

Hudson County Community College

STEM DIVISION

Course Title: Ethical Hacking

Course Number: CSC 245

Credits: 3

Instructor:

Class Location:

Office Hours:

Office Location:

Email:

Contact Information:

Course Outline and Description:

This course is a restricted program elective required for students majoring in Computer Science - Cybersecurity option. This course introduces students to ethical hacking, which is the process of evaluating the security of a computer system by simulating an attack carried by a malicious hacker. Students are introduced to many topics, strategies, techniques and tools used in the ethical hacking and incident-handling areas. Students gain the necessary skills and knowledge needed to defend and protect networks and systems from vulnerabilities and from unauthorized users.

Students learn how exploits are designed by hackers to penetrate vulnerable systems. This course will introduce students to advanced but free tools used for network scanning, fingerprinting, and password cracking. Examples of tools used are Nmap and Wireshark.

Students will gain hands-on experience from implementing learned topics by accessing a virtual and simulated environment. Students will be able perform laboratory assignments from any computer at any time.

A Certified Ethical Hacker (CEH) as defined by the EC-Council is a skilled professional who understands and knows how to look for weaknesses and vulnerabilities in target systems and uses the same knowledge and tools as a malicious hacker, but in a lawful and legitimate manner to assess the security posture of a target system(s). The CEH credential certifies individuals in the specific network security discipline of Ethical Hacking from a vendor-neutral perspective.

Objective:

Upon successful course completion, students will be able to:

1. Identify the elements of cyber-attack such as denial of service, buffer overflow, and programming exploits.
2. Demonstrate ethical hacking and penetration techniques such as reconnaissance, spooling, password cracking, operating system vulnerabilities and more.
3. Evaluate hacking and penetration testing from the point view of ethics and legality.
4. Analyze network traffic and sniffing using proprietary tools.
5. Implement security countermeasures for various types of cyberattacks.
6. Analyze how port scanning and fingerprinting are used by hackers.

Grading Criteria:

Student will be graded based on:

- Quizzes (3): 15%
- Assignments: 15%.
- Weekly Labs: 20%
- Midterm: 20%
- Final 30%

Grading Policy:

95 to 100	A	90 to 94	A-	85 to 89	B+	80 to 84	B
75 to 79	B-	70 to 74	C+	65 to 69	C	64 to 0	F

** Excess of absence will result in a failing grade!! (3 Absences maximum).

** 20 minutes of lateness is considered one absence.

There will be no makeup for missing tests.

Any student misses a class for any reason is responsible for the notes and assignments given on the day he/she missed.

Required Textbook:

a) **Required:** CEH Version 11 Certified Ethical Hacker Study Guide by Ric Messier

Publisher: Wiley

b) **Recommended and optional:** Hacking the Hacker, Roger A. Grimes.

Publisher: Wiley

Outline of Course

Session	Topic	Lab of the Week
1	Chapter 1 - What is Ethical hacking	
2	Chapter 2 - Networking Foundation	Lab 1: Performing Reconnaissance from the WAN
3	Chapter 3 - Security Foundations	Lab 2: Scanning the Network on the LAN
4	Chapter 4 - Foot printing and reconnaissance	Lab 3: Enumerating Hosts using Wireshark, Windows, and Linux Commands Lab 4: Remote and Local Exploitation
5	Chapter 5 - Scanning Networks – MIDTERM	Lab 5: Crafting and Deploying Malware Using a Remote Access Trojan (RAT)
6	Chapter 6 - Enumeration and System Hacking	Lab 6: Capturing and Analyzing Network Traffic Using a Sniffer Lab 7: Performing a Denial of Service Attack from the WAN
7	Chapter 8 - Malware Threats	
8	Chapter 10 – Social Engineering	Lab 8: Social Engineering Using SET Lab 9: Using Browser Exploitation to Take Over a Host's Computer
9	Chapter 7 – System Hacking	Lab 10: Breaking WEP and WPA and Decrypting the Traffic
10	Chapter 11 – Wireless Security	Lab 11: Attacking the Firewall and Stealing Data Over an Encrypted Channel
11	Chapter 12 – Attack and Defense	Lab 12: Using Public Key Encryption to Secure Messages

12	Chapter 13 - SQL Injection, Cryptography (if schedule permits)	Lab 13: Performing SQL Injection to Manipulate Tables in a Database
13	Final	

**Syllabus subjected to change throughout the course, you will be informed.*

Academic Integrity

Academic integrity is central to the pursuit of education. For students at HCCC, this means maintaining the highest ethical standards in completing their academic work. In doing so, students earn college credits by their honest efforts. When they are awarded a certificate or degree, they have attained a goal representing genuine achievement and can reflect with pride on their accomplishment. This is what gives college education its essential value.

Violations of the principle of academic integrity include:

- Cheating on exams.
- Reporting false research data or experimental results.
- Allowing other students to copy one's work to submit to instructors.
- Communicating the contents of an exam to other students who will be taking the same test.
- Submitting the same project in more than one course, without discussing this first with instructors.
- Submitting plagiarized work. Plagiarism is the use of another writer's words or ideas without properly crediting that person. This unacknowledged use may be from published books or articles, the Internet, or another student's work.

