Syllabus

CityUniversity of Seattle | CityU.edu

CY 125: Cybersecurity I

School of Science and Technology

10 Credits
Effective Date 7/1/2023
Grading Type: Decimal

List any Pre-requisite or Co-Requisite: Successful completion of CY 120

Access to the Internet is required.
All written assignments must be in Microsoft-Word-compatible formats.
See the library's APA Style Guide tutorial for a list of resources that can help you use APA style.

Faculty Contact

Professional experience information for instructors is found under Meet Your Team in the online course menu. Contact information for instructors is found under Meet Your Team in the online course menu.

Course Description

In this five-module course, students will gain the fundamental networking skills required to be cybersecurity professionals. These fundamentals include the basics of the Python programming language. In addition, by drawing on the knowledge and skills gained in the *Foundations of Cybersecurity* class, students will continue learning to identify, defend, and respond to security threats. Pre-requisite course: CY 120.

Course Resources

Required and recommended resources to complete coursework and assignments are found within the Rapid Ascent Learning Management System, accessed through CityU's Brightspace course modules. No additional external training materials are required outside of those supplied via the RapidAscent apprentice LXP environment.

Note: For those designated to take this course through an employer, some job-related materials may be optionally provided by a job manager or mentor working with some students during the training.

Certificate Program Outcomes

This 10-credit course is the second in a three-course series. Successful completion of all three courses will provide students with a 30-credit, 100-level full-time online undergraduate certificate. By utilizing the current instructional curriculum and virtual lab platform delivered by RapidAscent, this certification program will prepare students to:

- Assess an organization's information security needs.
- Evaluate an organization's networks and system security and identify vulnerabilities.
- Plan, implement, and monitor security measures to protect an organization's networks and systems.
- Design and assess cybersecurity policies and practices.

Course Outcomes

There are five modules in this course that cover operations-related tasks and processes that you will perform as a cybersecurity professional: Networking Fundamentals, Threat Intel and Management, Monitoring and Logging, Identify and Access Management, and Incident Response. The specific outcomes for each module are outlined below.

By the end of the Networking Fundamentals module in this course, students will be able to:

- Explain the fundamentals of computer networking, including network topology, protocols, and network devices.
- Demonstrate hardening of critical networks, including segmentation, enclaves, and embedded system networks.
- Understand networking access and explain how configuration can prevent lateral propagation.

By the end of the *Threat Intel and Management* module in this course, students will be able to:

- Conduct threat analysis, including modeling, intelligence, and threat hunting.
- Research the latest threats in aerospace with open-source and commercial threat feed.
- Apply ATT&CK and D3FEND frameworks through a deep dive into analyzing and modeling threats.

By the end of the *Monitoring and Logging* module in this course, students will be able to:

- Identify key log files in Windows and Linux-based systems
- Identify methods of collecting and gathering log files to detect intrusion
- Demonstrate gathering and examining log files for intrusion in computer systems

By the end of the *Identity and Access Management* module in this course, students will be able to:

- Explain key components of Identity and Access Management including standard industry models.

- Demonstrate utilizing methods of cryptography and encryption for protecting data in transit and at rest used for identity and access management.
- Identity attack vectors adversaries use to attack IAM-based systems.
- Implement security configurations for security against IAM-related threats.

By the end of the *Incident Response* module in this course, students will be able to:

- Explain fundamental steps in conducting incident response procedures on compromised systems
- Practice gathering evidence and identifying malware on infected systems
- Use removing and stopping malware from infected systems to restore normal operations
- Apply incident response procedures and documentation for reporting security incidents

Grading Scale

The grades earned for the course will be calculated using City University of Seattle's decimal grading system, found in the current University Catalog.

Students should review the rubric for each assignment prior to completing their work in order to understand how it will be assessed.

Overview of Required Assignments	***% of Final Grade***
Core Labs	40%
Skill Labs	10%
Individual / Group Projects	25%
Objective Skill Check	25%
TOTAL	**100%**

Course Assignments and Grading

General Assignment Information

All assignments will be completed in the RapidAscent learning environment, accessed through links embedded in the online course environment.

The modules in this course are designed as Journeys. A Journey is a complete set of learning activities (assignments) called Quests. There is one entire Journey within each Brightspace course module, and each Journey consists of several related Quests broken into smaller lessons called Stages.

Quests and Stages are delivered over 40 hours, progressively introducing cybersecurity concepts and skills to build competencies across functional areas step-by-step. Learning includes challenge rooms, puzzle rooms, job-oriented task training, individual exercises, and teaming exercise rooms, and as a result, students will encounter level-up badging and scoring.

JobReady is an additional feature of the learning environment that provides a structured process for ensuring that the apprentice learner is job ready and can handle many of the tasks encountered when entering a specific job environment.

Core Labs (40% of Final Grade)

There will be a total of 50 labs worth 8 points per lab in this course. Each lab must be completed with 100% accuracy to receive the points, and all core rooms must be completed.

Components	***% of Grade***
Accuracy	100%
TOTAL	**100%**

Skill Labs (10% of Final Grade)

There is a total of 15 Sill Labs worth 6.7 points per lab. Skill labs are designed for upskilling and sharpening existing skills. These flexible labs also address make-up work to be completed during flex learning time in the course.

Components	*% of Grade*
Accuracy	100%
TOTAL	**100%**

Individual/Group Projects (25% of Final Grade)

There will be nine projects and one final capstone project (10 total) worth 25 points each. Assignments consist of both individual and group/team exercises.

Components	*% of Grade*
Accuracy	100%
TOTAL	**100%**

Objective Skill Check (25% of Final Grade)

There will be 10 in-class quizzes each and five skill assessments. Each Skill Check is worth 16.7 points.

