

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

No textbook is required. Course materials are made available here on myCourses every week.

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. (2020, September). Security and Privacy Controls for Information Systems and Organizations (NIST SP 800-53 R5). Retrieved from <https://nvlpubs.nist.gov/nistpubs/SpecialPublications/NIST.SP.800-53r5.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.

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

Course Schedule

Refer to the **Content** tab for details on every week's content, availability, and deadlines. All times listed in the course are US Eastern time, unless otherwise noted. The tables below show the common availability dates and deadlines for each week.

CSEC-140 study weeks start on a Tuesday and end on a Monday. However, the lecture videos will be available the weekend prior to the start of a CSEC-140 study week, and you are expected to watch those videos prior to the start of that CSEC-140 study week.

Availability

Lecture Videos / Class Activity Handout	Friday 12:01 AM (prior to lecture session)
Quiz ⁽¹⁾	Tuesday 8:00 PM
Assignment	Tuesday 12:01 AM

(1) First week quiz is an exception (available Thursday 8:00 PM)

Due Dates

Class Activity ⁽¹⁾	Thursday 11:59 PM
Quiz ⁽²⁾	Friday 11:59 PM
Assignment	Monday 11:59 PM

(1) First week class activity is an exception (due Tuesday 11:59 PM)

(2) First week quiz is an exception (due Sunday 11:59 PM)

Important Notes:

- Students are expected to watch lecture videos prior to coming to lecture session for that week.
- **Quizzes** will mainly cover video lecture content but can possibly contain questions from the lecture session. They will not contain questions from the class activities, but you are encouraged to take the quizzes after the class activities if you need help understanding the content in a more technical way.
- You must review the **class activity handout** at least a day prior to the class activity session and deploy any required virtual machine(s) in RLES. This will be discussed in more detail during week 1.
- Remember **assignments** are due at 11:59 PM on Mondays **the following week**.
- There is a final project that involves incremental work building on class activities.
- There are no exams in this course.

Week	Topics	Sessions	Assignments
Week 1: 8/23 - 8/29	<ul style="list-style-type: none"> • Cybersecurity First Principles 	<ul style="list-style-type: none"> • Tuesday: Class Activity • Thursday: Lecture 	<ul style="list-style-type: none"> • Quiz 1 • Class Activity 1 • Assignment 1
Week 2: 8/30 - 9/5	<ul style="list-style-type: none"> • Basic Cryptography and Data Security (Part 1) 	<ul style="list-style-type: none"> • Tuesday: Lecture • Thursday: Class Activity 	<ul style="list-style-type: none"> • Quiz 2 • Class Activity 2 • Assignment 2

Week 3: 9/6 - 9/12	<ul style="list-style-type: none"> • Basic Cryptography and Data Security (Part 2) 	<ul style="list-style-type: none"> • Tuesday: Lecture • Thursday: Class Activity 	<ul style="list-style-type: none"> • Quiz 3 • Class Activity 3 • Assignment 3
Week 4: 9/13 - 9/19	<ul style="list-style-type: none"> • Security Risk Analysis 	<ul style="list-style-type: none"> • Tuesday: Lecture • Thursday: Class Activity 	<ul style="list-style-type: none"> • Quiz 4 • Class Activity 4
Week 5: 9/20 - 9/26	<ul style="list-style-type: none"> • Networking and Network Security (Part 1) 	<ul style="list-style-type: none"> • Tuesday: Lecture • Thursday: Class Activity 	<ul style="list-style-type: none"> • Quiz 5 • Class Activity 5 • Assignment 4
Week 6: 9/27 - 10/3	<ul style="list-style-type: none"> • Networking and Network Security (Part 2) 	<ul style="list-style-type: none"> • Tuesday: Lecture • Thursday: Class Activity 	<ul style="list-style-type: none"> • Quiz 6 • Class Activity 6 • Assignment 5
Week 7: 10/4 - 10/10	<ul style="list-style-type: none"> • Networking and Network Security (Part 3) 	<ul style="list-style-type: none"> • Tuesday: Lecture • Thursday: Class Activity 	<ul style="list-style-type: none"> • Quiz 7 • Class Activity 7 • Assignment 6
Week 8: 10/11 - 10/17	<ul style="list-style-type: none"> • Compliance • Laws • Regulations 	<ul style="list-style-type: none"> • Tuesday: Lecture • Thursday: Class Activity 	<ul style="list-style-type: none"> • Quiz 8 • Class Activity 8 • Assignment 7

