ITEC 293
Online Course
Cybersecurity Operations
Spring 2023
3 credit hours

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Academic Bulletin Description
Operations in Security Operations Centers (SOC). Securing information systems by monitoring, analyzing, detecting, and responding to security events.

Full Course Description
This course is an in-depth exploration of operations in Security Operation Centers (SOCs). It introduces technologies, terminology, and skills necessary for security operations. Emphasis is on practical applications for analyzing, detecting, and responding to security events.

Prerequisites
None

Learning Outcomes
At the conclusion of this course, students will be able to:
- Explain why networks and data are attacked and how to prepare for a career in cybersecurity operations
- Understand basic operating system related to security (Windows/Linux)
- Explain how protocols enable network operations and support network communication
- Use ICMP connectivity verification tools •
- Analyze the Address Resolution Protocol data units •
- Identify which devices and services are used to enhance network security
- Explain how networks are attacked
- Explain the various types of threats and attacks
- Explain network traffic monitoring
- Identify TCP/IP vulnerabilities as well as application and service vulnerabilities
- Cover approaches to network security defense including access control

All learning outcomes in the course are equivalent to the face-to-face (F2F) version of the course.]

Course Materials
Cisco Networking Academy Cyberops Associate course materials via netacad.com student accounts. Our department is a Cisco Academy and offers these materials to all of our students as part of the academy.

All course materials comply with copyright/fair use policies.

Course Requirements
You must spend time each day keeping up with the module reading and activities and completing the assignments. If you procrastinate and put off doing the assignments, you will not have enough time to complete all your coursework.

Please check Blackboard daily for information on assignments and class activities. All class announcements, schedules, and other information will be posted on Blackboard. The course requirements include class activities, examinations, and homework assignments. I do not foresee any circumstances under which I will grant a grade of "incomplete."

Course Format
This is a fully online course. Online classes are not easier than face-to-face lecture classes. To succeed in an online class, you must be extremely motivated and well organized. Course materials are available via Blackboard ("Bb"). Regular Internet access is essential for successful completion of the course.

The typical class structure will consist of learning modules, which include:
- Short Video/PowerPoint Lectures
- Readings
- Online Discussions
- Exams
- Hands-on Exercises and assignments

This is an entirely Web-based course. We have no face-to-face class meetings, and you will complete your work asynchronously - which simply means that you will be working on it at different times than your colleagues. You can log into the class to do your work at whatever time is convenient for you as long as you are meeting class deadlines.

It is important to understand that this is not a self-paced class or an independent study. You will have assigned deadlines, and work must be submitted on time. You may not save up your assignments to complete in the last weeks or days of the semester. One critical part of this class is regular interaction with other students and with me, your instructor. Each assignment sequence must be completed on schedule – you can't work ahead or get behind and be successful.

Course Communication and Feedback

I will be communicating with you regarding grades and assignments. If you need to get in touch with me, the best method is via email. Generally, I will reply to emails within 24 hours and will provide feedback on assignments within 72 hours. You may also post questions pertaining to the course on the Blackboard Discussion Board. These questions will be answered within 24 hours.

If you are having trouble with this course or its material, you should contact me via email to discuss the issues. Announcements will be posted to this course whenever necessary. If there is any other information, I think is important, I will send it to your email address you have in Blackboard. It is your responsibility to ensure that your email account works properly in order to receive email.

Below is how you check your email address in Blackboard:
- Access blackboard.sc.edu
- Click your name on the main Blackboard navigation panel on the left
- Review your email address. By default, Blackboard uses your university-issued email address

Your email address in Blackboard coincides with your preferred university email. If you are unsure of your preferred email, check your account (myaccount.sc.edu). For more information on setting your preferred university email, please see the How To Change Your Primary University Email Address (https://scprod.service-now.com/sp?id=kb_article_view&sysparm_article=KB0011464) Knowledge Base article.

Technology Requirements

Students must have access to the Internet. Students will submit all assignments and take all quizzes/tests through Blackboard. You MUST have consistent and reliable access to a computer and the Internet to succeed. You need to feel comfortable using a computer to succeed in this course. You must also have

- The ability to install and run Packet Tracer, a Cisco simulation tool used throughout the course. This software will run on a variety of PC operating systems including Windows, MAC, and Linux.
- Reliable data storage for your work, such as a USB drive or Office365 OneDrive cloud storage.

