

Course Policy

Instructors

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Course Description

This course is part one of a two-part course. End-to-end Offensive Cyber Operations (OCO) are covered with a focus on specific tools, tactics, techniques, and procedures. An understanding of how to take advantage of adversary vulnerabilities to achieve objectives in and through Cyberspace. Primary topics include open source tools, information gathering, reconnaissance, social engineering, remote exploitation, and maintaining access.

Learning Objectives

Upon completing this course, students should be able to:

1. Understand how Cyber Operations can be a supporting element, a supported element, and an Instrument of National Power.
2. Understand the phases of an Offensive Cyber Operation (OCO), what each phase entails, and how operations are assessed after completion.
3. Demonstrate effective communication orally, in writing, and via multimedia.
4. Create and maintain an effective scholarly research project using best practices.
5. Access, manipulate, and understand data to aid in effective strategic decision-making.
6. Identify and evaluate emerging information technologies and their impact on the global environment.
7. Collaborate in a team environment.
8. Understand the professional issues and responsibilities in developing a research project for a client.
9. Have a sound understanding of the tools, techniques, and procedures utilized to exploit information systems and networks.
10. Possess a thorough understanding of the various types of vulnerabilities (design and/or implementation weaknesses), their underlying causes, their identifying characteristics, and the way in which they are exploited. Know how to take advantage of erroneous implementation of fundamental security design principles.
11. Be able to identify exploitation vectors and take advantage of them.

Textbooks

Dijkstra, J. (2016). Essential Cybersecurity Science: Build, Test, and Evaluate Secure Systems, ISBN: 978-1-491-92094-7

Hertzog, Raphael, O’Gorman, Jim, and Aharoni, Mati (2017). Kali Linux Revealed: Mastering the Penetration Testing Distribution, This book is licensed under a Creative Commons Attribution-ShareAlike 3.0 Unported License. <http://creativecommons.org/licenses/by-sa/3.0/>

Extra Instruction (EI)

EI is available and encouraged. Since this course continually builds upon material previously presented, it is crucial that you seek EI as soon as you have problems understanding the material. To be clear, you will not be provided the answers. You will be provided Socratic guidance to achieve a successful outcome. However, you must come prepared with specific questions or areas to be discussed.

We will also leverage the USNA Cyber Center Slack Page - especially the channels #SY401, #SY402, and #Capstone. Slack is an excellent collaborative tool that allows us to share questions, solutions, and avoid excess emails. If you have trouble accessing Slack, please see Mr. Dias.

Duties of the Section Leader

ACDEANINST 1531.61A requires that section leaders and alternate section leaders be designated by each instructor for each section (and that they be members of the most senior class assigned to the section). The duties of the section leader include: calling the section to attention at the beginning and end of class, reporting absences to the instructor, contacting the department office (3-30930, Leahy Hall 102) if the instructor is more than 10 minutes late for class, and directing the class in productive work if the instructor is absent.

Grading

	6wk	12wk	Final
Labs	40%	30%	20%
Homework	15%	15%	10%
Project: APT	5%	5%	5%
Exam (6wk)	30%	20%	15%
Exam (12wk)		20%	15%
Project: OCO Tool			5%
Exam (Final)			25%
Capstone: Milestone Attainment	10%	10%	10%
Overall	100%	100%	100%

Cyber Majors will participate in the Academy-wide capstone presentation day on **April 26th 2018**. Students are expected to answer questions from other students and instructors. Details to follow.

Capstone

There will be an incremental, course-long, team-oriented, milestone-driven, Cyber-related research project. Team members are expected to contribute their fair share of the effort expanded by the team. Each team member will undergo anonymous peer reviews that evaluate the contributions made by the team member. These peer evaluations will have impact on team member grades. On very rare occasions, a team may have a member that fails to fulfill his/her responsibilities towards the team project. Under such circumstances, the following Regulations of Eject Nonfunctioning Team Members are specified:

1. **Warning.** If the majority of a team determines that a member of the team is not fulfilling his/her responsibilities, they will send the members a formal warning memo, with a copy to the class instructor. The memo must specifically state what the member has thus far failed to do in a regard to meeting responsibilities as a team member, what the team member must do to correct the situation, must be dated, and must indicated that the member will be ejected from the team if the situation is not corrected within two weeks.
2. **Ejection.** After a period of two weeks, if the individual has not corrected the situation, the team will send the individual a formal ejection memo detailing what the individual has failed to do since receiving the warning memo, with a copy to the class instructor. If the instructor approves the ejection, the individual will be responsible for completing his/her own version of the project in its entirety.
3. **Relapse.** After a warning memo is issued, if the individual temporarily corrects the lack of responsibility but then again relapses into being a non-functioning team member, no additional warning memos are necessary. The team may serve the individual with an ejection memo, as described above, with a copy to the class instructor.

The capstone must be completed entirely by the students making the submission. The capstone grade will be based upon the instructor's estimation of the group's collective results, adjusted for each team member based upon the other group members' estimation of the individual's teamwork and contribution.

Exams

The 6 and 12-week exams will primarily focus on the recent material. There will also be a cumulative final exam. If for some reason a make-up exam will be required, inform the instructor at least 1 week in advance. All exams will be closed books, closed notes. Students will be allowed to bring individually prepared "study sheets" with anything written on it (1 sheet for the 6-week exam, 2 sheets for the 12-week exam, and 3 sheets for the cumulative final exam). Study sheets will be collected at the exam and will not be returned. Use of any electronic devices is not permitted during the exams.

Late Assignments

Unless otherwise specified, all assignments are due at the beginning of class on the due date. Homework that is turned in a day late can expect a 0. Answers to homeworks will be available at the beginning of class that the homework is due. All items (homework, labs, and capstone) must be submitted to pass this course, if you are providing the assignment after the answers has been provided, the work cannot be a copy of the online answers and must be in your own words.

Honor

You are expected to follow the guidance given in:

1. Honor Concept of the Brigade of Midshipmen, USNAINST 1610.3F (or newer)
2. Policies Concerning Graded Academic Work, USNAINST 1531.53 (or newer)

Miscellaneous

Classroom Expectations

1. No food or smokeless tobacco is permitted in the classroom or in the labs. Drinks with closeable caps are permitted.
2. Sleeping is not allowed in class. If you feel you may fall asleep at your desk, stand in the back of the room.
3. You must bring your laptop to every class.
4. No use of computer equipment for any purpose other than as outlined in the class activity, this is a distraction and will not be tolerated, i.e. reading e-mail, playing games, or messaging classmates.

Other

1. Reading assignments are expected to be completed prior to class for which it is assigned. Practical exercises will expand on concepts introduced in these readings.
2. Please inform the instructor in advance if you will miss class (for instance, due to a movement order).

This link contains a PDF version of the Course Policy **Updated AUG 2019**

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