Week 9: 10/18 - 10/24	<ul style="list-style-type: none"> • Identification • Authentication 	<ul style="list-style-type: none"> • Tuesday: Lecture • Thursday: Class Activity 	<ul style="list-style-type: none"> • Quiz 9 • Class Activity 9 • Assignment 8
Week 10: 10/25 - 10/31	<ul style="list-style-type: none"> • Authorization • Access Control • Accountability 	<ul style="list-style-type: none"> • Tuesday: Lecture • Thursday: Class Activity 	<ul style="list-style-type: none"> • Quiz 10 • Class Activity 10 • Assignment 9
Week 11: 11/1 - 11/7	<ul style="list-style-type: none"> • Software Security 	<ul style="list-style-type: none"> • Tuesday: Lecture • Thursday: Class Activity 	<ul style="list-style-type: none"> • Quiz 11 • Class Activity 11 • Assignment 10
Week 12: 11/8 - 11/14	<ul style="list-style-type: none"> • System Security 	<ul style="list-style-type: none"> • Tuesday: Lecture • Thursday: Class Activity 	<ul style="list-style-type: none"> • Quiz 12 • Class Activity 12 • Assignment 11
Week 13: 11/15 - 11/21	<ul style="list-style-type: none"> • Organization Security • Human Security 	<ul style="list-style-type: none"> • Tuesday: Lecture • Thursday: Class Activity 	<ul style="list-style-type: none"> • Quiz 13 • Class Activity 13
Break: 11/22 - 11/28	Break	Break	Break

Week 14: 11/29 - 12/5	<ul style="list-style-type: none"> • Ethics • Societal Issues 	<ul style="list-style-type: none"> • Tuesday: Lecture • Thursday: Class Activity 	<ul style="list-style-type: none"> • Quiz 14 • Class Activity 14 • Final Project
Final Exam Period	<ul style="list-style-type: none"> • No new content 	<ul style="list-style-type: none"> • No sessions 	<ul style="list-style-type: none"> • No exam • No class activity • No assignment

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.

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 the lecture session. Topic materials will be made available at 12:01 AM on Fridays.

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 8:00 PM on Tuesday and are due by 11:59 PM on Friday. That gives students Tuesday (part of day), Wednesday, Thursday, and Friday to take the quiz. Week 1 is the exception - the quiz will be available 8:00 PM on Thursday and must be taken by 11:59 PM on Sunday.

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 4, many class activities will directly contribute to the final project.

Class activities will be due at 11:59 PM on the same day the activity session is conducted (i.e., Thursdays, except for the first week when the class activity will be conducted on a Tuesday).

Assignments

There will be one assignment per week except for weeks 4, 13, and 14. 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 11:59 PM on Monday at the end of a CSEC-140 study week.

Final Project

There is a final project for CSEC-140 that will involve integrating the results of many class activities (starting in week 4) into a single report.

Exams

There are no exams for CSEC-140.

Grading Policy

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 Submissions/Due Date Extensions

Late submissions will not be accepted, and due dates will not be extended. If you believe you will miss a due date, contact your instructor as soon as possible to see if we can come to a resolution. Exceptions may be made for late submission or due date extension on a case-by-case basis.

Review the following for information on RIT's policy on excused absences.

- <https://www.rit.edu/academicaffairs/policiesmanual/d040>
- <https://www.rit.edu/provost/sites/rit.edu.provost/files/images/RIT%20Attendance%20Policy.pdf>

Emailed Submissions

Assignments or in-class activities emailed to Instructors or Teaching Assistants 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.

