

Master of Science in Cybersecurity

NSA/DHS Designated Center of Academic Excellence in Information Assurance/Cyber Defense, Research and Cyber Operations

Cybersecurity Capstone

Course Number: CY4930
Total Credit Hours: 4

Course Description

Provides the culmination of the learned principles and methodologies for identifying and addressing Cybersecurity issues in organizations. Students bring their individual skills and abilities to create a solution to a real-world cybersecurity problem/challenge. Students will work in small groups to identify and scope the information security problem/challenge, create a project plan to develop a solution to include the development and identification of the data necessary to properly solve the problem/challenge, develop a final report (whose intended audience are senior business executives) and participate in the MSCY Capstone Event to present the results they have obtained.

Further the students will be required to manage and develop the project using some SCRUM methodology tools. In this way, *sprints* will be planned for each project and the team will deliver the product after each sprint iteratively and incrementally, maximizing opportunities for feedback.

Course Objectives

A student who successfully completes this course should demonstrate the following skills and knowledge:

- An understanding of Agile methodology
- An ability to evaluate the business process needs for information assurance needs and a program to meet those needs.
- The ability to develop a business case for an information assurance initiative.
- An understanding of how to create and manage a cybersecurity program from inception to management approval.
- An understanding of the principles of effective executive communications.

Class Schedule / Topical Outline

→ Not Shaded rows represent meetings with the Instructor

→ Shaded rows present half-week Team Meetings

Week 1	Complete SCRUM Training	Reading: https://www.scrum.org/resources/scrum-guide Students need to pass (>85%) an Agile Methodology Open Test https://www.scrum.org/open-assessments/scrum-open
Week 2	Project Management Meeting.	Managerial aspects of the project. <ul style="list-style-type: none"> • Team member roles • Tentative planning for Sprint 1. • Trello Project set up
Week 3	Threat Model Design	Threat Model Analysis <ul style="list-style-type: none"> • Threat Modeling Tool (STRIDE) • Attack Trees • Cyber Kill Chain
Week 4	Project Plan Proposal	PPP presentation <ul style="list-style-type: none"> • Sprints • Expected product
Individual Team Projects Start		
Week 5	<i>Sprint 1</i>	
Week 5.5	Mid-week SCRUM	15-min scrum with each team .
Week 6	<i>Sprint 1 Follow up</i>	
Week 6.5	Mid-week SCRUM	15-min scrum with each team.
Week 7	<i>Sprint 1 ends</i>	MVP Sprint 1 (increment of Done product) Sprint 1 retrospect Sprint 2 planning
Week 7.5	Mid-week SCRUM	15-min scrum with each team.
Week 8	<i>Sprint 2</i>	
Week 8.5	Mid-week SCRUM	15-min scrum with each team.
Week 9	<i>Sprint 2 Follow up</i>	
Week 9.5	Mid-week SCRUM	15-min scrum with each team.
Week 10 (Milestone 2)	<i>Sprint 2 ends</i>	MVP Sprint 2 (increment of Done product) Sprint 2 retrospect Final Sprint planning
Week 10.5	Mid-week SCRUM	15-min scrum with each team .
Week 11	<i>Final Spring Follow up</i>	
Week 11.5	Mid-week SCRUM	15-min scrum with each team
Week 12	<i>Final Sprint ends</i>	Product release and Presentation
Week 12.5	Mid-week SCRUM	15-min scrum with each team
Week 13	Cross Team Security Test	Teams will produce a test plan for another team product <ul style="list-style-type: none"> • Test architecture • Description of test plan
Week 14	Security Test results	Security test Results Presentation

Grading/Evaluation Standards

• Agile methodology Open test (>85%)	5%
• Class/Meetings attendance and participation	5%
• Incremental Sprints (30% team and 10% individual)	40%
• Product Release	30%
• Capstone Event Participation / Presentation (10% team and 10% individual)	20%

Tools

Students must create a free account on Trello (<https://trello.com>) to manage the project (if approved by the Industry Partner). Trello can be integrated with Slack which can be used for conveniently communicate with team members.

Blackboard

The Blackboard site for this course will be used to post course content. It is strongly recommended that students change the assigned email address on the site to their preferred address. Students should review the announcements and discussion board regularly.

Plagiarism and Academic Integrity

Students are expected to maintain complete honesty in all academic work. Unless otherwise specified, all work must be completed independently. The University Academic Integrity Policy is available on-line at: <http://www.northeastern.edu/osccr/academic-integrity-policy/>

Special Accommodations

If you have specific disabilities that require accommodations for this course, please meet with me after class or during office hours to discuss appropriate adaptations and modifications that might be helpful to you. The Disabilities Resource Center (DRC), located at 20 Dodge Hall (617-373-2675) can provide you with information and other assistance to help manage any challenges that may affect your performance in your coursework. The university requires that you provide documentation of your disabilities to DRC.