



## Information Assurance (ENPM 686)

### Section 0101, CY01

**Instructor:** Edward Condon

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**Teaching Assistant:** Rishabh Jain

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**Assistant Instructor:** Boris Montatsky

**Pronouns:**

**Office Phone:**

**Term:** Spring 2024

**Credits:** 3

**Course Dates:** From January 29, 2024 – May 15, 2024

**Course Times:** Monday 4:00 - 6:40 PM

**Classroom:** Section 0101 -- JMP 3201; Section CY01 -- Online

**CANVAS/ELMS Link:** <https://umd.instructure.com/courses/1360062>

### 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.

### Prerequisites

None.

### Learning Outcomes

After successfully completing this course you will be able to:

- Define and apply core information assurance and cybersecurity design principles to real-world environments or scenarios.
- Review, assess, describe security risks and potential mitigations for a range of settings or applications.
- Summarize, evaluate, and communicate security concerns related to new or ongoing security threats.

**Textbooks** (none required, listed below are some relevant textbooks)

1. D. Gollmann, Computer Security, Third Edition, John Wiley.



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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.)

2. 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> )
3. 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 material will be posted on Canvas/ELMS.

### Required Technology

Ability to access the course material on Canvas/ELMS. Ability to complete and submit written documents for assignments. Ability to create and submit presentation material (slides, potentially with audio and/or video supplementation).

There may be some optional exercises/illustrations where having the ability to use virtual machine images could be useful, but an attempt will be made to make these cross-platform compatible if possible.

### Course Structure

The 0101 section meets face-to-face on Mondays from 4:00 – 6:40 PM in the JMP Building, Room 3201. The structure of the course will include lecture, discussion, and potential group work. Students are expected to attend class on a regular basis and be prepared to engage with the lecture and materials. If you have a conflict on a particular day, please reach out to us in advance of class to discuss.

The CY01 section is an online section. Video recordings of the 0101 section lectures will be made available on the course Canvas/ELMS site. It may also be possible to access or view the lecture in realtime via Zoom. Due dates and times for assignments will be same as for the 0101 section. In some cases, there may be some variation in the format of submitted assignments due to the online format of this section.

## Communication Guidelines

### Communicating with the Instructor

Our goal is to be readily available to you throughout the semester. We can be reached by email either at [econdon+enpm686@umd.edu](mailto:econdon+enpm686@umd.edu) or [bmontats@umd.edu](mailto:bmontats@umd.edu). Please try to review the syllabus or content on ELMS-Canvas before asking certain types of questions (e.g., When is this assignment due? How much is it worth? etc.), but please DO reach out about personal, academic, and intellectual concerns/questions.

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.



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When constructing an email to us (Dr. (A)) please put "ENPM 686(Section 0101, CY01): <Your Topic>" in the subject line. This will draw our attention to your email and enable us to respond to you more quickly.

Additionally, please review [These tips for 'How to email a Professor'](https://collegesofdistinction.com/advice/how-to-write-an-email-to-a-professor-college-freshman-guide/) (https://collegesofdistinction.com/advice/how-to-write-an-email-to-a-professor-college-freshman-guide/). By following these guidelines, you will be ensured to receive a timely and courteous response.

Finally, if you need to discuss issues not appropriate for the classroom and/or email, we can arrange to talk by phone, over Zoom, or in-person. Send us an email asking for a meeting and we can set something up.

### **Announcements**

We will send IMPORTANT messages, announcements, and updates through ELMS-Canvas. To ensure you receive this information in a timely fashion, make sure your email and announcement notifications (including changes in assignments and/or due dates) are enabled in ELMS-Canvas ([How to change notification settings in CANVAS](#)).

Log into our ELMS-Canvas course site at least once every 24-hour period to check your inbox and the Announcements page.

### **Names/Pronouns and Self-Identifications**

The University of Maryland recognizes the importance of a diverse student body, and we are committed to fostering inclusive and equitable classroom environments. We invite you, if you wish, to tell us how you want to be referred to in this class, both in terms of your name and your pronouns (he/him, she/her, they/them, etc.). Keep in mind that the pronouns someone uses are not necessarily indicative of their gender identity. Visit [trans.umd.edu](https://trans.umd.edu) to learn more.