When students act dishonestly in meeting their course requirements, they lower the value of education for all students. Students who violate the college's policy on academic integrity are subject to failing grades on exams or projects, or for the entire course. Serious cases may be reported to a division dean or director for further disciplinary action, including suspension or dismissal from HCCC.

Detailed information on the College's Academic Integrity policy may be found in the HCCC Student Handbook. The handbook also contains useful information for students on completing research projects and avoiding plagiarism.

Accessibility Services Statement

Hudson County Community College is committed to the creation of an inclusive and safe learning environment for all students. The Office of Accessibility Services is responsible for determining reasonable accommodations for students who encounter barriers due to disability (conditions can include but are not limited to mental health, attention-related, learning, cognitive/developmental, vision, hearing, physical or health impacts). When the student completes the request process and reasonable accommodations are determined to be necessary and appropriate, an Accommodation Letter (Letter) will be provided. The student must provide the Letter to each course instructor. This should be done as early in the semester as possible as accommodations are not retroactive. You can contact Accessibility Services by phone at 201-360-4157, by email at as@hccc.edu; visit their website at <http://www.hccc.edu/accessibilityservices/> or visit them at 71 Sip Avenue, L011, Jersey City, NJ and all information provided will be kept confidential.

Classroom Recording Policy

Hudson County Community College prohibits the audio-visual recording, transmission, and distribution of classroom sessions. Classes may only be recorded with the advance written permission of the instructor. The complete classroom recording policy is listed in the student handbook.

Diversity, Equity, & Inclusion Statement

Hudson County Community College (HCCC) fosters a welcoming environment that celebrates and encourages culturally responsive curricula, respects diverse viewpoints, and values discussions without censure or hostility. Our classrooms are strengthened by embracing all student voices and identities. The President's Advisory Council on Diversity, Equity, and Inclusion (PACDEI) encourages students to review DEI resources and initiatives at the following link: <https://www.hccc.edu/abouthccc/dei/pacdei.html>

Email Policy

Mandatory Use of HCCC Email Address: Members of the HCCC community are required to check their official HCCC email address to stay current with college and course

communications. All college business communication between faculty, students, and staff must be sent via an official HCCC email address. If an employee or student elects to forward or link his/her HCCC email to a separate and private account, that individual remains responsible for all material transmitted to that account. Employees of HCCC shall not be responsible for any material that remains undelivered, due to defects in the private non-HCCC accounts. Failure in the operations of private email accounts shall not be cause for excuse from communications between the student and the HCCC employee. Students that encounter difficulty with HCCC email should view the FAQ's section on the Website.

Emergency Notifications

In case Hudson County Community College is closed due to unforeseen circumstances such as inclement weather, loss of power, etc., students are to call or check the college website and check email accounts for instructions and updates, when possible. HCCC main# (201) 714-7100 or <http://www.hccc.edu>. Alternatively, please check Canvas and your college email for important posts regarding classes and the College.

Financial Aid & Attendance Statement

Federal regulations require that students earn their financial aid funds by attending class. Professors collect and report attendance information to verify financial aid eligibility. Failure to begin attending a course may negatively impact the student's financial aid enrollment level and eligibility. If you have any questions, please contact the Financial Aid office at financial_aid@hccc.edu or 201-360-4200.

HCCC Mission Statement

MISSION STATEMENT

Hudson County Community College provides its diverse communities with inclusive, high-quality educational programs and services that promote student success and upward social and economic mobility.



Hudson Helps

HCCC is committed to supporting students who face non-academic barriers to success. If you are experiencing challenges outside of the classroom that is impacting your academic performance, please visit <https://www.hccc.edu/student-success/personal-support/hudsonhelps/index.html> to access additional student supports and resources.

Remote Class - Camera Policy

As a college, we strive to be student-centered and therefore encourage faculty to consider a student's individual circumstances (need for privacy, technological problems, etc.) when requiring that they turn on cameras during class. There is no legal prohibition on faculty requiring cameras be turned on during classes or college policy prohibiting such requests. If students are unable to turn their cameras on, they should communicate the circumstances to the faculty member. On-campus spaces are also available to students as an alternative to home or off campus online and remote instruction. The on-campus spaces include: Gabert Library L219, L221, L222, L419, STEM Building S217, and North Hudson Campus N224, N303D. Within these rooms, students will have access to computers, web cameras, and headsets. If there are any issues with space capacity, there are additional rooms that can be utilized.

Vaccine Incentive Syllabus Statement

HCCC strongly recommends that all members of the college community get the COVID-19 vaccine and booster. The College is still offering [Vaccine and Booster Incentives](#) to students who submit their proof of vaccination and/or booster shots. Students can receive \$100 for being fully vaccinated and an additional \$100 for being boosted. Students who have not received the incentive(s) can submit their proof of vaccines or boosters [here](#).

Additionally, N95 masks are available at building entrance security desks for anyone who would prefer to wear one. Everyone should continue to **monitor themselves for symptoms and stay home if they are sick**. Please refer to the Return to Campus webpage:

www.hccc.edu/community/returntocampus/index.html), the Return to Campus FAQs: www.hccc.edu/community/returntocampus/faq.html), and all Return to Campus email communications for more information and updates.