If your computer does not have Microsoft Word, Office 365 ProPlus package is available to you free of charge and allows you to install Word, Excel, PowerPoint, Outlook, OneNote, Publisher, and Access on up to 5 PCs or Macs and Office apps on other mobile devices including tablets. Office 365 also includes unlimited cloud storage on OneDrive. To download Office 365 ProPlus, log into your student (University) email through a web browser, choose Settings (top right corner), and select software. If you have further questions or need help with the software, please contact the Service Desk

(https://www.sc.edu/about/offices_and_divisions/university_technology_services/suppor
t/servicedesk.php).

Minimum Technical Skills Needed

Minimum technical skills are needed in this course. All work in this course must be
completed and submitted online through Blackboard. Therefore, you must have
consistent and reliable access to a computer and the Internet. The minimum technical
skills you have include the ability to:

- Organize and save electronic files;
- Use UofSC email and attached files;
- Check email and Blackboard daily;
- Download and upload documents;
- Locate information with a browser; and
- Use Blackboard.

Technical Support

If you have problems with your computer, technology, IT-related questions, support,
including Blackboard, please contact the Division of Information Technology (DoIT)
Service Desk at (803) 777-1800 or submit an online request through the Self-Service
Portal (https://scprod.service-now.com/sp) or visit the Carolina Tech Zone
(https://sc.edu/about/offices_and_divisions/division_of_information_technology/end_use
r_services/available_technology_resources/carolina_tech_zone/). The Service Desk is
open Monday – Friday from 8:00 AM – 6:00 PM (Eastern Time). If you are located in the
Columbia, SC area, the Thomas Cooper Library at UofSC has computers for you to use
in case you encounter computer issues/problems. If you are not located in the
Columbia, SC area, most regional campuses and public libraries have computers for
public use.

Course Assignments and Grading

The grading scale is points graded divided by 2,250 points possible as follows:

Assignments: 13 assignments (100 points each) for a total of 1,300 points
Quizzes: 13 assessments (50 points each) for a total of 650 points
Final Project: 300 points

Grading Scale
A: 2025 – 2250 points
B+: 1958 – 2024 points
B: 1800 – 1957 points
C+: 1733 – 1799 points
C: 1575 – 1732 points
D+: 1508 – 1574 points
D: 1350 – 1507 points
F: 1349 points or less

General Assignment Information
- All coursework (assignments, exams, etc.) is secured in Blackboard with a username and password.
- All assignments and quizzes are due by (Eastern Time) on the day indicated on the course schedule.
- All quizzes are taken on Blackboard
- Complete rubrics will be provided in Blackboard.

Quizzes
13 quizzes will be assigned. Each quiz will be based on module readings and will consist of True/False & Multiple-Choice questions. Quizzes will be automatically evaluated. Quiz questions/answers are randomly displayed and drawn from substantial test banks.

Homework
Assignments are due by 11:59 Eastern Standard time on the date posted for each assignment. Assignments one day late will have 10 points deducted; assignments two days late will have 20 points deducted; assignments three or more days late will have 40 points deducted. I reserve the right to not accept homework assignments that are more than one week late. There will be no exceptions—Homework turned in later than one week will be given 0 points. Homework scores will be posted on Blackboard.

Final Project
There is a final project presentation where students will be graded on their selected topics and videotaped presentations and papers.

Academic Success

Disability Services

[Student Disability Resource Center](http://www.sa.sc.edu/sds/) (http://www.sa.sc.edu/sds/): The Student Disability Resource Center (SDRC) empowers students to manage challenges and limitations imposed by disabilities. Students with disabilities are encouraged to contact me to discuss the logistics of any accommodations needed to fulfill course requirements (within the first week of the semester). In order to receive reasonable accommodations from me, you must be registered with the Student Disability Resource Center (1705 College Street, Close-Hipp Suite 102, Columbia, SC 29208, 803-777-6142). Any student with a documented disability should contact the SDRC to make arrangements for appropriate accommodations.

Other academic support resources may help you be more successful in the course as well.

- [Library Services](http://library.sc.edu/) (http://library.sc.edu/)
- [Writing Center](https://sc.edu/study/colleges_schools/artsandsciences/english_language_and_literature/beyond_classroom/writing_center/index.php/) (https://sc.edu/study/colleges_schools/artsandsciences/english_language_and_literature/beyond_classroom/writing_center/index.php/)
- [Carolina Tech Zone](https://sc.edu/about/offices_and_divisions/division_of_information_technology/end_user_services/available_technology_resources/carolina_tech_zone/) (https://sc.edu/about/offices_and_divisions/division_of_information_technology/end_user_services/available_technology_resources/carolina_tech_zone/)

Blackboard and Technology

[Blackboard and Technology](https://sc.edu/about/offices_and_divisions/division_of_information_technology/end_user_services/available_technology_resources/) (https://sc.edu/about/offices_and_divisions/division_of_information_technology/end_user_services/available_technology_resources/)
As a student in this course, you have access to support from the Division of Information Technology (DoIT) for Blackboard and computer issues. The service desk can be reached at 803-777-1800.

