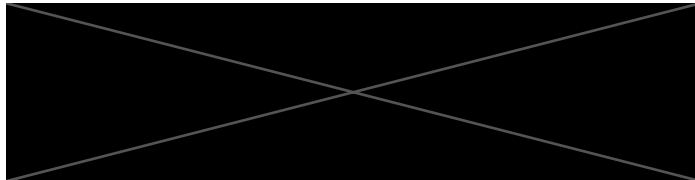


IT3071C Network Security

In Person Section 002

Class Meetings T-Th 9:30am-10:50am

Instructor



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Course Description

This course covers the array of technologies and techniques to secure a computer network and perform network/systems forensics when security is compromised, or data is lost. Anticipation of network weaknesses then design the network infrastructure and policies to preempt potential attacks upon the network will be presented. Hands-on active learning required.

Pre-Reqs

IT1081C System Administration
IT2030C Information Security and Assurance
IT2035C Network Infrastructure Management

Credit Hours and Course Format

3 credit hours; In Person Section

Course Learning Outcomes

Upon completion of this course, the student will be able to:

- Explain different types of security services and mechanisms and how they each can be applied to ensure data, software, component, connection, and system security.
- Implement advanced security mechanisms to protect and secure organizations' computer networks.
- Apply defense in depth network security techniques in the design of security plan.
- Explain the function of various advanced security mechanism, such as firewalls, IDS, and VPN solutions.
- Apply appropriate problem-solving skills in network security and system administration.
- Prepare and execute incident response plan.

Course Materials

All course materials are on Canopy.

Textbook

There is no required text for this course. Suggested readings may be presented from O'Reilly's online service (free for all students).

Required Technology

- Computer with Internet Access and Web Browser (Firefox recommended)
- Microsoft Office or similar program that can edit word documents
- Microsoft Visio or similar program for creating network diagrams

Course Policies and Grading

Syllabus is subject to change

The syllabus, class schedule, and class policies are all subject to change. If it is necessary to alter the syllabus, class schedule, or class policies, and updated syllabus will be posted in Blackboard.

Cheating/dishonesty

All students are expected to do their own work in this class. Instances of cheating and/or academic dishonesty will be handled according to department, college, and university policy.

Further, if a student is found to have cheated on an assignment, lab, exam, or quiz, they will receive a 0 for that assignment, lab, exam, or quiz. Please refer to the Student Code of Conduct for more information: http://www.uc.edu/conduct/Code_of_Conduct.html

Class Participation

Participation during class discussions is expected; this will help everyone learn the material. Participation includes questions for further explanation, attempting to answer questions posed, and comments from your own experience.

Technology Use and Issues

This course will require the use of various technology platforms. These include, but is not limited to; Canvas, The Ohio Cyber Range, e-mail, screen recording software (i.e. Kaltura), Microsoft Teams, etc. The student is responsible for their own technology issues and cannot be used as an excuse for late assignments. A list of contact information for various UC systems will be available posted in Canvas and can also be found on via the UC website. When in doubt, call 513-556-HELP. In the case of a system wide outage on any technology, accommodations will be made.

Online Class Participation and Structure

This course is organized in a structured format. The course follows a module format, wherein each module is associated with a week of the semester. (The course week begins on Monday and ends on Sunday at 11:59pm. Assignments for each week will be due the Thursday the week after they are assigned. Within each module on Canvas, information regarding the week's learning outcomes, required readings, prerecorded lecture videos, required assignments, and any other information will be provided. It is the student's responsibility to take the time to review the materials and complete the assignments by the due dates, unless otherwise noted. You are free to work ahead on assignments; however, exams can only be taken during the schedule times.

Communication Policies

For questions related to assignments, labs, and other course material, this course will use the discussion board. Any questions sent directly to the professor will be posted here. Search the posts to see if your question has already been answered, if not, create a new thread with as much detail as possible (include screen shots, error messages, steps you have already taken, etc). The professor or TA will try to answer all questions within 48 hours. Feel free to answer questions posted by other students if you may know the answer or have ideas. For personal questions not related to the course materials, feel free to contact the professor directly.

There are several ways to reach the professor listed on the top of this document. E-mail is the preferred communication platform for questions relating to the class. I will always try

my best to respond as soon as possible, but it may take up to 48 hours to receive a response at times. Keep this in mind if you plan to complete assignments at the last minute.

Announcements will be sent out through Canvas. Be sure to have an e-mail that you monitor listed to receive announcements in Canvas or check the announcements section often. Announcements often relate to changes in scheduling or common issue students may have with assignments. Paying attention to announcements may save you a lot of headache.

Grading Scale

93.00% and above = A

90.00%-92.99% = A-

87.00%-89.99% = B+

83.00%-86.99% = B

80.00%-82.99% = B-

77.00%-79.99% = C+

73.00%-76.99% = C

70.00%-72.99% = C-

67.00%-69.99% = D+

63.00%-66.99% = D

60.00%-62.99% = D-

less than 60.00% = F

The course grades are weighted as follows:

Assignments	Weight
Attendance/Participation	10%
Assignments	25%
Knowledge Check Quizzes	25%
Labs/Lab Reports	30%
Final Project	10%

Late Assignment Policy

All Assignments, Discussion, Knowledge Checks, Lab Reports, and Projects will be due the Wednesday following completion of each week's module. This gives each student an extra 3 days to complete the work. Knowledge Checks will close automatically at 11:59pm on those days and answers will be made available to students at that point in time. Assignments, Lab Reports, and Knowledge checks can still be submitted after 11:59pm on Thursday and will be considered late after they have been graded. Once graded, no submissions will be accepted without a reasonable and documented excuse at the discretion of the instructor.