University Policies

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 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 contact me as early as possible 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. Additional information and policies are available at <https://www.rit.edu/fa/compliance/title-ix> and <https://www.rit.edu/fa/compliance/title-ix-policies-and-resources>.

RIT is committed to providing a safe learning environment, free of harassment and discrimination as articulated in our university policies located on our [governance website](#). RIT's policies require faculty to share information about incidents of gender-based discrimination and harassment with [RIT's Title IX](#) coordinator or deputy coordinators when incidents are stated to them directly. The information you provide to a non-confidential resource which includes faculty will be relayed only as necessary for the Title IX Coordinator to investigate and/or seek resolution. Even RIT Offices and employees who cannot guarantee confidentiality will maintain your privacy to the greatest extent possible.

If an individual discloses information during a public awareness event, a protest, during a class project, or advocacy event, RIT is not obligated to investigate based on this public disclosure. RIT may however use this information to further educate faculty, staff, and students about prevention efforts and available resources.

If you would like to report an incident of gender-based discrimination or harassment directly, you may do so by using the online [Sexual Harassment, Discrimination, and Sexual Misconduct Reporting](#) or anonymously by using the [Compliance and Ethics Hotline](#).

If you have a concern related to gender-based discrimination and/or harassment and prefer to have a confidential discussion, assistance is available from any of RIT's confidential resources (listed below).

RIT Counseling and Psychological Services
585-475-2261 (V)
585-475-6897 (TTY)
www.rit.edu/counseling

RIT Student Health Center
585-475-2255 (V)
www.rit.edu/studentaffairs/studenthealth

RIT Ombuds Office
585-475-7357
585-475-6424
585-286-4677 (VP)
www.rit.edu/ombuds/contact-us

NTID Counseling and Academic Advising
585-475-6400
www.rit.edu/ntid/caas

Center for Religious Life
585-475-2137
www.rit.edu/studentaffairs/religion

Attendance

As stated in the RIT Attendance Policy (<https://www.rit.edu/academicaffairs/policiesmanual/d040>), "It is the responsibility of all students to attend their scheduled classes regularly and punctually in order to promote their progress and to maintain conditions conducive to effective learning. Absences, for whatever reason, do not relieve students of their responsibility for fulfilling normal requirements in any course. In particular, it is the student's responsibility to make individual arrangements in advance of

missing class due to personal obligations such as religious holidays, job interviews, athletic contests, etc., in order that [they] may meet [their] obligations without penalty for missing class.”

Please notify me if you plan to be absent from class so that we can determine the best way to meet your needs. Arrangements may be made for remote attendance.

Starfish

This course uses the RIT Starfish communication tool in order to promote student success. If I am concerned about a student's academic performance, I may issue an academic alert, which will notify the student and the student's advisors. If you receive an academic alert from Starfish for this course, please contact me as soon as possible to discuss the issue, its potential impact on your success in this course, and resources to assist you.

RIT Code of Conduct for Computer Use

The RIT Code of Conduct for Computer 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, a revised semester calendar, and/or a revised grading scheme.

Student Support Availability

Please feel free to reach out to me about any difficulty you may be having that may impact your performance in this course as soon as it occurs. In addition to your academic advisor, I strongly encourage you to contact the many other support services on campus that stand ready to assist you. These include the Academic Success Center, College Restoration Program, Disability 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 www.rit.edu/studentaffairs.

COVID-19

The COVID-19 pandemic presents a unique set of circumstances for the semester. RIT has consulted federal, state, and local guidelines and policies to implement a safe and educational environment for students, faculty, and staff. These guidelines, located at www.rit.edu/ready/ are routinely updated as conditions change.

Please notify me if you plan to be absent from class so that we can determine the best way to meet your needs. Arrangements may be made for remote attendance.

I encourage your communication about any needs or concerns.