Course Number: CSEC-140 Introduction to Cybersecurity
Course Syllabus

NOTE: The information presented in this syllabus is subject to expansion, change, or modification during the semester.

Course Description

This course will introduce many fundamental cybersecurity concepts. The course will teach students to think about information systems using an adversarial mindset, evaluate the risk to information systems, and introduce controls that can be implemented to reduce risk. Topics will include authentication systems, data security and encryption, risk management and security regulatory frameworks, networking and system security, application security, organizational and human security considerations, and societal implications of cybersecurity issues. These topics will be discussed at an introductory level with a focus on applied learning through hands-on virtual lab exercises

Course Learning Outcomes

- Students will be able to apply principles of cybersecurity to analyze the risk associated with many information system types and provide broad recommendations for how to improve security.
- Students will understand the application of basic cryptographic concepts to securing authentication mechanisms, data at rest, and data in transit.
- Students will be able to identify non-technical elements that could impact the security of an organization or system.
- Students will be able to discuss ethical issues involved in cybersecurity and the impact of cybersecurity on society.

Course Materials

Optional Supplemental Materials

- Andress, J. (2019). Foundations of Information Security: A Straightforward Introduction. San Francisco: No Starch Press.
- Aumasson, J.-P. (2017). Serious Cryptography: A Practical Introduction to Modern Encryption. San Francisco: No Starch Press.
- Bishop, M. (2018). Computer Security: Art and Practice (2nd ed.). Addison-Wesley.
- NIST. (2013, April). Security and Privacy Controls for Federal Information Systems and Organizations (NIST SP 800-53 R4). Retrieved from https://nvlpubs.nist.gov/nistpubs/SpecialPublications/NIST.SP.800-53r4.pdf
- NIST. (2018, April 16). Framework for Improving Critical Infrastructure Cybersecurity Version 1.1. Retrieved from https://nvlpubs.nist.gov/nistpubs/CSWP/NIST.CSWP.04162018.pdf
- Seitz, J. (2014). Black Hat Python. San Francisco: No Starch Press.
- Stallings, W. (2017). Computer Security: Principles and Practices (4th ed.). Pearson.

Expectations

This is a 3-credit semester course. You should plan to spend 8 to 12 hours on course activities each week.

It is the responsibility of each student to understand fully the expectations for participation for every course in which the student is enrolled. Not contributing online for more than a week will adversely affect one's grade. Students must log in to and interact with the course regularly, and actively contribute to the discussions online, as these make up a significant portion of one's grade. If a student is unable to attend a synchronous session, he or she is personally responsible for the material that may have been missed.

Important RIT Deadlines: For term dates, including add/drop and withdrawal deadlines refer to the the RIT Calendar.

Use the arrows at the top and bottom of the page to review additional syllabus information.

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Additional Support

If you have any technical questions about using myCourses

- Click ***Help*** in the top menu to access the myCourses documentation, or
- Contact the Academic Technologies Support Desk

If you need help locating resources from the RIT Library, contact Roman Koshykar, GCCIS Liaison/Librarian.

Course Schedule

See the Weekly Plans for details on readings and assignments. All times listed in the course are US Eastern time. Unless otherwise noted:

- Weeks start on the **Wednesday** listed and end on the following **Tuesday**
- Meeting times are as follows:
  - Sections 1 and 4 are online, asynchronous courses. There are no expected synchronous meeting times but faculty members may make themselves available for synchronous meetings.
  - Sections 2, 3, 5, 6, 7, 8, and 9 meet synchronously. Students are expected to participate synchronously at the time for their A/B split listed in their schedule. If the student's schedule lists Wednesday at 3:35-4:50, that is their only synchronous obligation for the week. They have no obligation to attend or participate synchronously during the time of any other split.
- Students are permitted to "flex" for all synchronous meetings. Instructors will provide Zoom links to students to participate synchronously over Zoom.
  - Faculty and teaching assistants may have less ability to troubleshoot technical difficulties for students participating over Zoom.
- Lecture content will become available at 12:00 am on Sundays. Students are expected to watch lectures prior to the start of the unit.
  - Except for week 1, which will be available Wednesday at 12:00 am.
- Quizzes, which will cover video lecture content, will be available on Sunday at 12:00 am and due Wednesday at 3:00 PM.
  - Except for week 1, which will be available Wednesday at 12:00 am and will be due Sunday at 11:59 PM.
- Class activities
  - For synchronous sections (2, 3, 5, 6, 7, 8 and 9), class activities are due at 11:59 pm on the day your split meets synchronously.
  - For asynchronous sections (1 and 4), class activities are due at 11:55 pm on Tuesdays.
- Assignments are due at 11:59 PM on Tuesdays.
- There are no exams in this course.
- There is a final project that involves incremental work building on class activities. The due date for the final project will be announced at a later point in the semester.