Course Schedule

Week	Dates	Modules/Topics	Due Dates
0	08/26-09/01	Course Overview & Networking and System Admin Review	N/A
1	09/02-09/08	Intro to Network Security	Thursday 09/12
2	09/09-09/15	Operational Security	Thursday 09/19
3	09/16-09/22	Cryptography Concepts	Thursday 09/26
4	09/23-09/29	Authentication	Thursday 10/03
5	09/30-10/06	Secure Network Architecture	Thursday 10/10
6	10/07-10/13	Firewalls, Proxies, and Load Balancers	Thursday 10/17
7	10/14-10/20	IDS, DLP, & SIEM	Thursday 10/24
8	10/21-10/27	Secure Network Protocols (Part 1)	Thursday 10/31
9	10/28-11/04	Secure Network Protocols (Part 2)	Thursday 11/07
10	11/04-11/10	Reading Days 11/05 - Open Lab 11/07	
11	11/11-11/17	Malware	Thursday 11/21
12	11/18-11/24	System Hardening	Thursday 11/28
13	11/25-12/01	Open Lab 11/26 - Thanksgiving Holiday 11/28	N/A
14	11/25-12-01	Vulnerability Assessments	Thursday 12/05
15	12/02-12/08	Class Project	Thursday 12/12
16	12/09-12/15	Exam Week	N/A

UC Policies

Attendance: Students at the University of Cincinnati are expected to attend classes in order to meet the learning objectives for the course. Students are expected to follow the class attendance policy as outlined by the instructor. Students participating in official University sponsored activities, where the student is representing the University, will meet with instructor related to absences due to university-sponsored activities. When such absences occur, students need to provide documentation of the event(s), and work with the professor to develop a written plan for completion of missed assignments or other course requirements with as much advance notice as possible.

Communication: All university business must be conducted *using a university assigned email account*. The use of a personal, or non-university assigned email account to conduct university business is strictly prohibited. [See full policy here](#).

Class Cancellation Policy: In the rare case that a class must be cancelled, faculty will post an announcement on the LMS that will be emailed to students. Faculty will attempt to communicate class cancellations with as much advance notice as possible. Students should be sure that their LMS email is current and valid to ensure emails are received. If the University closes due to inclement weather or other emergency situations, there will be an announcement posted on Canvas (LMS) and if possible on the local news channels (TV and radio). Communications related to University closures will also be sent to the student's cell phone number on record through the automatic University emergency text messaging system. Students should notify the University if they change their cell phone number to ensure they will receive these important emergency communications.

Academic Integrity: The University of Cincinnati is committed to academic integrity. A formal articulation of this commitment is articulated in the Student Code of Conduct. Any violation of these rules, including plagiarism or cheating will be handled on a case-by-case basis. At the least, you should anticipate a zero on an assignment, at the fullest extent, your violation will be reported to the university and the incident will be documented on your permanent record.

Accessibility and Special Needs: The University of Cincinnati is committed to providing all students with equal access to learning opportunities. [Accessibility Resources](#) is the official campus office that works to arrange for reasonable accommodations for students with an identified physical, psychological or cognitive disability (learning, ADD/ADHD, psychological, visual, hearing, physical, cognitive, medical condition, etc.) Students are encouraged to contact the Accessibility Resources Office to arrange for a confidential meeting to discuss services and accommodations. Contact should be initiated as soon as possible to allow adequate time for accommodations to be arranged.

Counseling Services: All UC students have access to counseling and mental health care through University Health Services (UHS), which can provide both psychotherapy and psychiatric services. In addition, Counseling and Psychological Services (CAPS) can provide professional counseling upon request; students may receive five free counseling sessions through CAPS without insurance. Students are encouraged to seek assistance for anxiety, depression, trauma/assault, adjustment to college life, interpersonal/relational difficulty, sexuality, family conflict, grief and loss, disordered eating and body image, alcohol and substance abuse, anger management, identity development, and any other issues or concerns. After hours, students may call UHS at 513-556-2564 or CAPS Cares at 513-556-0648. For urgent physician consultation after-hours, students may call 513-584-7777.

Title IX: Title IX is a federal civil rights law that prohibits discrimination on the basis of a person's actual or perceived sex, gender, gender identity, gender expression, or sexual orientation. Title IX also address instances of sexual violence, dating or domestic violence, and stalking. If a student discloses a Title IX issue to a faculty member, the faculty member is required to forward that information to the Title IX Office. The Title IX office will follow up with the student and discuss how the University can take steps to address the impact on the student and the community. They will also inform the student of their rights and direct them to available resources. The priority is to make sure students are safe and successful here at the University of Cincinnati. Students are not required to talk to anyone in the Title IX Office. Students may also directly report any instance of sex or gender-based discrimination, harassment or violence to the Title IX office at 513-556-3349. Students who wish to know more about their rights and resources on campus, they can consult the [Title IX website](#) or contact the Title IX office directly at 513-556-3349.

NOTE: The instructor reserves the right to update this syllabus as class needs arise. Be assured that they will communicate to you any changes to the schedule, syllabus or policies quickly and efficiently.