**COURSE SYLLABUS**

**SEC200 introduction to network security**

**COURSE DESCRIPTION**

This course covers the essentials of network security, including compliance and operational security; threats and vulnerabilities; application, data, and host security; access control and identity management; and cryptography. As well as mobile device security, attacks and defenses, and emerging trends in information security, such as virtualization.

**GENERAL COURSE INFORMATION**

|  |  |
| --- | --- |
| Number of Units/Weeks | 4/10 |
| #Hours Lecture/#Hours Laboratory/#Hours ELP | 40/0/80 |
| Prerequisite(s) | None |
| Co-requisite(s) | None |
| Course Developer(s) | Thomas Byrne BA |
| Date Approved / Last Review | December 2015 |

**Learning Outcomes**

* Explain the essentials of network security,
* Recognize modern network threats and vulnerabilities
* Describe mobile device threats and mitigation techniques
* Describe the purpose of security policies and procedures
* Describe the basics of cryptography
* Describe Access Control and Security Management
* Demonstrate working within teams to complete in-class assignments.

**Instructional methods employed in this course**

* Lecture and reading assignments
* Hands-on exercises
* In-class discussion of current trend in OS hardening
* Weekly homework to apply principles to real-world examples
* Independent Research and Case Study analysis

**Information resources for this course**

**Textbook**

CompTIA Security+ Guide to Network Security Fundamentals, 5e, 5th Edition

ISBN-13: 978-1305093911

ISBN-10: 1305093917

**Supplemental Reading and/or Web Assignments**

This Course will also include required reading from selected sources available online

|  |  |  |
| --- | --- | --- |
| **Supplemental Reading and or Web Assignments** | | |
| **Reading** | **Topic** | **URL** |
| 1 | "Research Cyber Kill Chain" | "www.lockheedmartin.com/content/dam/lockheed/data/corporate/ documents/LM-White-Paper-Intel-Driven-Defense.pdf." |
| 2 | "Phishing Test" | "survey.mailfrontier.com/survey/quiztest.cgi" |
| 3 | "Community Site Research" | "community.cengage.com/infosec" |
| 4 | "Open Source Data Loss Prevention" | "code.google.com/p/opendlp/ " |
| 5 | "Diffie-Hellman Research" | "dkerr.home.mindspring.com/diffie\_hellman\_ calc.html" |
| 12 | "Testing Password Strength" | "www.microsoft.com/security/pc-security/  password-checker.aspx" |

**Online Supplemental Materials**

CERT [www.cert.org](http://www.cert.org)

ISTS [www.ists.dartmouth.edu](http://www.ists.dartmouth.edu)

FIRST [www.first.org](http://www.first.org)

SANS [www.sans.org](http://www.sans.org)

InfraGuard [www.infraguard.net](http://www.infraguard.net)

ISSA [www.issa.org](http://www.issa.org)

NSI [www.nsi.org](http://www.nsi.org)

CSRC [www.csrc.nist.gov](http://www.csrc.nist.gov)

CVE [www.cve.mitre.org](http://www.cve.mitre.org)

ATLAS [www.atlas.arbor.net](http://www.atlas.arbor.net)

**Supplemental Tools**

WireShark [www.wireshark.org](http://www.wireshark.org)

Colasoft Capsa [www.colasoft.com/capsa](http://www.colasoft.com/capsa)