Course schedule

Week	Topics	Assignments
Getting Started and Syllabus	• Course Orientation	• Syllabus • Schedule
Week 1: **8/19 - 8/25**	• Cybersecurity First Principles	• Quiz 1 (Due 8/23 @ 11:55pm) • Class Activity 1 (Due date varies) • Assignment 1 (Due 8/25 @ 11:55 PM)
Week 2: **8/26 - 9/1**	• Cryptography Part 1	• Quiz 2 (Due 8/26 @ 3:00pm) • Class Activity 2 (Due date varies) • Assignment 2 (Due 9/1 @ 11:55 PM)
Week 3:	• Cryptography Part 2	• Quiz 3 (Due 9/2 @ 3:00pm)

9/2 - 9/8		• Class Activity 3 (Due date varies) • Assignment 3 (Due 9/8 @ 11:55 PM)
Week 4: **9/9 - 9/15**	• Identification • Authentication	• Quiz 4 (Due 9/9 @ 3:00pm) • Class Activity 4 (Due date varies) • Assignment 4 (Due 9/15 @ 11:55 PM)
Week 5: **9/16 - 9/22**	• Authorization • Access Control • Accountability	• Quiz 5 (Due 9/16 @ 3:00pm) • Class Activity 5 (Due date varies) • Assignment 5 (Due 9/22 @ 11:55 PM)
Week 6: **9/23 - 9/29**	• Security Risk Analysis	• Quiz 6 (Due 9/23 @ 3:00pm) • Class Activity 6 (Due date varies) • Assignment 6 (Due 9/29 @ 11:55 PM)
Week 7: **9/30 - 10/6**	• Compliance • Laws • Regulation	• Quiz 7 (Due 9/30 @ 3:00pm) • Class Activity 7 (Due date varies) • Assignment 7 (Due 10/6 @ 11:55 PM)
Week 8: **10/7 - 10/13**	• Networking Part 1	• Quiz 8 (Due 10/7 @ 3:00pm) • Class Activity 8 (Due date varies) • Assignment 8 (Due 10/13 @ 11:55 PM)
Week 9: **10/14 - 10/20**	• Networking Part 2	• Quiz 9 (Due 10/14 @ 3:00pm) • Class Activity 9 (Due date varies) • Assignment 9 (Due 10/20 @ 11:55 PM)
Week 10: **10/21 - 10/27**	• Networking Part 3	• Quiz 10 (Due 10/21 @ 3:00pm) • Class Activity 10 (Due date varies) • Assignment 10 (Due 10/27 @ 11:55 PM)

Week 11: **10/28 - 11/3**	• Software Security	• Quiz 11 (Due 10/28 @ 3:00pm) • Class Activity 11 (Due date varies) • Assignment 11 (Due 11/3 @ 11:55 PM)
Week 12: **11/4 - 11/10**	• System Security	• Quiz 12 (Due 11/4 @ 3:00pm) • Class Activity 12 (Due date varies) • Assignment 12 (Due 11/10 @ 11:55 PM)
Week 13: **11/11 - 11/17**	• Organization Security • Human Security	• Quiz 13 (Due 11/11 @ 3:00pm) • Class Activity 13 (Due date varies) • Assignment 13 (Due 11/17 @ 11:55 PM)
Week 14: **11/18 - 11/24**	• Societal Issues • Ethics	• Quiz 14 (Due 11/18 @ 3:00pm) • Class Activity 14 (Due date varies) • Assignment 14 (Due 11/24 @ 11:55 PM)
Final Exam Period **12/1 - 12/8**	• No new content	• Final Project Due (Due date TBA)

Course Organization

This course is organized into 11 topic units spread over 14 weeks. Most units will only be one week in length, but several units will span multiple weeks. Please check the course schedule for more details on this.

Within each weekly content folder, there are sub-modules for:

- Topic Materials, including video lectures and related readings
- Class Activities
- Assignments

Topic Materials

This section of the course content will contain video lectures and related readings. Students are expected to watch video lectures and read any assigned readings prior to a unit beginning. With the exception of week 1, topic materials will be made available at 12:01 am on Sundays. Week 1 material will be made available at 12:01 am on Wednesday, August 19th.

Quizzes

There will be a weekly quiz on the video lecture content and readings. With the exception of week 1, these quizzes will open at 12:01 am on Sundays and are due by 3pm on Wednesdays. That gives students Sunday, Monday, Tuesday, and part of the day on Wednesday to complete the quiz. Week 1 is the exception - the quiz will be available immediately and must be completed by 11:55 pm on Sunday, August 23rd.

Class Activities

There will be one in-class activity per week in CSEC 140. Class activities are group activities and each group only needs to provide one submission, in the form of a link to a Google Doc. Change tracking must be enabled on the Google Doc and all students in the group must participate. All group members will receive the same grade unless there is evidence of some group members contributing more than others. Participation and contributions will be evaluated by examining the changes each group member makes to the shared document.

Beginning in week 6, many class activities will directly contribute to the final project.

For synchronous sections of CSEC 140 (2, 3, 5, 6, 7, 8, 9), class activities will be due at 11:55pm on which your class meeting time occurs. This meeting time will not be shown in MyCourses.

For asynchronous sections of CSEC 140 (1, 4), class activities will be due at 11:55 PM on Tuesdays.

