Syllabus - January 2016

Instructors

• **Martin Lindner**
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  - Office Hours: By Appointment
  - PGP/GPG Information:
    - Key ID: 0xD49B43A3
    - Fingerprint: D1A9 E5BD DF94 9E26 FA30 9215 A572 F26D D49B 43A3

• **Deana Shick**
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    - Key ID: 0xCA4627CA
    - Fingerprint: 6E4A 3C05 72F9 7FBB 44F6 949B ACA9 CIA1 CA46 27CA

Course Description
The course examines Internet security from the perspective of information system managers and administrators. The course focuses on high level technical details of the Internet, its operations, and security issues. Class projects will focus upon critical thinking for managers and administrators responsible for providing Internet security services.

Course Objectives

- Explore fundamental principles of information security
- Examine security implications of current technologies
- Consider security requirements of future technologies
- Enhance overall understanding of information security

Communications

- Course Materials posted in Blackboard
  - https://blackboard.andrew.cmu.edu/
- Homework and Other Communications is done via email:
  - To: mml@andrew.cmu.edu dshick@andrew.cmu.edu
  - Subject: “95-753 .....”
  - All email must be PGP/GPG signed

Textbooks (Optional)

  - Author: William Stallings
  - Publisher: Prentice Hall 2011
  - ISBN: 978-0136108054

Textbooks (Optional)

- Introduction to Computer Security
  - Author: Matt Bishop
  - Publisher: Addison-Wesley 2004
Performance Evaluation

- 70% - 5 Homework Assignments
  - Assignment 1 (10%)
  - Assignment 2 (20%)
  - Assignment 3 (20%)
  - Assignment 4 (20%)
- 30% - Final

Homework Assignments

- Email must be PGP/GPG signed
- Microsoft Word
- Homework must be received in my “inbox” before the start of class
  - I’ll responded with a signed copy of your document (e.g., a receipt)
- Late homework will not be accepted!
- Please remember to include citations!
- Please don’t cite Wikipedia

Homework - Working in Groups

- Groups no larger than 4 people
- Assignments must include a “Peer Review” from each member of the group.
- Must be submitted before I begin grading
- Any disputes must be resolved before I’ll begin grading
- Please Note: The bigger the group, the higher my expectations of the work
## Evaluation Rubric

<table>
<thead>
<tr>
<th>Performance Element</th>
<th>Sophisticated</th>
<th>Competent</th>
<th>Not Competent</th>
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<tbody>
<tr>
<td><strong>Conduct Research</strong></td>
<td>Uses multiple sources, successfully locate appropriate and important information.</td>
<td>Use multiple sources, successfully locate a few pieces of appropriate information but overlook at least one key piece of information.</td>
<td>Use a source to locate some information successfully but overlook more than one key piece of information.</td>
</tr>
<tr>
<td><strong>Completeness</strong></td>
<td>Covers all questions. Proper discrimination used in including information on important related issues. No superfluous information included. Includes all proper attribution. Reference to previous answers when necessary in answering subsequent questions with little or no repetition.</td>
<td>Covers all questions making it clear what issue is being addressed. Includes attribution. Refers to parts of previous answers when necessary in answering subsequent questions.</td>
<td>Covers most questions but may answer multiple questions together without distinguishing which question is being addressed. Includes unnecessary information. Does not include reference to research.</td>
</tr>
<tr>
<td><strong>Conclusions</strong></td>
<td>Uses information to draw logical conclusions. Supports conclusions</td>
<td>Uses information to draw logical conclusions but the conclusions are not clearly</td>
<td>Draws no conclusions or draws conclusions that are not logical. Does</td>
</tr>
<tr>
<td>Clarity and Presentation of Written Expression</td>
<td>Contains clearly developed ideas in a logical sequence. Completely answers all questions</td>
<td>Contains clearly developed ideas in a logical sequence. Completely answers all questions but may contain</td>
<td>Does not refer to pertinent information presented in earlier questions or part of analysis. Is not support conclusions with research and prior argument.</td>
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<td>Expresses ideas clearly in own words, being careful not to duplicate presentation of the references; direct quotes held to a minimum. No spelling errors. Grammatically correct. Written report has professional appearance using graphics when appropriate which are referred to and explained in write up.</td>
<td>Expresses in own words, not duplicating language of the references; a few direct quotes but not excessive reliance on the language of research. Very few spelling or Grammatical errors but ideas are still clearly understandable. Written report has neat professional appearance.</td>
<td>Relies heavily on the words of references to present the argument. Many spelling &amp; grammatical errors which interfere with readers' ability to understand. Written report does not appear professional. Includes no graphs, charts etc when appropriate or includes graphs and charts that are not referred to or are inappropriate.</td>
</tr>
<tr>
<td>Conciseness and Organization</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Cheating Policy</td>
<td>Without unnecessary information. Refers to pertinent information already presented with little or no repetition of information.</td>
<td>Unnecessary information.</td>
<td>Disorganized and difficult to follow. May not be complete. Repeats information unnecessarily.</td>
</tr>
</tbody>
</table>

### Cheating Policy

- Cheating is submitting someone else’s work without attribution
  - The material you submit must be written completely by you
  - Penalty: Expulsion from the program, and/or failing the course

### Electronic Recording Of Class

- Must be approved by the instructor BEFORE the start of each class!

### Schedule

- **Thursdays, January 14, 2016 - February 25, 2016**
  - Lecture Time
    - 6:00 – 7:15 Lecture
    - 7:15 – 7:30 Break
    - 7:30 – 8:50 Lecture
  - Location:
    - **Section A1: Hamburg Hall, Room: 1000**
    - **Section Z3: Virtual**

### Week 1 – January 14, 2016

- Course Overview
• Introduction to Security
• Internet Networking Review
• Homework Assignment #1
  • Due January 21, 2016
  • GPG/PGP Key Generation

Week 2 – January 21, 2016
• PGP/GPG Key Verification (Homework #1)
• Network Security Concepts
• Security Planning & Response
• Incident Reporting Issues
• Homework Assignment #2
  • Due January 28, 2016
  • Personal Security Plan

Week 3 – January 28, 2016
• Symmetric Encryption
• Asymmetric Encryption
• Digital Signatures
• Homework Assignment #3
  • Due February 11, 2016
  • Secure Web Sites

Week 4 – February 4, 2016
• New Protocols for Securing the Internet
• The Cyber Kill Chain
• Authentication Methods
• Malicious Code
• Cyber Crime and the Underground

Week 5 – February 11, 2016

• Software Engineering
• Crypto in the Real World
• Operating Systems and Services
• Web Issues
• Homework Assignment #4
  • Due February 18, 2016
  • Current Issues

Week 6 – February 18, 2016

• Vulnerability Disclosure (Class Discussion)
• Firewalls, VPNs and More
• Intrusion Detection Systems

Week 7 – February 25, 2016

• Final
  • 50 Questions
  • Multiple choose, short answer, fill-in the blank
  • All questions are derived from the slides unless otherwise noted

Z3 Section

• Z3 distance students may take the final anytime between February 21, 2016 and February 28, 2016. More details to follow.

Questions?