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University of Delaware
CISC/CPEG 367 – Simulation-based Cybersecurity
Spring 2016

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1   Administrative Information

- Instructor: Chien-Chung Shen
  Contact Information: 450 Smith Hall <`cshen@udel.edu`> 302-831-1951

- Meeting Time and Place: TuTh 9:30pm – 10:45am @ Colburn Lab (CLB) 046

- Course Website: `http://www.cis.udel.edu/~cshen/367`

- Office Hours: TBA or by appointment
  Any changes will be announced in class and via UD/POBox.

- TA: Shanhu Li <`lisanhu@udel.edu`>
  Office Hours/Room: TBA @ 201 Smith Hall

- There is no text required, but you will be asked to read documents, papers, slides, *etc.*

2   Course Statement

Cybersecurity is the body of technologies, processes and practices designed to protect networks, computers, programs and data from attack, damage or unauthorized access. In a computing context, the term security implies cybersecurity. One of the most problematic elements of cybersecurity is the quickly and constantly evolving nature of security risks. Hence, cybersecurity is a huge and evolving subject, and no single course can make you an expert.

This course is an introduction to the **principles** and **practice** of cybersecurity (both attacks and defenses). It intends to provide you with the background required for further study in the areas of network and computer security, as well as practical understanding that will help you get a great job. We will approach this subjcet via hands-on exercises on Linux (virtual machine) and Raspberry Pi.

Topics to be discussed in the course include Buffer Overflow Attacks, Confidentiality, Integrity, Authentication, Denial of Service (DoS/DDoS) attacks, Firewall, Port and Network Scanning, Malware Worm, Malware Virus, Rootkit Attacks, BotNet, Public Key Infrastructure, *etc.*

3   Student Background

- Prerequisite: CISC361 Operating Systems

- (required) programming skills (Python, C, C++, or Java) with a clear appreciation and understanding for modular, well-documented code.

- (required) working familiarity with Unix

I expect that you are here to learn, and are willing to work hard on it.

4 Work Requirement

During the semester, you are responsible for completing the assigned readings, homework assignments, programming assignments (class discussions and presentations), one midterm exam, and the final exam.

1. Readings

    - There is no textbook for the class. However, we will be reading papers, manuals, on-line documents, slides, *etc.*

2. Homework Assignments

    - Homework assignments are based on readings and class discussions. They should be submitted **via Sakai**.
    - Late homework assignments will **not** be graded.

3. (Team) Programming Assignments

    - Programming assignments should be submitted **via Sakai**. They will be described in more detail in later handouts.
    - Programming assignments may involve class discussion and presentations.
    - Scores of programming assignments will be penalized by 10% per day that is late.

4. Exams

    - Midterm exam – TBA (open anything)
    - Final exam – TBA (open anything)
    - Exams will be based on course readings, class discussions, homework assignments, and programming assignments. All exams are **open everything**, including Internet connectivity!

Attendance is not obligatory. However, important administrative information (about exams, assignments, and policies) may be communicated only in the lecture. If you do happen to miss a session, you are responsible for finding out what material was covered and if any administrative announcements were made.

5 Grading

- Final scores will be determined using the following formula:

    15% homework assignments
    40% programming assignments
    20% midterm exam
    25% final exam

    Final grades indicate absolute performance, and hence will be determined according to the following table.

A	A-	B+	B	B-	C+	C	C-	D+	D	D-	F
91	88	85	82	79	76	73	70	67	64	61	below

- I will not assign incompletes unless it is for a documented medical reason.

6   Academic Honesty

I don't mind if you help each other with understanding the material; in fact, I encourage it. However, **all** work turned in on homework assignments, programming assignments, and exams must be your (team's) own work. If any portions of homework assignments, programming assignments, or exams are found to be shared between two (or more) students/teams, there will be 0 (zero) credit given to all students concerned and all students will be disciplined. We will act harshly at any sign of plagiarism or other academic misconduct. This policy is in the interest of those students who do their own work, which hopefully applies to all of you in this class. I encourage you to familiarize yourself with the University's Policy of Academic Dishonesty found in The Official Student Handbook.

7   Cell Phones, Tablets, and Laptops

I love my job teaching at UD, and promise to work extremely hard to make this class exciting and challenging. In return, I expect your full attention in class. I believe cell phone texting and the use of a laptop or tablet for doing other class assignments, reading email, playing video games, visiting Facebook, etc., while someone is working to educate you is as rude as it gets, and I will be personally offended. At the beginning of class, **turn off your cell phone**, and **close unrelated applications on your laptop/tablet**. If you believe this policy is too severe, please do not take this class. Thank you.