Additionally, it is your choice whether to disclose how you identify in terms of your gender, race, class, sexuality, religion, and dis/ability, among all aspects of your identity (e.g., should it come up in classroom conversation about our experiences and perspectives) and should be self-identified, not presumed or imposed. We will do our best to address and refer to all students accordingly, and we ask you to do the same for all of your fellow Terps.

### **Communicating with your Peers**

With a diversity of perspectives and experience, we may find ourselves in disagreement and/or debate with one another. As such, it is important that we agree to conduct ourselves in a professional manner and that we work together to foster and preserve a virtual classroom environment in which we can respectfully discuss and deliberate controversial questions. We encourage you to confidently exercise your right to free speech—bearing in mind, of course, that you will be expected to craft and defend arguments that support your position. Keep in mind, that free speech has its limit and this course is NOT the space for hate speech, harassment, and derogatory language. We will make every reasonable attempt to create an atmosphere in which each student feels comfortable voicing their argument without fear of being personally attacked, mocked, demeaned, or devalued.

Any behavior (including harassment, sexual harassment, and racially and/or culturally derogatory language) that threatens this atmosphere will not be tolerated. Please alert us immediately if you feel threatened, dismissed, or silenced at any point during our semester together and/or if your engagement in discussion has been in some way hindered by the learning environment.



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## Netiquette Policy

Netiquette is the social code of online classes. Students share a responsibility for the course’s learning environment. Creating a cohesive online learning community requires learners to support and assist each other. To craft an open and interactive online learning environment, communication has to be conducted in a professional and courteous manner at all times, guided by common sense, collegiality and basic rules of etiquette.

## Grading

### Grade Breakdown

Assignment	Points
Participation	4
6 Homework Assignments (1 point each)	6
10 Current Event Summaries (3 points each)	30
Midterm	20
Project Paper Presentation/Proposal	10
Final Paper	30
<b>Total</b>	<b>100 Points</b>

### Course Assignments

#### *Participation (individual)*

- At times there may be brief requests that require input from students for planning purposes.
- Class sessions will usually begin with sharing/discussing some of the current events for the week, engagement and participation is strongly encouraged.

#### *Homework Assignments (individual)*

- Exercises to help illustrate and/or reinforce some of the concepts covered in class.
- If any outside resources are used, they should be cited/referenced clearly.

#### *Current Event Summaries (individual)*

- Three paragraph format – summarize event (in own words), comment on relevance, discuss potential mitigations.
- Source(s) must be cited/referenced.

#### *Midterm (individual)*

- Combination of short-answer (timed) and long-answer (take-home) written questions.
- Demonstrate comprehension and application of concepts covered.

#### *Project Paper Presentation/Proposal (group)*

- Presentation with slides to outline idea/concept for final paper.
- Provides opportunity for feedback/discussion before final paper is due.



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- Scenario based written report.
- Should identify issues needing to be addressed, propose potential changes, and explain how any proposed changes apply to the described scenario.

## Grading Assignments

Some assignments will be graded according to a predetermined set of criteria (i.e., rubric) which will be communicated to students before the assignment is submitted. Other assignments will have expectations and/or examples provided for reference. Homeworks will mostly be graded for completion with solutions provided for self-assessment.

To progress satisfactorily in this class, students need to receive timely feedback. To that end, it is our intention to grade all assignments within **14 days** of their due date or submission. If an assignment is taking longer than expected to grade, students will be informed of when they can expect to see their grade.

## Grade Computation

All assessment scores will be posted on ELMS/Canvas page. If you would like to review any of your grades (including the exams), or have questions about how something was scored, please email us to schedule a time for us to meet and discuss.

It is expected that you will submit work by the deadline listed in the syllabus and/or on ELMS-Canvas. Late work will be penalized according to the late work policy described in the **Course Policies and Procedures** section below.

**Grade Disputes:** All grading concerns must be sent to the instructor(s) via e-mail within 2 weeks of the grade being posted. If the instructor elects to review your assignment it will be for an exhaustive re-grade and your score for the assignment may go up or down depending on what the re-grade determines. You should include a reason or explanation for why you think a grade is incorrect or should be reviewed.

Final letter grades are assigned based on the percentage of total assessment points earned. To be fair to everyone we have to establish clear standards and apply them consistently, so please understand that being close to a cutoff is not the same as making the cut (89.99  $\neq$  90.00). It would be unethical to make exceptions for some and not others.

