

IS2150/TEL2810 Introduction to Security, Room 501  
Tuesdays, Fall 2012, Tentative Course Schedule

| <i>Week #</i>    | <i>Topic</i>  | <i>Objective:</i> The students are expected to have the following capability after the lecture   | <i>Testing</i>  |
|------------------|---|--|---|
| Week 1<br>Aug 28 | Introduction<br>(Chapter 1)                                     | <ul style="list-style-type: none"> <li>• <i>Define/Describe/explain</i> some key security terms</li> <li>• <i>Describe/explain</i> the importance of trust, assurance and operational issues within the security area</li> </ul>   | <ul style="list-style-type: none"> <li>• <b>Reading Assignment</b></li> </ul>   |
| Week 2<br>Sept 4 | Secure Design Principles;<br>Access control in Unix and Windows | <ul style="list-style-type: none"> <li>• <i>Explain</i> the secure design principles and its importance</li> <li>• <i>Recognize</i> the basic access control mechanism in OS</li> <li>• <i>Use</i> access control commands to <i>manipulate</i> permissions in the OS</li> </ul>                             | <ul style="list-style-type: none"> <li>• <b>Lab 1</b> (2 Weeks)</li> <li>• <b>Homework 1</b> (2 weeks)</li> </ul>   |
| Week 3<br>Sep 11 | Mathematical Review;<br>Security Policy                         | <ul style="list-style-type: none"> <li>• <i>Write</i> a sentence in logic form and <i>interpret</i> the logic expressions</li> <li>• <i>Solve</i> problems using mathematical induction</li> <li>• <i>Interpret, analyze and construct</i> lattice structures</li> </ul>                                     | <ul style="list-style-type: none"> <li>• <b>Quiz 1</b> (for Week 1 and 2)</li> <li>• <b>Reading Assignment</b></li> </ul>   |
| Week 4<br>Sep 18 | HRU Access Control Matrix<br>-                                  | <ul style="list-style-type: none"> <li>• <i>Represent/Describe</i> formally the safety problem using ACM</li> <li>• <i>Reason and Demonstrate</i> the undecidability result related to security</li> </ul>   | <ul style="list-style-type: none"> <li>• <b>Homework 2</b> (2 Weeks)</li> </ul>   |
| Week 5<br>Sep 25 | Confidentiality, Integrity, Hybrid Policy Models                | <ul style="list-style-type: none"> <li>• <i>Explain</i> the confidentiality, integrity and hybrid policy models and <i>relate</i> them to application needs</li> <li>• <i>Employ</i> them to new applications and synthesize solution</li> <li>• <i>Understand/Explain</i> general privacy issues</li> </ul> | <ul style="list-style-type: none"> <li>• <b>Quiz 2:</b> (for Week 4)</li> <li>• <b>Lab 2</b> (Due: After October Break)</li> <li>• <b>Homework 3</b> (2 Weeks)</li> </ul> |
| Week 6<br>Oct 2  | Privacy   |  |   |
| Oct 9            | <b>October Break (no Tuesday classes)</b>                       |  |   |
| Week 8<br>Oct 16 | Basics of Cryptography<br>Overview of Java Crypto features      | <ul style="list-style-type: none"> <li>• <i>Recognize/explain</i> and use the basic cryptographic techniques</li> <li>• <i>Understand and use</i> Java Cryptographic extensions</li> </ul>   | <ul style="list-style-type: none"> <li>• <b>Review for midterm</b></li> </ul>   |

**Homeworks/Labs are due by the end of the due date, i.e., by 11:59PM**

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*Tuesdays, Fall 2012, Tentative Course Schedule (Cont.)*

|                   |  |   |   |
|-------------------|--|---|---|
| Week 9<br>Oct 23  | <b>Midterm</b>   | <b>Programming Project/Assignment</b><br>Java programming Assignment (Due: Dec 7)   |   |
| Week 10<br>Oct 6  | Network Security; Authentication and Identity                        | <ul style="list-style-type: none"> <li>• <i>Explain and employ</i> the basic network security (e.g., authentication) techniques</li> </ul>  | <ul style="list-style-type: none"> <li>• <b>Homework 4 (Crypto/NetSec)</b> (2 Week)</li> <li>• <b>Lab 3</b> (firewall) given out in start of week 10 (Due: Nov 15)</li> </ul> |
| Week 11<br>Nov 6  | Security Evaluation, Risk Management, Legal and Ethical Issues       | <ul style="list-style-type: none"> <li>• <i>Explain</i> the main idea behind common criteria</li> <li>• <i>Recognize</i> the importance of risk management process and <i>employ</i> it to <i>assess</i> and <i>solve</i> organizational security</li> <li>• <i>Recognize, define/explain</i> legal and ethical concerns related to security</li> </ul> | <ul style="list-style-type: none"> <li>• <b>Reading Assignment</b></li> </ul>   |
| Week 12<br>Nov 13 | Malicious Code, Software security                                    | <ul style="list-style-type: none"> <li>• <i>Recognize, compare/contrast, explain</i> different types of malicious code</li> <li>• <i>Recognize, compare/contrast, explain</i> different types of coding related software issues</li> </ul>  | <ul style="list-style-type: none"> <li>• <b>Quiz 3</b> (for Week 11)</li> <li>• <b>Lab 4</b> (Before Final)</li> </ul>  |
| Week 13<br>Nov 20 | Vulnerability Analysis; IDS; Auditing; Firewalls                     | <ul style="list-style-type: none"> <li>• <i>Recognize, classify and compare</i> vulnerability (taxonomy/classification)</li> <li>• <i>Recognize, explain and analyze</i> auditing/IDS/Auditing systems</li> </ul>   |   |
| Week 14<br>Nov 27 | Overview of security of emerging systems (cloud, SN, BigData Privacy | <ul style="list-style-type: none"> <li>• <i>Recognize, explain</i> the basic security and privacy issues in new systems</li> <li>• <i>Understand, explain</i> privacy models and approaches</li> </ul>  | <ul style="list-style-type: none"> <li>• <b>Quiz 4</b> (for Week 12, 13)</li> </ul>   |
| Week 15<br>Dec 4  | Misc/Review/Project demos  |   |   |
| Dec 11            | <b>Final</b>   |   |   |