**Table/Topics & Assignments**

**Types of Assignments:**

**Lecture –**

Considered Lecture Hours

**Classroom Discussion –**

Considered Lecture Hours

**In-Class (IC) Exercise –**

Considered Lecture Hours

**Homework (HW) Exercise –**

Considered Enhanced Learning Project (ELP), work done outside class

**Reading –**

Considered Enhanced Learning Project (ELP), work done outside class

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Type | Topic/Description | Lecture Time | ELP Time | Point Value | Due |
| Lecture 1A | Introduction to Security | 1 | 0 | 0 |  |
| Lecture 1B | Malware and Social Engineering | 1 | 0 | 0 |  |
| Reading | Text: Chapters 1 and 2 (88 pages) | 0 | 9 | 0 | Session 1  Evaluated by Quiz 1, Week 3 |
| IC Ex | Week 1…Hands On Chapters 1 and 2 | 2 | 0 | 40 |  |
| HW 1 | End of chapter review web class (40) | 0 | 2 | 40 |  |
| Total Session 1 | | 4 | 11 | 80 |  |
| Type | **Topic/Description** | **Lecture Time** | **ELP Time** | **Point Value** | **Due** |
| Lecture 2A | Application and Networking-Based Attacks | 1 | 0 | 0 |  |
| Lecture 2B | Host, Application and Data Security | 1 | 0 | 0 |  |
| Reading | Text: Chapters 3 and 4 (88 Pages) | 0 | 9 | 0 | Session 2  Evaluated by Quiz 1, Week 3 |
| IC Ex | Week 2…Hands On Chapters 3 and 4 | 2 | 0 | 40 |  |
| HW 2 | End of chapter review web class (40) | 0 | 2 | 40 |  |
| Total Session 2 | | 4 | 11 | 80 |  |
| Type | **Topic/Description** | **Lecture Time** | **ELP Time** | **Point Value** | **Due** |
| Lecture 3A | Basic Cryptography | .5 | 0 | 0 |  |
| Lecture 3B | Advanced Cryptography | 1 | 0 | 0 |  |
| Reading | Text: Chapters 5 and 6 (84 Pages) | 0 | 8 | 0 | Session 3  Evaluated by Mid Term Exam, Week 5 |
| IC Ex | Quiz 1 on Chapters 1- 4 | .5 | 0 | 50 |  |
| IC Ex | Week 3…Hands On Chapters 5 and 6 | 2 | 0 | 40 |  |
| HW 3 | End of chapter review web class (40) | 0 | 2 | 40 |  |
| Total Session 3 | | 4 | 10 | 130 |  |
| Type | **Topic/Description** | **Lecture Time** | **ELP Time** | **Point Value** | **Due** |
| Lecture 4A | Network Security Fundamentals | 1 | 0 | 0 |  |
| Lecture 4B | Administering a Secure Network | 1 | 0 | 0 |  |
| Reading | Text: Chapters 7 and 8 (88 Pages) | 0 | 9 | 0 | Session 4  Evaluated by Mid Term Exam, Week 5 |
| IC Ex | Week 4…Hands On Chapters 7 and 8 | 2 | 0 | 40 |  |
| HW 4 | End of chapter review web class (40) | 0 | 2 | 40 |  |
| Mid-Term Exam Review | Prior week’s readings (227 pages) | 0 | 0 | 0 |  |
| Total Session 4 | | 4 | 11 | 80 |  |
| Type | **Topic/Description** | **Lecture Time** | **ELP Time** | **Point Value** | **Due** |
| Lecture 5A | Midterm Review / Study | 1.5 | 0 | 0 | Session 5  Evaluated by Mid Term Exam, Week 5 |
| IC Ex | Week 5…Hands On Finish labs 1-8 | 2 | 0 | 0 |  |
| Mid-Term Exam | Chapters 1-8 | .5 | 0 | 150 |  |
| Total Session 5 | | 4 | 0 | 150 |  |
| Type | **Topic/Description** | **Lecture Time** | **ELP Time** | **Point Value** | **Due** |
| Lecture 6A | Wireless Network Security | 1 | 0 | 0 |  |
| Lecture 6B | Mobile Device Security | 1 | 0 | 0 |  |
| IC Ex | Week 6…Hands On Chapters 9 and 10 | 2 | 0 | 40 |  |
| Reading | Text: Chapters 9 and 10 (79 Pages) | 0 | 8 | 0 | Session 6  Evaluated by Quiz 2, Week 8 |
| HW 6 | End of chapter review web class (40) | 0 | 2 | 40 |  |
| Total Session 6 | | 4 | 10 | 80 |  |
| Type | **Topic/Description** | **Lecture Time** | **ELP Time** | **Point Value** | **Due** |
| Lecture 7A | Access Control Fundamentals | 1 | 0 | 0 |  |
| Lecture 7B | Authentication and Account Management. | 1 | 0 | 0 |  |
| Reading | Text: Chapters 11 and 12 (81 Pages) | 0 | 8 | 0 | Session 7  Evaluated by Quiz 2, Week 8 |
| IC Ex | Week 7…Hands On Chapters 11 and 12 | 2 | 0 | 40 |  |
| HW7 | End of chapter review web class (40) | 0 | 2 | 40 |  |
|  | | 4 | 10 | 80 |  |
| Type | **Topic/Description** | **Lecture Time** | **ELP Time** | **Point Value** | **Due** |
| Lecture 8A | Business Continuity | 1 | 0 | 0 |  |
| Lecture 8B | Risk Mitigation | 1 | 0 | 0 |  |
| Reading | Text: Chapters 13 and 14 (82 Pages) | 0 | 8 | 0 | Session 8  Evaluated by Final Exam, Week 10 |
| IC Ex | Quiz 2 on Chapters 9-12 | .5 | 0 | 50 |  |
| IC Ex | Week 8…Hands On Chapters 13 and 14 | 2 | 0 | 40 |  |
| HW 8 | End of chapter review web class (40) | 0 | 2 | 40 |  |
| Total Session 8 | | 4 | 10 | 130 |  |
| Type | **Topic/Description** | **Lecture Time** | **ELP Time** | **Point Value** | **Due** |
| Lecture 9 | Vulnerability Assessment | 1 | 0 | 0 |  |
| IC Ex | Week 9…Hands On Chapters 15 | 3 | 0 | 20 |  |
| Reading | Text: Chapters 15 (38 Pages) | 0 | 4 | 0 | Session 9  Evaluated by Final Exam, Week 10 |
| HW 9 | End of chapter review web class (20) | 0 | 1 | 20 |  |
| Total Session 9 | | 4 | 5 | 40 |  |
| Type | **Topic/Description** | **Lecture Time** | **ELP Time** | **Point Value** | **Due** |
| IC Ex | Review / Finish Hands-On labs 9-15 | 1.5 | 0 | 0 | Session 10  Evaluated by Final Exam, Week 10 |
| Final Exam Review | Prior week’s readings (286 pages) | 0 | 2 | 0 |  |
| Final Exam | Chapters 9-15 | .5 | 0 | 150 |  |
| Total Session 10 | | 4 | 2 | 150 |  |

