CSCE 5550 Introduction to Computer Security

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Course description: The aim of this course is to introduce the concepts and principles of computer security and privacy. It covers both theoretical and practical aspects of computer security, including security models and assurance, OS and network security, common security threats and countermeasures against them, cryptography, risk management and data privacy.

Course syllabus

Week 1  08/30  Course introduction and overview of computer security
       09/01  Fundamentals of secure systems design
Week 2  09/06  OSI layers and their security I
       09/08  OSI layers and their security II
Week 3  09/13  Routing security and DOS attacks
       09/15  Firewalls and VPNs
Week 4  09/20  Intrusion Detection and Network Data Audit
       09/22  Access Control and OS Security I
Week 5  09/27  Access Control and OS Security II
       09/29  Security policies and multilevel security models I
Week 6  10/04  Security policies and multilevel security models II
       10/06  Control hijacking attacks, buffer overflow
Week 7  10/11  Countermeasures against control hijacking
       10/13  Malware
Week 8  10/18  Summary of the material covered so far
       10/20  Midterm Exam
Week 9  10/25  Cryptography
       10/27  Key management and network security
Week 10 11/01  User identification
        11/03  Web security I
Week 11 11/08  Web security II
        11/10  Database security
Week 12 11/15  Secure coding and software analysis
        11/17  Virtualization security
Week 13 11/22  Vulnerability analysis
        11/24  No class – Thanksgiving break
Week 14 11/29  Data privacy and anonymization
        12/01  IT security management and risk assessment
Week 15 12/06  Legal aspects and ethics
        12/08  Summary of the course material
Week 16 12/13: Final Exam
Recommended textbooks:


Supplementary reading: