



Course: ENPM 686 – Information Assurance
 Semester: Spring 2022
 Day(s): Mondays
 Time: 4:00-6:40pm
 Location: JMP 3201
 Instructor(s): Dr. Ed Condon
 Phone: 301-405-8724
 Email: econdon+enpm686@umd.edu
 TA: to be determined
 Office hours: by appointment and to be determined

Course Description

This course will cover the fundamentals of information security. The goal of this course is to provide an introduction to cybersecurity. The course is developed such that no prerequisite is needed to take this course. The course will discuss the main concepts of cybersecurity, how to manage cybersecurity, the main security models and how to evaluate cybersecurity. The course will also review how security is implemented in operating systems (Unix and Windows), software, networks, web, and mobile devices. Security approaches will be classified into prevention, detection and tolerance. Both the defense and the attacker perspectives will be addressed. The emphasis will be on understanding concepts and providing context to understanding cybersecurity decisions. The course format will include lectures, homework assignments, an exam, presentations, and a project report.

Class Web Site and communication:

Communication between instructor, TA, and students will take place primarily through ELMS/CANVAS (<https://elms.umd.edu/>). Please visit the site regularly for assignments and announcements. Audio/videoconferencing options may be available through ELMS/CANVAS or the campus supported WebEx system (<https://webex.umd.edu>) and Zoom (<https://umd.zoom.us>).

Questions by email will be responded to within 24 hrs when possible during Monday-Friday. In some cases, more time may be needed in order to provide a more detailed response.

Schedule:

The class schedule is on the syllabus. It is subject to updates as the semester proceeds. When the schedule is changed, an announcement will be posted online.

Assessment:

The course grade will be calculated as follows:

Participation	5%
Homework	5%
Current Events	30%
Midterm	20%
Security tool demo/tutorial presentation slides	10%
Project presentation slides	10%
Final project paper	30%
TOTAL	100%

Participation:

Participation assignments will be assessed separately from Homework assignments. A few times throughout the course, students will be requested to provide feedback or additional information that will be used to help tailor the course to their experiences and interests and/or to assist with presentation topic selections. Feedback requests will usually only require brief responses (~a few sentences). While there

will be advance notice for participation assignments, they are not currently included on the syllabus schedule. Students will also be encouraged to ask and answer questions of other students regarding shared project paper presentation slides.

Homework Assignments:

There will be homework assignments on several class topics. Further instructions will be provided. Homework assignments are due by 11:59pm College Park, MD time on the Monday the assignment is shown to be due. Assignments will be posted at least one week before they are due. Other assignments (current event summaries, project presentation slides, final project report) are due by 4:00pm College Park, MD time on the *MONDAY* the assignment is shown to be due (this allows for additional discussion during class).

In exceptional circumstances (illness, university business, religious observances) extensions may be granted for assignments. However, all extensions must be approved by the instructor BEFORE the due date. Work that is handed in late without a university-accepted excuse will not receive credit and will not be graded. In some cases, flexibility for work related travel affecting access to online resources may be arranged, but requires advanced notification and instructor approval. An exception to this is that there will be a 2-day grace period for homework assignments only (does not include current event summaries, project presentation slides, final project report). Homework assignments submitted after Wednesday 11:59pm (after the Monday the assignment was originally due) will be graded but the final assignment grade will only receive 70% credit (assignment grade x 0.7). Homework assignments submitted more than one week after the original due date will not be graded.

Homework assignments will be posted online. Students should view homework assignments as learning experiences. You may consult with your classmates, but you must work on your homework individually. As a courtesy to the professor and the teaching assistant, solutions should be written neatly. It is important that you show all your work in order to receive full credit and you must cite any outside resources used.

Current Events:

There will also be required weekly written summaries of current events related to cybersecurity and information assurance (due by 4:00pm on Mondays) that will usually involve a few paragraphs (more details will be provided). These will be graded separately from the homework assignments.

Security tool demo/tutorial:

~~Students will select a security tool to explore and demonstrate its capabilities and functionality as well as providing context for its use cases. Further instructions will be provided.~~

Project:

The project consists of writing a paper on how to design a more secure version of a given computing environment taking into account and applying some of the topics covered in class. Further instructions will be provided.

Exams:

There will be one midterm exam. In the past, it has been a closed book and closed notes exam. However, more recently we tried including a more self-selected option. This will likely also be the case for this year.

