving Day)  
Topics: Information flow  
Reading: text, §16; paper [BDU07]  
Due: Homework 4 (due Nov. 25)

Week 10: Dates: Dec. 2, Dec. 4  
Topics: Network security: firewalls, servers, protocols, architectures; network attacks  
Reading: papers [CJM05, YCM+06]

Week 11: Dates: Dec. 9, Dec. 11  
Topics: Special topics: cyber-physical systems, insiders, elections  
Reading: papers [BSH+09, SEC+10]  
Due: Homework 5 (due Dec. 11)

Dec. 15: Due: Completed project due at 10:00am

References


[KCR+10] K. Koscher, A. Czeskis, F. Roesner, S. Patel, T. Kohno, S. Checkoway, D. McCoy, B. Kantor, D. Anderson, H. Shacham, and S. Savage, “Experimental Security Analysis of a Modern Automobile,” *Proceedings of the 2010 IEEE Symposium on Security and Privacy* pp. 447–462 (May 2010). doi: [10.1109/SP.2010.34](http://dx.doi.org/10.1109/SP.2010.34)