Final Grade Cutoffs				
A+ = 100 – 99	B+ = 89.99 – 89	C+ = 79.99 – 79	D+ = 69.99 – 69	F = 59.99 – 0
A = 98.99 – 90.01	B = 88.99 – 80.01	C = 78.99 – 70.01	D = 68.99 – 60.01	
A- = 90	B- = 80	C- = 70	D- = 60	



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Extra Credit Generally Not Offered. Occasionally an assignment may have an optional “bonus” option applicable only to that assignment.

- **Curve:** There will be no curve for the class.
- **Rounding:** Grades are not rounded up/down.
- **All assignments must be submitted via ELMS. Assignments submitted outside of ELMS will not be accepted or graded.**
- **Assignments are not completed until they are submitted in ELMS.**
- **The only timestamp that matters is the one in ELMS.**
- **Check that you have submitted the correct assignment after you have uploaded it.**

## Questions/Troubleshooting Matrix

Support Item	Support Contact
Class administrative issues	1. Review the syllabus 2. Review the week 1 slides 3. Contact the professor
Technical questions	1. Google 2. Contact the TA for your section 3. Contact the Professor
ELMS/Canvas issues	IT Support- <a href="https://itsupport.umd.edu/">https://itsupport.umd.edu/</a>
Issues with lecture video capture/playback	DETS - <a href="mailto:dets-support@umd.edu">dets-support@umd.edu</a>

## Course Schedule

Week 1	Week of January 29 <sup>th</sup> - Intro / History / Foundations / Managing (Current Event #1 issued)
Week 2	Week of February 5 <sup>th</sup> – Identification / Authentication / Access Control (CE #1 due; CE #2 issued)
Week 3	Week of February 12 <sup>th</sup> – Access Control / Security Models (CE #2 due; CE #3 issued)
Week 4	Week of February 19 <sup>th</sup> – Security Models (CE #3 due; CE #4 issued)
Week 5	Week of February 26 <sup>th</sup> – Security Evaluation (CE #4 due; CE #5 issued)
Week 6	Week of March 4 <sup>th</sup> – Unix Security (CE #5 due; CE #6 issued)



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Week 7	Week of March 11 <sup>th</sup> – To be determined and/or catch-up (CE #6 due; CE #7 issued)
Week 8	Week of March 18 <sup>th</sup> – Spring Break – NO CLASS
Week 9	Week of March 25 <sup>th</sup> – Communications Security (CE #7 due; CE #8 issued)
Week 10	Week of April 1 <sup>st</sup> – Network Security (CE #8 due; CE #9 issued)
Week 11	Week of April 8 <sup>th</sup> – Web Security / Review for midterm (CE #9 due; CE #10 issued)
Week 12	Week of April 15 <sup>th</sup> – Midterm exam (CE #10 due)
Week 13	Week of April 22 <sup>nd</sup> – Project presentations/proposals
Week 14	Week of April 29 <sup>th</sup> – Project presentations/proposals
Week 15	Week of May 6 <sup>th</sup> – Project presentations/proposals
<b>Final Project Paper Due Wednesday May 15<sup>th</sup> @ 11:59pm</b>	

All times are based on Eastern Standard Time/Eastern Daylight Time, the time zone UMD is physically located in.

**Note:** This is a tentative schedule, and subject to change as necessary – monitor ELMS-Canvas for current deadlines. In the unlikely event of a prolonged university closing, or an extended absence from the university, adjustments to the course schedule, deadlines, and assignments will be made based on the duration of the closing and the specific dates missed.

### Course Policies and Procedures

The University of Maryland’s conduct policy indicates that course syllabi should refer to a webpage of course-related policies and procedures. For a complete list of graduate course related policies, visit the [Graduate School website](#). Below are course-specific policies and procedures which explain how these Graduate School policies will be implemented in this class.

### Satisfactory Performance

The Graduate School expects students to take full responsibility for their academic work and academic progress. The student, to progress satisfactorily, must meet all the academic requirements of this course. Additionally, each student is expected to complete all readings and any preparatory work before each class session, come to class prepared to make substantive contributions to the learning experience, and to proactively communicate with the instructor when challenges or issues arise.



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### Questions about Assignments

Please ask all questions you may have about an assignment by 2:00 PM the weekday (M, Tu, W, Th, F) before the assignment is due. Any questions asked after that time may not be answered in time for you to make changes to your work.

