

Syllabus

This syllabus is *tentative* and will undoubtedly continue to change as the quarter progresses. If there is a topic you're interested in but not shown, please let me know; I may well change things to cover it. All readings are from the text unless otherwise indicated.

- Week 1:** **Dates:** Mar 31, Apr 2, 4
Topics: Reference monitor, access control matrix, safety question, take-grant model, SPM
Reading: *text*, §2, 3–3.4, 20.1.2.2; papers [TL13, Z+05]
- Week 2:** **Dates:** Apr 7, 9, 11 **[No class on Apr 9]**
Topics: Expressive power of models, comparing models, security policies
Reading: *text*, §3.4–3.7, 4; paper [Bi96]
- Week 3:** **Dates:** Apr 14, 16, 18
Topics: Confidentiality policies, Bell-LaPadula Model, Tranquility, System Z, integrity models, Biba, Clark-Wilson
Reading: *text*, §5, 6.1–6.2, 6.4, A; paper [Sa93]
Due: Apr 14: homework 1; Apr 16: project selection
- Week 4:** **Dates:** Apr 21, 23, 25
Topics: Trust models, availability models, hybrid models, Chinese Wall model, CISS model, OR-CON
Reading: *text*, §6.5, 7, 8.1–8.3; papers [A+10, J+11, LO10]
- Week 5:** **Dates:** Apr 28, 30, May 2
Topics: RBAC, break-the-glass policies, traducement, basic policy composition, noninterference
Reading: *text*, §8.4–8.5, 9.1–9.2; papers [E+03, KR02, WB04]
Due: Apr 28: homework 2
- Week 6:** **Dates:** May 5, 7, 9
Topics: Noninterference, unwinding theorem, nondeducibility, restrictiveness
Reading: *text*, §7.3–7.4, 8; papers [A+10, D+11, E+03, WB04]
Due: May 7: project progress report
- Week 7:** **Dates:** May 12, 14, 16
Topics: Assurance overview, assurance in building systems, assurance in design
Reading: *text*, §9; paper [B+07]
Due: May 12: homework 3
- Week 8:** **Dates:** May 19, 21, 23 **[No class this week]**
Topics: Entropy, information flow
Reading: *text*, §17, C; paper [B+07, SA06]
- Week 9:** **Dates:** May 26, 28, 30 **[May 26 is a University holiday]**
Topics: Principles of secure design, confinement problem, isolation
Reading: §14, 18–18.2; papers [S+06, KR02]
- Week 10:** **Dates:** Jun 2, 4
Topics: Covert channel analysis, malware
Reading: §18.3, 23.8
Due: Jun 4: homework 4
- Jun 6:** **Due:** Completed project due at 3:00pm

References

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- [Bi96] M. Bishop, “Conspiracy and Information Flow in the Take-Grant Protection Model,” *Journal of Computer Security* **4**(4) pp. 331–359 (1996). DOI: 10.3233/JCS-1996-4404
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- [LO10] G. Loukas and G. Öke, “Protection Against Denial of Service Attacks: A Survey,” *The Computer Journal* **53**(7) pp. 1020–1037 (2010). DOI: 10.1093/comjnl/bxp078
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