Assignments

There will be one assignment per week for CSEC 140. Assignments are expected to be completed **individually.** Some assignments will be of a technical nature, but some assignments may involve generating a written response to a reading or a case study. Assignments are always due at 11:55 pm on Tuesdays.

Final Project

There is a final project for CSEC 140, that will involve integrating the results of many class activities (starting in week 6) into a single analytical document.

Exams

There are no exams for CSEC 140.

Your grade for this course will be based on these assessments:

Component	Weight	Notes
Quizzes	15%	Individual
Assignments	50%	Individual
Class Activities	15%	Group
Final Project	20%	Group
Total	**100%**	

Grade Scheme

Grade	Percentile		Grade	Percentile
A	94% or above		B-	80%–82%
A-	90%–93%		C+	77%–79%
B+	87%–89%		C-	70%–76%
B	83%–86%		F	Below 70%

Late Work/Extension Requests

Late work will not be accepted. If you believe you will miss a deadline due to an unforeseen event, contact your instructor as soon as possible to see if we can come to a resolution. *Assignments emailed to instructors or teaching assistants after the Assignment folder is closed will not be accepted.*

Extra Credit Policy

At this time, there is no planned extra credit. If that changes, an announcement will be made at a later time.

Academic Integrity

As an institution of higher learning, RIT expects students to behave honestly and ethically at all times, especially when submitting work for evaluation in conjunction with any course or degree requirement. RIT Online requires all students to become familiar with the RIT Honor Code and with RIT's Academic Integrity Policy. You will need to confirm you have read and understand these policies in the Student Identity Verification Checklist.

Academic Adjustments

RIT is committed to providing academic adjustments to students with disabilities. If you would like to request academic adjustments such as testing modifications due to a disability, please contact the Disability Services Office. Contact information for the DSO and information about how to request adjustments can be found at Disability Services Office. After you receive academic adjustment approval, it is imperative that you see me during office hours so that we can work out whatever arrangement is necessary.

Title IX

Title IX violations are taken very seriously at RIT. RIT is committed to investigate complaints of sexual discrimination, sexual harassment, sexual assault and other sexual misconduct, and to ensure that appropriate action is taken to stop the behavior, prevent its recurrence and remedy its effects. Please view the Title IX Rights & Resources at RIT.

RIT Network Acceptable Use Guidelines

The RIT Code of Conduct for Computer & Network Use guides the use of computer and network resources at RIT. This is a summary of the RIT Code of Conduct. The full text is available here. The computing, network and information resources of the Rochester Institute of Technology are intended to support the mission of teaching, scholarly activity and service for the Institute's students, faculty, and staff. Appropriate use of the computer and networking facilities by members of RIT's academic community should always reflect academic honesty and good judgment in the utilization of shared resources and observe the ethical and legal guidelines of society. You will need to confirm you have read and understand the full Code of Conduct in the Student Identity Verification Checklist.

Sharing Protected Information

When sharing copyrighted content on the internet with your classmates, please make sure that you link to a legally public source. Repeated access to illegal sources may cause you or your classmates to receive Digital Millennium Copyright Act warnings as well as possible disabling of your RIT account. View more about the RIT Copyright Infringement policy.

Emergencies

In the event of a University-wide emergency course requirements, classes, deadlines and grading schemes are subject to changes that may include alternative delivery methods, alternative methods of interaction with the instructor, class materials, and/or classmates, a revised attendance policy, and a revised semester calendar and/or grading scheme.

Student Support Availability

Student Learning, Support & Assessment offers a wide range of programs and services to support student success including the Academic Support Center, College Restoration Program, Disabilities Services, English Language Center, Higher Education Opportunity Program, Spectrum Support program, and TRiO Support Services. Students can find out about specific services and programs at rit.edu/slsa.

We are all aware of the unique circumstances of this fall semester resulting from the worldwide COVID-19 SARS-2 pandemic. RIT has consulted federal, state, and local guidelines and policies to implement a safe, yet educational environment for students, faculty and staff. These guidelines, located at https://www.rit.edu/ready/ are routinely updated as conditions change.

What do these mean for this class? When we meet in person everyone will wear a mask that covers their mouth and nose at all times and have freshly washed or sanitized hands. In class students will sit in assigned seats in the locations designated by faculty. We will not congregate in hallways, bathrooms or classrooms prior to or after class. Any presence of fever or other COVID-19 symptoms will be reported on the RIT Daily Health Screen Monitoring https://www.rit.edu/news/rit-launches-daily-health-screen-monitoring-covid-19-symptoms; please notify your instructor so that the best way to accommodate your learning can be planned.

When we meet via our synchronous Zoom sessions you will promptly log into the session, participate as if you were in class, (i.e., no watching a favorite movie during class or eating/cooking dinner!) with video on at all times and audio available-muting as needed.

We will talk in class about these guidelines and make sure we all are comfortable with what is happening during class. I encourage your communication about any special needs or concerns. Together we will learn about Research Foundations in a safe and productive format!