### Late Work Policy

Assignments should be completed by the due date and time listed with the assignment, on the syllabus, and/or in the course calendar. If you are unable to complete an assignment by the stated due date, it is your responsibility to contact your instructor to discuss an extension, at least 24 hours BEFORE the assignment is due. Extensions are not guaranteed, but may be granted at the instructor's discretion.

***Late assignments will have 30% point deduction. Assignments submitted over one week late will not be accepted or graded. If there are extenuating circumstances for you to submit work late please contact the instructor as soon as possible along with proof of your extenuating circumstance (preferably before the assignment is due.)***

### Religious Observance

It is the student's responsibility to inform the instructor of any intended absences for religious observances in advance. Notice should be provided as soon as possible but no later than the end of the schedule adjustment period.

### Academic Integrity

For this course, some of your assignments will be collected via Turnitin on ELMS/Canvas. We have chosen to use this tool because it can help you improve your scholarly writing and help us verify the integrity of student work. For information about Turnitin, how it works, and the feedback reports you may have access to, visit [Turnitin Originality Checker for Students](#)

The University's Code of Academic Integrity is designed to ensure that the principles of academic honesty and integrity are upheld. In accordance with this code, the University of Maryland does not tolerate academic dishonesty. Please ensure that you fully understand this code and its implications because all acts of academic dishonesty will be dealt with in accordance with the provisions of this code. All students are expected to adhere to this Code. It is your responsibility to read it and know what it says, so you can start your professional life on the right path. **As future professionals, your commitment to high ethical standards and honesty begins with your time at the University of Maryland.**

It is important to note that course assistance websites, such as CourseHero, or AI generated content are not permitted sources, unless the instructor explicitly gives permission. Material taken or copied from these sites can be deemed unauthorized material and a violation of academic integrity. These sites offer information that might be inaccurate or biased and most importantly, relying on restricted sources will hamper your learning process, particularly the critical thinking steps necessary for college-level assignments.

Additionally, students may naturally choose to use online forums for course-wide discussions (e.g., Group lists or chats) to discuss concepts in the course. However, **collaboration on graded assignments is strictly prohibited unless otherwise stated.** Examples of prohibited collaboration include: asking classmates for answers on quizzes or exams, asking for access codes to clicker polls, etc. Please visit the [Office of Graduate Studies' full list of campus-wide policies](#) and reach out if you have questions.











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Finally, on each exam or assignment you must write out and sign the following pledge: **"I pledge on my honor that I have not given or received any unauthorized assistance on this exam/assignment."**

If you ever feel pressured to comply with someone else’s academic integrity violation, please reach out to us straight away. Also, **if you are ever unclear** about acceptable levels of collaboration, **please ask!**

To help you avoid unintentional violations, **the following table** lists levels of collaboration that are acceptable for each graded exercise. Each assignment will contain more specific information regarding acceptable levels of collaboration.

	 <b>OPEN NOTES</b>	 <b>USE BOOK</b>	 <b>LEARN ONLINE</b>	 <b>GATHER CONTENT With AI</b>	 <b>ASK FRIENDS</b>	 <b>WORK IN GROUPS</b>
Homework Assignments	✓	✓	✓	---	---	---
Midterm	✓	✓	✓	---	---	---
Final Paper	✓	✓	✓	✓*	---	✓

\* Use of AI may be permitted with Final Paper but only if approved in advance and its use must be clearly documented.

## Course Evaluation

Please submit a course evaluation through Student Feedback on Course Experiences in order to help faculty and administrators improve teaching and learning at Maryland. All information submitted to Course Experiences is confidential. Campus will notify you when Student Feedback on Course Experiences is open for you to complete your evaluations at the end of the semester. Please go directly to the [Student Feedback on Course Experiences](#) to complete your evaluations. By completing all of your evaluations each semester, you will have the privilege of accessing through Testudo the evaluation reports for the thousands of courses for which 70% or more students submitted their evaluations.

## Copyright Notice

Course materials are copyrighted and may not be reproduced for anything other than personal use without written permission.

## Tips for Succeeding in this Course

1. **Participate.** We invite you to engage deeply, ask questions, and talk about the course content with your classmates. You can learn a great deal from discussing ideas and perspectives with your peers and professor. Participation can also help you articulate your thoughts and develop critical thinking skills.
2. **Manage your time.** Students are often very busy, and we understand that you have obligations outside of this class. However, students do best when they plan adequate time that is devoted to course work. Block your schedule and set aside plenty of time to complete assignments including extra time to handle any technology related problems.



