COURSE SYLLABUS
SEC350: Advance Network Security: Ethical Hacking

Course Description
Students will learn about the tools and techniques used by security professionals and attackers to breach an organization. Students will be able to understand an attacker's methodology and select controls to mitigate any potential threats.

General Course Information

Number of Units/Weeks	4/10
#Hours Lecture/#Hours Laboratory/#Hours ELPs*	40/0/80
Prerequisite(s)	NET 240
Co-requisites (s)	None
Course Developer(s)	Lydia Zeman, MS
Date Approved / Last Review	September, 2017

*Enhanced Learning Projects

Learning Outcomes
- Differentiate elements of information security
- Analyze the stages of ethical hacking
- Differentiate different types of system attacks
- Design countermeasures for a variety of system attacks

Instructional Methods Employed in this Course
- Lecture and reading assignments
- Research
- Practical application of theory and skills in authentic projects
- Build on prior knowledge and experience of students to enhance richness of class activities

Information Resources for this Course

☐ **Textbook**

Walker, Matt. All-In-One CEH Certified Ethical Hacker Exam Guide. Third Edition (2017). McGraw Hill Education. ISBN-13: 978-1259836558

☐ **Other Materials**

Kali Linux
https://www.kali.org/

Netcraft
https://www.netcraft.com/

Nessus
https://www.tenable.com/products/nessus/select-your-operating-system

- **Web Site Readings**

Wireshark
https://www.wireshark.org/docs/wsug_html_chunked/ChapterIntroduction.html

Nmap
https://nmap.org/

Google Hacking Database (GHDB)
https://www.exploit-db.com/google-hacking-database/

Basic Snort Rules Syntax and Usage
http://resources.infosecinstitute.com/snort-rules-workshop-part-one/#gref

Kali Linux Revealed
https://kali.training/

Table/Topics & Assignments

Types of Assignments:

Lecture -
Considered Lecture Hours

Classroom Discussion -
Considered Lecture Hours

In Class Critique -
Considered Lecture Hours

Delivering Oral Presentations -
Considered Lecture Hours

In Class (IC) Exercise -
Considered Lecture Hours

Reading -
Considered Homework (HW), work done outside of class

WebClass lesson (non-online courses) -
Considered HW, work done outside of class

Lab Work -
Considered Lab Hours

Quiz, Midterm or Final -
Considered Lecture Hours

Week 1						
Type	**Topic/Description**	**LEC Hours**	**LAB Hours**	**HW Hours**	**Point Value**	**Due**
LEC 1A	Essential Knowledge	2				
IC EX 1A	Individual Project	2			5	In Class
HW 1A	Current event analysis			3	15	Week 2
HW 1B	Research project			5	30	Week 2
Total Week 1		4		8	50	
Week 2						
Type	**Topic/Description**	**LEC Hours**	**LAB Hours**	**HW Hours**	**Point Value**	**Due**
LEC 2A	Reconnaissance	1				
LEC 2B	Scanning and enumeration	1				
LEC 2C	Footprinting and Scanning and Enumeration Tools	0.5				
IC EX 2A	Individual Project	0.5			5	In Class
IC EX 2B	Group Project	1			20	In Class
HW 2A	Research project			5	30	Week 2
Total Week 2		4		5	55	
Week 3						
Type	**Topic/Description**	**LEC Hours**	**LAB Hours**	**HW Hours**	**Point Value**	**Due**
LEC 3A	Sniffing and Evasion	1.5				
LEC 3B	Sniffing Tools	1				
IC EX 3A	Quiz 1	1			50	In Class
IC EX 3B	Individual Project	0.5			5	In Class
HW 3A	Research Project			5	30	Week 4
Total Week 3		4		5	85	
Week 4						
Type	**Topic/Description**	**LEC Hours**	**LAB Hours**	**HW Hours**	**Point Value**	**Due**
LEC 4A	Attacking a system	1				

LEC 4B	Web-based hacking: Servers and applications	1				
LEC 4B	System hacking and Web Attacks tools	0.5				
IC EX 4A	Quiz 2	1			50	In Class
LAB 4A	Individual Project	0.5			5	In Class
HW 4A	Midterm Team Project			8		Week 5
Total Week 4		4		8	55	

Week 5						
Type	**Topic/Description**	**LEC Hours**	**LAB Hours**	**HW Hours**	**Point Value**	**Due**
IC EX 5A	Midterm project presentation	1.5			50	In Class
IC EX 5B	Class Discussion	0.5				In Class
Exam 5A	Midterm Exam	2			150	
HW 5A	Current event analysis			3	15	Week 6
HW 5B	Team Final Project			6		Week 9
Total Week 5		4		9	215	

Week 6						
Type	**Topic/Description**	**LEC Hours**	**LAB Hours**	**HW Hours**	**Point Value**	**Due**
LEC 6A	Wireless Network Hacking	2				
LEC 6B	Wireless Attack tools	1.5				
IC EX 6A	Individual Project	0.5			5	In Class
HW 6A	Research Project			5	30	Week 7
HW 6B	Team Final Project			6		Week 9
Total Week 6		4		11	35	

Week 7						
Type	**Topic/Description**	**LEC Hours**	**LAB Hours**	**HW Hours**	**Point Value**	**Due**
LEC 7A	Security in cloud computing	1				
LEC 7B	Trojans and Other Attacks	1				
LEC 7C	Cloud security tools and Trojans and Malware	1.5				
IC EX 7A	Individual Project	0.5			5	In Class