**Course Hours Summary:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Session** | **Topic** | **Lecture Time** | **ELP Time** |
| **1** | Intro to Security/Social Engineering | 4 | 11 |
| **2** | Host and Network Attacks/Data Security | 4 | 11 |
| **3** | Cryptography | 4 | 10 |
| **4** | Secure Networks | 4 | 11 |
| **5** | Review | 2 | 0 |
| **5** | Midterm | 2 | 0 |
| **6** | Wireless and Mobile Security | 4 | 10 |
| **7** | Access Control / Authenticating Accounts | 4 | 10 |
| **8** | Business Continuity/Risk Assessment | 4 | 10 |
| **9** | Vulnerability Assessment | 4 | 5 |
| **10** | Review | 2 | 2 |
| **10** | Final | 2 | 0 |
| **Total** | | **40** | **80** |

**Your Grades for this Course**

Your final grade for this course will be based on an assessment by the Instructor of your performance on a number of course activities, which may include objective tests, classroom exercises, laboratory demonstrations, project papers, or other type

of activities. The chart below indicates in what activities you will engage, how many possible points can be earned for each activity, and the percentage of your final grade that will be accounted for by each activity. Students in this course should be graded following Coleman University assessment practices and policies. A point system is used in the University to indicate student performance on various required activities or projects. For this course, points will be distributed as follows:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Week** | **Assignment** | | **Points Possible** | **Percent of Grade** | |
| **1 – 9** | End of chapter review questions | | 300 | 30 | |
| **1** | Hands-On Week 1 | | 40 | 4 | |
| **2** | Hands-On Week 2 | | 40 | 4 | |
| **3** | Quiz 1 | | 50 | 5 | |
| **3** | Hands-On Week 3 | | 40 | 4 | |
| **4** | Hands-On Week 4 | | 40 | 4 | |
| **5** | Midterm Exam | | 150 | 15 | |
| **6** | Hands-On Week 6 | | 40 | 4 | |
| **7** | Hands-On Week 7 | | 40 | 4 | |
| **8** | Hands-On Week 8 | | 40 | 4 | |
| **8** | Quiz 2 | | 50 | 5 | |
| **9** | Hands-On Week 9 | | 20 | 2 | |
| **10** | Final | | 150 | 15 | |
| **Total** | | **1000** | | | **100** |

**Late Submission Policy**

All assignments (including projects, lab work, quizzes and exams) must be completed as scheduled, deadlines will be defined 1st day of class.