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**Login Regularly.** We recommend that you log in to ELMS-Canvas several times a week to view announcements, discussion posts and replies to your posts. You may need to log in multiple times a day when group submissions are due.

4. **Do not fall behind.** This class moves at a quick pace and each week builds on the previous content. If you feel you are starting to fall behind, check in with the instructor as soon as possible so we can troubleshoot together. It will be hard to keep up with the course content if you fall behind in the pre-work or post-work.
5. **Use ELMS-Canvas notification settings.** Pro tip! Canvas ELMS-Canvas can ensure you receive timely notifications in your email or via text. Be sure to enable announcements to be sent instantly or daily.
6. **Ask for help if needed.** If you need help with ELMS-Canvas or other technology, IT Support. If you are struggling with a course concept, reach out to us and your classmates for support.

### Student Resources and Services

Taking personal responsibility for your learning means acknowledging when your performance does not match your goals and doing something about it. We hope you will come talk to us so that we can help you find the right approach to success in this course, and we encourage you to visit the [Counseling Center's Academic Resources](#) to learn more about the wide range of resources available to you. Below are some additional resources and services commonly used by graduate students. For a more comprehensive list, please visit the Graduate School's [Campus Resources Page](#).

#### Accessibility and Disability Services

The University of Maryland is committed to creating and maintaining a welcoming and inclusive educational, working, and living environment for people of all abilities. The University of Maryland is also committed to the principle that no qualified individual with a disability shall, on the basis of disability, be excluded from participation in or be denied the benefits of the services, programs, or activities of the University, or be subjected to discrimination. The [Accessibility & Disability Service \(ADS\)](#) provides reasonable accommodations to qualified individuals to provide equal access to services, programs and activities. ADS cannot assist retroactively, so it is generally best to request accommodations several weeks before the semester begins or as soon as a disability becomes known. Any student who needs accommodations should contact us as soon as possible so that we have sufficient time to make arrangements.

For assistance in obtaining an accommodation, contact Accessibility and Disability Service at 301-314-7682, or email them at [adsfrontdesk@umd.edu](mailto:adsfrontdesk@umd.edu). Information about [sharing your accommodations with instructors, note taking assistance](#) and more is available from the [Counseling Center](#).

#### Writing Center

Everyone can use some help sharpening their communication skills (and improving their grade) by visiting [The Graduate School's Writing Center](#) and schedule an appointment with them. Additionally, international graduate students may want to take advantage of the Graduate School's free [English Editing for International Graduate Students \(EEIGS\) program](#).

#### Health Services

The University offers a variety of physical and mental health services to students. If you are feeling ill or need non-emergency medical attention, please visit the [University Health Center](#).



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If you feel it would be helpful to have someone to talk to, visit [UMD's Counseling Center](#) or [one of the many other mental health resources on campus](#).

### **Notice of Mandatory Reporting**

Notice of mandatory reporting of sexual assault, sexual harassment, interpersonal violence, and stalking: As a faculty member, we are designated as a "Responsible University Employee," and we must report all disclosures of sexual assault, sexual harassment, interpersonal violence, and stalking to UMD's Title IX Coordinator per University Policy on Sexual Harassment and Other Sexual Misconduct.

If you wish to speak with someone confidentially, please contact one of UMD's confidential resources, such as [CARE to Stop Violence](#) (located on the Ground Floor of the Health Center) at 301-741-3442 or the [Counseling Center](#) (located at the Shoemaker Building) at 301-314-7651.

You may also seek assistance or supportive measures from UMD's Title IX Coordinator, Angela Nastase, by calling 301-405-1142, or emailing [titleIXcoordinator@umd.edu](mailto:titleIXcoordinator@umd.edu).

To view further information on the above, please visit the [Office of Civil Rights and Sexual Misconduct's](#) website at [ocrsm.umd.edu](http://ocrsm.umd.edu).

### **Basic Needs Security**

If you have difficulty affording groceries or accessing sufficient food to eat every day, or lack a safe and stable place to live, please visit [UMD's Division of Student Affairs website](#) for information about resources the campus offers you and let us know if we can help in any way.

### **Veteran Resources**

UMD provides some additional supports to our student veterans. You can access those resources at the office of [Veteran Student life](#) and the [Counseling Center](#). Veterans and active duty military personnel with special circumstances (e.g., upcoming deployments, drill requirements, disabilities) are welcome and encouraged to communicate these, in advance if possible, to the instructor.