Components	*% of Grade*
Accuracy	100%
TOTAL	**100%**

Course Policies

Participation

Learners are expected to participate in courses they are registered for and complete all assigned work and evaluations related to each Journey. Active participation offers valuable daily practice and instruction that supports each student's career goals. Absent

students are responsible for all missed classwork. All Journey requirements must be fulfilled, and learners are responsible for the entire content of the journey.

Every learner is expected to maintain high standards of academic integrity in completing assigned work and problems, taking examinations, conducting experiments, using hardware and software, and interacting with fellow learners.

Technology Requirements

In order to successfully participate in this course, students are required to meet the following technology standards:

- Computers used for this course should be under four years old and capable of running the latest Windows, Linux, or Mac OS version.
- Each student must have a computer in good working condition with a monitor or screen of at least 11 inches.
- All content, including ranges, videos, PowerPoint presentations, training aids, articles, charts, assignments, quizzes, rubrics, and interactive fields, are located on the RA LXP platform site for the journey. To participate in learning activities and to complete assignments, you will need:
- Access to a working desktop or laptop computer system with a current operating system installed with updates, speakers or headphones, microphone, and webcam for hearing instructor interactions, viewing content, and group activities.
- Reliable Internet access. Online lectures will be provided through the RA LXP JobReady platform. Therefore, you must have access to the Internet to view/hear talks. No special software is required.
- With access to an email account, CityU will provide a student email account that may be used.
- A current Internet browser compatible with the RA LXP platform (Google Chrome is the recommended browser for the RA LXP platform).
- Productivity application software, such as Microsoft Office or Google Workspace. Students should have active licenses to either Google Suite or Microsoft O365, as well as Microsoft Word, PPT, and Excel or equivalent commercial or open-source applications. City University provides all students access to Microsoft Suites with their student accounts.
- Reliable and backed-up data storage for your work, such as Office365 OneDrive cloud storage or Google Drive. CityU student account provides access to a OneDrive account.

Note: For those students participating via a corporate sponsor, the hiring company sponsoring the apprenticeship will provide a corporate laptop for accessing RapidAscent training systems.

University Policies

Students are responsible for understanding and adhering to all of City University of Seattle's academic policies. The most current versions of these policies can be found in the University Catalog linked from the CityU Web site.

Antidiscrimination

City University of Seattle and its staff and faculty are committed to supporting our students. We value equity, diversity, and inclusion as a way of life and the educational opportunities it provides. City U will not tolerate any form of discrimination based on race, color, ethnicity, sexual orientation, gender identification, socioeconomic status, or religious values. If you have experienced any discrimination based on the above, we encourage you to report this to the University. Please report this to your instructor. If you feel unsafe reporting this to your instructor, please report to the Provost or Vice President of Student Affairs.

Non-Discrimination & Prohibition of Sexual Harassment

City University of Seattle adheres to all federal, state, and local civil rights laws prohibiting discrimination in employment and education. The University is committed to ensuring that standards of mutual respect and safety are bound to the education environment and are free from discriminatory practices.

In the U.S., the University is required by Title IX of the Education Amendments of 1972 to ensure that all of its education programs and activities do not discriminate on the basis of sex/gender. Sex include sex, sex stereotypes, gender identity, gender expression, sexual orientation, and pregnancy or parenting status. Sexual harassment, sexual assault, dating, and domestic violence, and stalking are forms of sex discrimination prohibited under Title IX and by City University of Seattle policy. City University of Seattle also prohibits retaliation against any person opposing discrimination or participating in any discrimination investigation or complaint process internal or external to the institution. Questions regarding Title IX, including its application and/or concerns about noncompliance, should be directed to the Title IX Coordinator. For a complete copy of the policy or for more information, visit the Title IX portal page or contact the Title IX Coordinator.

Academic Integrity

Academic integrity in students requires pursuing scholarly activity free from fraud, deception, and unauthorized collaboration with other individuals. Students are responsible for understanding CityU's policy on academic integrity and adhering to its standards in meeting all course requirements. A complete copy of this policy can be found in the University Catalog under *Student Rights and Responsibilities* on the Academic Integrity Policy page.

Attendance

Students taking courses in any format at the University must diligently study and attend class regularly. Regular class attendance is essential in achieving learning outcomes in the course and may be a valid consideration in determining the final grade.

Each week, attendance in this course will be measured by participation in one or more of the following activities:

- Submitting an assignment for feedback
- Taking a quiz or other assessment
- Interacting with the instructor regarding the subject studied in the course (such as attending an online Office Hours session; and/or attending an arranged video chat/scheduled call with the instructor to discuss course material, assignments, or other academic subject matter).

Please note that not participating in any of the course activities listed above may result in an administrative withdrawal from the course and may also negatively impact students receiving financial assistance.

Support Services

Disability Services Accommodations Statement

Students with a documented disability requesting academic accommodations are encouraged to contact Disability Support Services to discuss accommodation requests and eligibility requirements. Please get in touch with Disability Support Services at *disability@cityu.edu* or 206.239.4752 or visit the Disability Support Services page in the my.cityu.edu portal. Confidentiality will be observed in all inquiries. Once approved, information about academic accommodations will be shared with course instructors.

Library Services

CityU librarians can help students find the resources and information they need to succeed in this course. Contact a CityU librarian through the Ask a Librarian service or access library resources and services online, 24 hours a day, seven days a week.

Religious Accommodations

City University of Seattle has a policy for accommodation of student absences or significant hardship due to reasons of faith or conscience or for organized religious activities. The University's policy, including more information about requesting accommodation, is available in the University Catalog and on the my.cityu.edu student portal. Accommodations must be requested by the 20% mark of this course (e.g., day 14 of a ten-week course, day 7 of a 5-week course) using the Religious Accommodations Request Form found on the student dashboard in the my.cityu.edu student portal.