Course Policies and Procedures

The [Undergraduate Studies Bulletin](https://academicbulletins.sc.edu/undergraduate/policies-regulations/undergraduate-academic-regulations/) (https://academicbulletins.sc.edu/undergraduate/policies-regulations/undergraduate-academic-regulations/) is the official document of record concerning undergraduate academic programs and regulations.

All graduate students are subject to the academic policies, regulations, and academic standards of both The Graduate School and the department, school and/or college in which enrolled.

UofSC graduate bulletin (https://academicbulletins.sc.edu/graduate/policies-regulations/graduate-academic-regulations/)

Attendance Policy
Success in this course is dependent on your active participation throughout the semester. You are expected to log into Blackboard several times a week and complete course assignments. Even if your work is completed, you still need to login to ensure that you have seen all announcements, etc. It is your responsibility to check updates related to the course. Attendance will be taken based on your completion of course assignments. You will receive a 0 on all missed assignments unless you have a valid excuse (https://academicbulletins.sc.edu/undergraduate/policies-regulations/undergraduate-academic-regulations/).

If you miss an assignment and have a valid excuse, you will be permitted to make up the assignment or complete an equivalent assignment agreed upon with me. Requests for completing work after the due date that can be anticipated at the start of the term, i.e. authorized university activities and religious observances, should be emailed to me no later than the end of the second week of the course. Consult the policy (https://academicbulletins.sc.edu/undergraduate/policies-regulations/undergraduate-academic-regulations/) for additional information.

Academic Integrity
You are expected to practice the highest possible standards of academic integrity. Any deviation from this expectation will result in a minimum academic penalty of your failing the assignment and will result in additional disciplinary measures. This includes improper citation of sources, using another student's work, and any other form of academic misrepresentation.

The first tenet of the Carolinian Creed is, "I will practice personal and academic integrity."

Below are some websites for you to visit to learn more about University policies:

- Carolinian Creed (http://www.sa.sc.edu/creed)
- Academic Responsibility (http://www.sc.edu/policies/staf625.pdf)
- Office of Student Conduct and Academic Integrity (https://www.sa.sc.edu/academicintegrity/)
- Information Security Policy and Standards (https://sc.edu/about/offices_and_divisions/division_of_information_technology/security/policy/universitypolicy/)

Course Schedule

Week	Module/Topic	Assignment	Due Date
1	The Danger and Fighters in the War Against Cybercrime	• Review "Start Here" section in Blackboard • Read syllabus • Activate a NetAcad Account • Download and Install VirtualBox and the CyberOps virtual machine • Watch Module 1 and 2 videos • Read and review Module 1 and 2 materials • Take the quiz • Complete and upload the assignment	
2	The Windows Operating System	• Watch Module 3 video • Read and review Module 3 materials • Take the quiz • Complete and upload the assignment	
3	Linux Overview	• Watch Module 4 video • Read and review Module 4 materials • Take the quiz • Complete and upload the assignment	
4	Connectivity Verification and Address Resolution Protocol	• Watch Module 7 and 8 videos • Read and review Module 7 and 8 materials • Take the quiz • Complete and upload the assignment	

Week	Module/Topic	Assignment	Due Date
5	Network Security Infrastructure	• Watch Module 12 video • Read and review Module 12 materials • Take the quiz • Complete and upload the assignment	
6	Attackers and Their Tools	• Watch Module 13 video • Read and review Module 13 materials • Take the quiz • Complete and upload the assignment	
7	Common Threats and Attacks	• Watch Module 14 video • Read and review Module 14 materials • Take the quiz • Complete and upload the assignment	
	Spring Break		
8	Network Monitoring and Tools	• Watch Module 15 video • Read and review Module 15 materials • Take the quiz • Complete and upload the assignment	
9	Attacking The Foundation	• Watch Module 16 video • Read and review Module 16 materials • Take the quiz • Complete and upload the assignment	

Week	Module/Topic	Assignment	Due Date
10	Attacking What We Do	• Watch Module 17 video • Read and review Module 17 materials • Take the quiz • Complete and upload the assignment	
11	Access Control	• Watch Module 19 video • Read and review Module 19 materials • Take the quiz • Complete and upload the assignment	
12	**Final Project**		