**Software Security Engineering Syllabus**

* **All assignments are due on the date shown**.

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| **Lecture** | **Topic** | **Reading** | **Assignment Due** |
| 01 | Course outline, grading criteria, definitions, principles ([slides](https://blackboard.andrew.cmu.edu/bbcswebdav/pid-269292-dt-content-rid-2260394_1/xid-2260394_1)) | [Malware Drone](https://blackboard.andrew.cmu.edu/bbcswebdav/pid-269292-dt-content-rid-2260356_1/xid-2260356_1), [Drone Virus paper](https://blackboard.andrew.cmu.edu/bbcswebdav/pid-269292-dt-content-rid-2260355_1/xid-2260355_1), [HICSS principles paper](https://blackboard.andrew.cmu.edu/webapps/blackboard/content/content/file?cmd=view&mode=designer&content_id=_268908_1&course_id=_1907357_1), [Saltzer & Schroeder principles paper](https://blackboard.andrew.cmu.edu/bbcswebdav/pid-269292-dt-content-rid-2260358_1/xid-2260358_1) |  |
| 02 | Lifecycle models with security, maturity models such as BSIMM, SAFEcode, OWASP ([slides](https://blackboard.andrew.cmu.edu/bbcswebdav/pid-269292-dt-content-rid-2261458_1/xid-2261458_1)) | Software Security Engineering - Chapters 1 & 2 | [HW1](https://blackboard.andrew.cmu.edu/bbcswebdav/pid-269292-dt-content-rid-2260354_1/xid-2260354_1) |
| 03 | Requirements engineering and SQUARE ([slides](https://blackboard.andrew.cmu.edu/bbcswebdav/pid-269292-dt-content-rid-2264900_1/xid-2264900_1)) | Software Security Engineering Chapter 3, [Beckers 2012](https://blackboard.andrew.cmu.edu/bbcswebdav/pid-269292-dt-content-rid-2264901_1/xid-2264901_1), [Khan 2009](https://blackboard.andrew.cmu.edu/bbcswebdav/pid-269292-dt-content-rid-2264902_1/xid-2264902_1) | [Case 1](https://blackboard.andrew.cmu.edu/bbcswebdav/pid-269292-dt-content-rid-2261457_1/xid-2261457_1) , use a MSE or MSIT project |
| 04 | SQUARE for Acquisition [(slides)](https://blackboard.andrew.cmu.edu/bbcswebdav/pid-269292-dt-content-rid-2267153_1/xid-2267153_1) | SQUARE report, SQUARE for Acquisition paper [(A-Square website)](http://www.cert.org/sse/square/a-square.html) | HW2 |
| 05 | Guest Lecture – Mission Thread Analysis with Carol Woody [(slides)](https://blackboard.andrew.cmu.edu/bbcswebdav/pid-269292-dt-content-rid-2279529_1/xid-2279529_1) | TBD |  |
| 06 | Threat Modeling including real-world example [(slides)](https://blackboard.andrew.cmu.edu/bbcswebdav/pid-269292-dt-content-rid-2282786_1/xid-2282786_1) | Software Security Engineering Chapter 4, Microsoft papers, Threat Modeling papers | Case 3 |
| 07 | Guest Lecture - Risk Management and Measurement with Chris Alberts [(slides)](https://blackboard.andrew.cmu.edu/bbcswebdav/pid-269292-dt-content-rid-2285616_1/xid-2285616_1) | [A Systemic Approach for Assessing Software Supply-Chain Risk](https://blackboard.andrew.cmu.edu/bbcswebdav/pid-269292-dt-content-rid-2284323_1/xid-2284323_1) , [Risk driver sets](https://blackboard.andrew.cmu.edu/bbcswebdav/pid-269292-dt-content-rid-2287034_1/xid-2287034_1) , [MRD Workbook](https://blackboard.andrew.cmu.edu/bbcswebdav/pid-269292-dt-content-rid-2287035_1/xid-2287035_1) , [Risk Exercise](https://blackboard.andrew.cmu.edu/bbcswebdav/pid-269292-dt-content-rid-2287036_1/xid-2287036_1) , [Risk Case Study](https://blackboard.andrew.cmu.edu/bbcswebdav/pid-269292-dt-content-rid-2287037_1/xid-2287037_1) |  |
| 08 | Threat Modeling (Continued) [(slides)](https://blackboard.andrew.cmu.edu/bbcswebdav/pid-269292-dt-content-rid-2290790_1/xid-2290790_1) | Software Security Engineering – Chapters 5 | HW 3, Case 4 |
| 09 | Attack Surface, Inspecting for security, Measuring for security | Software Security Engineering – Chapters 6 | Case 5 |
| 10 | Guest Lecture - Secure Coding with David Svoboda  [(slides)](https://blackboard.andrew.cmu.edu/bbcswebdav/pid-269292-dt-content-rid-2301131_1/xid-2301131_1) | Software Security Engineering – Chapters 7, 8 | HW 4 |
| 11 | Implementing a software security engineering strategy, Class wrapup |  | HW 5, Final case study report |