Make-up exams will be given only when a student can present evidence that an absence was caused by serious illness, a death in the immediate family, religious observance, or participation in University activities at the request of University authorities. Please contact the instructor before an anticipated exam absence, if at all possible.

Academic Integrity:

The University of Maryland, College Park has a nationally recognized code of Academic Integrity, administered by the Student Honor Council. This Code sets standards for academic integrity at Maryland for all undergraduates and graduate students. As a student you are responsible for upholding these standards for this course. It is very important for you to be aware of the consequences of cheating, fabrication, facilitation, and plagiarism. For more information, please visit <https://studentconduct.umd.edu>.

Academic integrity is a foundation for learning. The University has approved a Code of Academic Integrity available on the web at <https://www.president.umd.edu/administration/policies/section-iii-academic-affairs/iii-100a>. The Code prohibits students from cheating on exams, plagiarizing papers, forging signatures, etc. Allegations of academic dishonesty can be reported directly to the The Office of Student Conduct (301-314-8204) by any member of the campus community.

The University Senate requires that students sign this statement if it is included on an exam or assignment:

"I pledge on my honor that I have not given or received any unauthorized assistance on this examination (or assignment)."

Plagiarism is taken seriously and will not be tolerated. Questionable instances will be submitted to the Office of Student Conduct for external review (and adjudication if necessary).

Required/Recommended Textbooks

- D. Gollmann, Computer Security, Third Edition, John Wiley.
- Required? (No—some content may be covered in slides, however, additional discussion of material and references may only be available in the textbook. Chapter numbers listed in syllabus refer to this book, however, an effort is being made to transition away from this book as a sole source and to rely more on supplemental sources.)
- R. Anderson, Security Engineering, Second Edition, John Wiley.
- Required? (No, but a useful supplement/alternative source with many references. Available online in PDF format for free from: <https://www.cl.cam.ac.uk/~rja14/book.html>)
- P. Gutmann, Engineering Security
- Required? (No, but a useful supplement/alternative source for some topics. Available online in PDF format for free from: <https://www.cs.auckland.ac.nz/~pgut001/pubs/book.pdf>)
- Other materials will be posted on Canvas/ELMS.

Course Outline

Date	Topics	Assignments/Comments
Monday 1/24/2022	Course Information & Expectations History of Computer Security Foundations of Computer Security	<u>Reading</u> Syllabus Chapters 1, 3



Monday 1/31/2022	Foundations of Computer Security Managing Security	<u>Reading</u> Chapters 3, 2 Current event summary #1 due (1/31/2022)
Monday 2/07/2022	Identification and Authentication Access Control	<u>Reading</u> Chapters 4, 5 Current event summary #2 due (2/07/2022) Participation exercise #1 due (2/08/2022)
Monday 2/14/2022	Access Control Security Models	<u>Reading</u> Chapters 5, 11 Current event summary #3 due (2/14/2022)
Monday 2/21/2022	Security Models	<u>Reading</u> Chapters 11, 12 Current event summary #4 due (2/21/2022)
Monday 2/28/2022	Security Evaluation	<u>Reading</u> Chapters 13 Current event summary #5 due (2/28/2022)
Monday 3/07/2022	Unix Security	<u>Reading</u> Chapter 7 Current event summary #6 due (3/07/2022)
Monday 3/14/2022	To be determined	<u>Reading</u> To be determined Current event summary #7 due (3/14/2022)
Monday 3/21/2022	Spring Break	***NO CLASS***
Monday 3/28/2022	Windows Security Communication Security	<u>Reading</u> Chapters 8, 16 Current event summary #8 due (3/28/2022)



Monday 4/04/2022	Communication Security Network Security	<u>Reading</u> Chapters 16, 17 Current event summary #9 due (4/04/2022)
Monday 4/11/2022	Web Security Review for midterm	<u>Reading</u> Chapter 18 Current event summary #10 due (4/11/2022)
Monday 4/18/2022	Midterm exam	***Midterm exam***
Monday 4/25/2022	Project presentations	Project presentation slides/video due (*Monday*, 4/25/2022)
Monday 5/02/2022	Project presentations	Project presentation slides/video due (*Monday*, 5/02/2022)
Monday 5/10/2022	Project presentations, project questions	
Monday 5/16/2022	Final project reports due (no formal class)	Final project report due (*Monday*, 5/16/2022)