**Coleman University Grade Assignment Policy**

The Coleman University guidelines for the assignment of grades to total points earned is as follows:

|  |  |  |
| --- | --- | --- |
| **Percent** | **Letter Grade** | **Grade Points** |
| **94-100** | A | 20% |
| **­­­­­90-93** | A- | 10% |
| **87-89** | B+ | 20% |
| **84-86** | B | 30% |
| **80-83** | B- | 5% |
| **77-79** | C+ | 5% |
| **74-76** | C | 2.0 |
| **70-73** | C- | 1.7 |
| **67-69** | D+ | 1.33 |
| **64-66** | D | 1.0 |
| **60-63** | D- | .67 |
| **n/a** | INC | 0 |
| **n/a** | W | 0 |
| **60 or above** | CR | 0 |
| **59 or below** | NC | 0 |
| **70 or above** | PASS | 0 |

**expectations for written assignments**

**Academic Quality**

Unless explicitly stated otherwise, all written assignments will be submitted in APA format unless otherwise specified. This includes the Team Assignment paper and any Homework assignments. Note that WebClass Discussion Forum posts are not required to follow APA format.

Students with questions about the quality of their writing style are STRONGLY encouraged to consult the Coleman University Center for Academic Success. Located in Room 232, the CAS is a service available to all Coleman University students to review the grammar and style prior to submission. The CAS has a number of tools available to help students improve their ability to communicate clearly in writing.

Coleman University Students should pay close attention to the Spelling and Grammar Check functions of Microsoft Word®. In addition, the Coleman University Library Resource section of WebClass includes a version of TurnItIn, which allows students to check their work for plagiarism and grammar errors.

**Scholarly References**

All written assignments will include references to scholarly sources. Scholarly sources include peer-reviewed technical and business journals, papers presented at conferences sponsored by professional organizations (e.g., IEEE, ACM, INCOSE, PMI, etc.), and academic books (i.e., textbooks). Scholarly sources can be found using the EBSCO Host and Harvard Business Review databases available in the Coleman University Library Resource section of WebClass, Google Scholar, plos.org, or the Directory of Open Access Journals. If the option is available in the search engine, please limit your search results to peer-reviewed sources.

The following types of sources **WILL NOT** be accepted as scholarly resources:

* Commercial Webpages (except those included in Online Supplemental Materials section of this document, or with written approval by instructor)
* Open-source wiki sites such as wikipedia.com, ask.com, about.com, answers.yahoo.com
* Blogs such as wordpress.com, blogspot.com (except those included in Online Supplemental Materials section of this document, or with written approval by instructor)
* Postings from open discussion forums

White papers published by commercial organizations MAY be considered scholarly references, but tread lightly. Students are encouraged to review the Coleman University presentation regarding evaluation of resources (“CAARBs”) available on the Coleman University Library Resources section of WebClass.

**Class decorum Requirements**

**Attendance**

Classes begin and end as indicated in the published schedule. It is required that students be present at the beginning of each class session and stay until class is dismissed, including lab periods. Excessive tardiness, leaving early and/or absences (from either lecture or lab sessions) are causes for dismissal from the University. A student that arrives in class beyond 30 minutes late will be considered absent. A student leaving more than 30 minutes before the end of class will also be considered absent.

**Conduct**

Students are expected to conduct themselves in a professional manner while on campus. Rules of conduct are outlined in the University Catalog and students are required to adhere to such policies.

**Coleman University Policy on Academic Dishonesty**

Academic dishonesty is cause for dismissal from Coleman University. Presenting another person’s ideas, methods, course work, or test answers with the intention that they be taken as one’s own is theft of a special kind. It defrauds the originator of the work, the institution, its graduates, its students, and its future students. The student has full responsibility for the authenticity of all academic work and examinations submitted. A student who appears to have violated this policy must submit to a hearing with the reporting instructor and the associate dean. If it is determined that a violation occurred, the matter will be referred to an Officer of the University with recommendations for an appropriate penalty. The student may be dismissed, suspended, or given another penalty.