HW 7A	Research Project			5	30	Week 8
HW 7B	Team Final Project			6		Week 9
Total Week 7		4		11	35	

Week 8

Type	Topic/Description	LEC Hours	LAB Hours	HW Hours	Point Value	Due
LEC 8A	Cryptography	1.5				
LEC 8B	Cryptography and encryption tools	1				
IC EX 8A	Quiz 3	1			50	
IC EX 8B	Individual Project	0.5			5	In Class
HW 8A	Research Project			5	30	Week 9
HW 8B	Team Final Project			6		Week 9
Total Week 8		4		11	85	

Week 9

Type	Topic/Description	LEC Hours	LAB Hours	HW Hours	Point Value	Due
LEC 9A	Social Engineering and Physical Security	1				
LEC 9B	Penetration Testing	1				
LEC 9C	Social engineering tools and penetration testing suites	0.5				
IC EX 9A	Quiz 4	1			50	In Class
IC EX 9B	Individual Project	0.5			5	In Class
HW 9A	Final Project Visual Aids			12	30	Week 10
Total Week 9		4		12	85	

Week 10

Type	Topic/Description	LEC Hours	LAB Hours	HW Hours	Point Value	Due
Exam 5A	Final Exam	2			150	In Class
IC EX 10A	Final Team Project Presentation	2			150	In Class
Total Week 10		4			300	

Course Hours Summary

Week	Topic	LEC Hours	LAB Hours	HW Hours
1	Essential Knowledge	4	0	8
2	Reconnaissance / Scanning and Enumeration	4	0	5
3	Sniffing and Evasion / Sniffing Tools	4	0	5
4	Attacking a system / Web-based hacking	4	0	8
5	Project Presentation / Midterm Exam	4	0	9
6	Wireless Network Hacking / Wireless Attack Tools	4	0	11
7	Security in Cloud Computing / Trojans	4	0	11
8	Cryptography / Cryptography Tools	4	0	11
9	Social Engineering / Penetration Testing	4	0	12
10	Final Team Project Presentation / Final Exam	4	0	0
Total		40	0	80

Table/Point Breakdown

Week	Assignment	Possible Points	Percent of Grade
1	Individual Project	5	0.5%
1	Current Event Analysis	15	1.5%
1	Research Project	30	3.0%
2	Individual Project	5	0.5%
2	Group Project	20	2.0%
2	Research Project	30	3.0%
3	Quiz 1	50	5.0%
3	Individual Project	5	0.5%
3	Research Project	30	3.0%
4	Quiz 2	50	5.0%
4	Individual Project	5	0.5%
5	Midterm Team Project	50	5.0%
5	Midterm Exam	150	15.0%
5	Current Event Analysis	15	1.5%
6	Individual Project	5	0.5%
6	Research Project	30	3.0%
7	Individual Project	5	0.5%
7	Research Project	30	3.0%
8	Quiz 3	50	5.0%
8	Individual Project	5	0.5%
8	Research Project	30	3.0%
9	Quiz 4	50	5.0%
9	Individual Project	5	0.5%
9	Final Project Visual Aids	30	3.0%
10	Final Exam	150	15.0%
10	Final Team Project Presentation	150	15.0%
Total		1000	100%

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 types 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, it is recommended that points be distributed as follows:

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	4.0
90-93	A-	3.67
87-89	B+	3.33
84-86	B	3.0
80-83	B-	2.67
77-79	C+	2.33
74-76	C	2.00
70-73	C-	1.67
67-69	D+	1.33
64-66	D	1.00
60-63	D-	0.67
N/A	INC	0
N/A	W	0
60 or above	CR	0
59 or below	NC	0
70 or above	PASS	0

Requirements

Assignments: All assignments (including projects, lab work, quizzes and exams) must be completed as scheduled. The following will apply to late assignments:

- 1-24 hours after due date = 20% off point value
- 25-48 hours after due date = 60% off point value
- 49+ hours after due date = No points given

If an assignment equals less than 5 points, no points will be given for late work. If there are extenuating circumstances, the student must submit a written explanation to the department Senior Instructor. Upon evaluation, points will be given according to the Senior Instructor's discretion.

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.

Coleman University employs the plagiarism software known as Turnitin. Students are expected to use this tool in an appropriate manner with the sole purpose to support their own academic endeavors at Coleman University. Turnitin account information can not be shared with anyone. Contact your instructor if you have any questions about plagiarism related issues.

Academic Accommodation / Adjustment Policy:

In accordance with Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act (ADA), Coleman University offers accommodations to students with documented physical, psychological, and/or cognitive disabilities. Coleman University will adhere to all applicable federal, state, and local laws, regulations, and guidelines with respect to providing reasonable accommodations as required to offer equal educational opportunities to qualified disabled individuals.

To qualify for an academic accommodation under ADA, the student must provide adequate documentation of a disability. Students seeking academic accommodations should contact the campus ADA Coordinator at 858-966-3953 or via email at ada@coleman.edu. The ADA Coordinator will review the documentation provided and verify ADA coverage. Students covered under ADA must meet with the ADA

Coordinator at the beginning of every term to determine the appropriate academic accommodations. Failing to meet with the ADA Coordinator at the beginning of every term may impact the availability of accommodations.

After the academic accommodations have been determined, the students' instructors will be notified by the ADA Coordinator. If any problems or concerns regarding the provision of accommodations occur, the student must inform the ADA Coordinator. If the student feels accommodation is not being made appropriately, the student may follow the published Student Grievance Procedures.