CIS 345: Game Hacking

Class Schedule: Online

Instructor: Chad Johnson
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Office hours: Tuesday and Thursday, 1pm to 2pm

Course Description

This course will focus on approaches to penetration testing online games. MMOs are very popular and tend to use similar technology to achieve the gaming experience of their subscribers. At the same time, those exploiting the game seem to be an ever-present problem. In this course, we will look at some of the methods these cheaters use, so that we can better understand how anti-cheating engines like Punkbuster work, and how we might otherwise protect these games.

Course Objectives

- Perform basic penetration testing for online games.
- Locate execute exploits in server/client systems.
- Reverse engineer code to locate vulnerabilities.
- Edit network traffic to manipulate games.

Textbook

- We will be using open-source texts, posted to Canvas.

Lectures

- Lecture notes will be posted in Canvas. I make every effort to make my notes available, but I may decline to include them at my discretion.
- Students are strongly encouraged to attend each class and actively participate in class discussions.
- In general, I do not believe in taking attendance. However, class attendance may be taken in any class without notification in advance.

Grading

- 8 Assignments: 100% (12.5% each)

Final grades will be assigned according to the following scale:

A: score >= 90	A-: 87 <= score < 90	
B+: 83 <= score < 87	B: 80 <= score < 83	B-: 77 <= score < 80
C+: 73 <= score < 77	C: 70 <= score < 73	C-: 65 <= score < 70
D: 60 <= score < 65		
F: score < 60		

Scale may be adjusted, depending on the overall performance of the class.

Assignments and Deadlines

- This course is designed to be self-paced. All work is possible to do from the first day of class, but my video walkthroughs will be posted weekly. All items are therefore due no later than the last day of class, however you should not wait until the last minute. Some of these challenges can take some time to work up to.
- Pwn Adventure 3: Pwnie Island has several quests to complete. The goal of each is usually to open a chest of some kind. Your assignment is to earn the flag and provide some account of how you were able to achieve it and what challenges you faced in working it out. Include any code you used with a breakdown of how it works. You can either do this by submitting a paper with screenshots or a link to a video with voice over. If you do a paper, open notepad and enter your name and Summer 2022 and drag it in front of the game client, then take a screenshot of the flag in your inventory with notepad visible as well. Two main rules: 1) SHOW YOUR WORK, 2) PROVE ITS YOUR WORK.
  - Goodness Gracious – This assignment will ensure you are able to install and configure the client and connect to the game. Consider this a check to be sure you have everything you need to participate. You really don't need to write a long paper on this. Just let me know if you ran into any problems or have any concerns about your ability to participate and include a screenshot according to the directions above showing the complete achievement in the background. I just want to know if you got this far and can follow directions.
  - Until the Cows Come Home – This quest is given by the Rancher Sum Ting Wong at the Gold Farm. Your objective is to find the missing cows and collect the Flag of the Cow.
  - Unbearable Revenge – Survive an onslaught of bears for five minutes to open the chest and collect the Flag of the Bear.
  - Egg Hunter – Find all 10 Golden Eggs and acquire the Flag of the Egg Hunter.
  - Pirate's Treasure – Open the chest on the pirate ship by "buying" the DLC via "total legit, not pirated" means to earn the Flag of the Pirate. Include the key you entered in your response.
  - Fire and Ice – Take out Magmarock and claim the Flag of the Lava.
  - Blocky's Revenge – Find your way passed the last puzzle to open the chest and obtain the Flag of the Block.

- o Overachiever – Complete all achievements to earn and achievement. It's achievementception. Earn the Flag of the Overachiever. No need really to submit a paper with his one, just the screenshot per instructions will do.
  - ▪ The game has ten achievements. There are multiple ways to accomplish these achievements, and you may do so in any way you are able.
    - ▪ Chamber of Secrets – Find an Egg (You will get this on your way to Egg Hunter anyway.)
    - ▪ Chill Out – Obtain and ice spell (In the spider nest in the ice cave.)
    - ▪ First Blood – Kill another player in PVP (Collusion is acceptable. Bring a friend into the game and murder them. Or just, you know, create a second account and kill yourself.)
    - ▪ Killing Spree – Kill 10 players in PVP (Collusion is still acceptable. Bring lots of friends into the game and murder them. Or, you know, create a second account and kill yourself ten times.)
    - ▪ I am Legend – Find a legendary weapon (You'll get this if you complete any assignment.)
    - ▪ Monster Kill – Kill any enemy (You should get this by attempting virtually any assignment.)
    - ▪ Now You're Thinking with Portals – Use the Pwnie Express fast travel system (Just use the fast travel system.)
    - ▪ The Right to Arm Bears – Get gunned down by a bear (You will probably earn this while trying to get Unbearable Revenge. Make sure you let them kill you at least once before you solve it.)
    - ▪ It's Quite Logical – Reach the final puzzle in Fort Blox (You will get this on your way to completing Blocky's Revenge.)

Office Hours Policy

- I prefer that you contact me via email.
- Virtual office hours are available on request.

Regrading

Scores of Assignments and Exams will be posted in Canvas, and announcements will be made in Canvas. After the scores are announced, you have 7 days to request for regrading by contacting the instructor (office hours or email). Your grade will be final after 7 days.

Canvas

The Canvas URL is https://canvas.uwsp.edu. Use your UWSP NetID and password to login. We use Canvas for the following activities:

- Make important announcements.

- Posting assignment instructions and files.
- Students submit assignments electronically.
- Posting scores and grades.

Academic Integrity

The university cannot and will not tolerate any form of academic dishonesty by its students. This includes, but is not limited to cheating on examinations, plagiarism, or collusion. **Any form of academic dishonesty may lead to F grade for this course.**

Students with Disabilities

If you require accommodation based on disability, please let me know. I am willing to provide any reasonable accommodations you require. The sooner you inform me the better.

Tentative Schedule

Week	Lecture Topics
1	Introduction – Goodness Gracious
2	BinPatching for Quality of Life
3	Writing a network proxy
4	Using a debugger / cheat engine
5	Right to Arm Bears (Starting - Unbearable Revenge)
6	Unbearable Revenge
7	Chamber of Secrets (Starting - Egg Hunter)
8	Egg Hunter
9	Monster Kill (Starting - Until the Cows Come Home)
10	Until the Cows Come Home
11	KeyGens (Starting - Pirate's Treasure)
12	Pirate's Treasure
13	Fire and Ice
14	It's Quite Logical (Starting - Blocky's Revenge)
15	Blocky's Revenge
16	Overachiever – Class Wrap Up