IT 4510: Ethical Hacking and Network Defense

Spring 2023 Syllabus

Course Description

This course provides an in-depth, hands-on experience in effectively protecting computing environments. Students will learn the tools and penetration testing methodologies used in ethical hacking.

Prerequisites: CS1410, IT2400, IT3100

Course fee: The fee for this course is $20.00. This will be use to pay for a lab assistant and replace aging hardware.

Course Time: MWF 11:00am - 11:50am in SCC 107

Final Exam: Wednesday, May 3 11am - 12:50 pm

Professor: Dr Joe Francom

- **Email:** `joe.francom at utahtech dot edu`
- **Phone:** 435-652-7732 (note: email preferred)
- **Office:** NBURNS 237
- **Office Hours:** See Below

Joe's Spring 2024 Schedule

Days	Time
MWF	8am - 8:50 - IT4600
MWF	9am - 9:50 - IT3110
MWF	10am - 10:50 - Office
MWF	11am - 11:50 - Office
MW	12pm - 2:00 - office hours by appointment
TR	Limited zoom office hours by appointment only

Zoom is the preferred method of office hours. See canvas for the link.

Program learning outcomes

The learning outcomes for the IT program are as follows:

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    1. Administer computing resources to support organizational needs, including networks, operating
systems, and security configurations.
    2. Create repeatable and automated infrastructure solutions.
    3. Identify and resolve technical problems using troubleshooting techniques.
    4. Explain ethical and legal issues impacting information technology.
```

Course Learning Outcomes

Each of the CLO's maps to a PLO above (see the number in parentheses)

The student will be able to:

```
    1. Define ethical hacking.
    2. Analyze threat vectors and proper defense mechanisms against them.
    3. Examine emerging areas of cloud, development, and mobile hacking.
    4. Develop defense skills against malware, DoS, backdoors and more.
```

Resources

Texts

There is no required text for purchase.

You will be given and expected to read various online resources.

Computer Resources

Each student should have their own laptop.

You will need access to a laptop to do many of the hacking exercises. It should be able to run Virtualbox and likely docker. Some of the exercises can be completed remotely on a virtual machine as well.

Course Website

This course has an accompanying website. You are responsible for announcements, the schedule, and other resources posted on the website. Assignments and grades will be managed using Canvas, which requires a valid Utah Tech username and password.

Assignments and Exams

Reading

The student is responsible for reading assigned materials. The student is expected to read the material before the class in which it is discussed. Feel free to bring questions from the reading to lectures or to office hours.

Assignments

It is important that you start early and get each of your assignments done before its due date. Many problems will take much longer to solve in a single sitting than in many shorter sessions. Give yourself time to think; sleep on difficult problems. Finish early so you can go back and refine your initial approach.

Assignments are due on the date listed in the schedule, and must be submitted according to instructions. Your instructor will tell you how to appropriately submit assignments.

Exams

There will be several exams given throughout the semester. Any missed tests will need to have the Divisional Dean’s approval before you can take the test.

Grading

Projects, exams, and participation each contribute to your point total. The breakdown for the above items is as follows:

- Tests = 40%
- Participation = 20%
  - You will need to come to class prepared each day, having watched/reviewed the required materials to engage in class dicussions.
  - There will be one 3 hour workshop on an evening in march or april that will be a large chunk of this grade.
  - Attendance will be taken
  - Computing Showcase participation
- Projects = 40%
  - We will also have in-class projects (well, we will start them in class, but you might have to finish them on your own)

Grades will be issued on a percentage of total points possible as follows:

Here is the grading scale:

```
  >= 94 = A
  >= 90 = A-
```

```
>= 87 = B+
>= 84 = B
>= 80 = B-
>= 77 = C+
>= 74 = C
>= 70 = C-
>= 67 = D+
>= 64 = D
<  64 = F
```

Course Policies

Absences

Students are responsible for material covered and announcements made in class. School-related absences may be made up only if prior arrangements are made. The class schedule presented is approximate. The instructor reserves the right to modify the schedule according to class needs. Changes will be announced in class and posted to the website. Exams and quizzes cannot be made up unless arrangements are made *prior* to the scheduled time.

Time

Courses should require about 45 hours of work per credit hour of class. This class will require about 135 hours of work on the part of the student to achieve a passing grade, which is approximately 9 hours per week. If you do not have the time to spend on this course, you should probably rethink your schedule.

Late work

Assignments that are turned in by the due date and that are done correctly will receive full points.

Late assignments can be turned in until the exam is given which covers the assignment. You may receive a reduced score on the late assignment.

Assignments will not be accepted after an exam has been given that relates to those earlier assignments.

Any exceptions must be discussed with the instructor. Computer failure does not qualify as an excuse for late work.

Cheating and Collaboration

It is ok to talk to each other and to get help from each other, but in the end, everything should be your own. You should NOT copy/paste. You should know what cheating is. Cheating can be penalized with an ‘F’ on the assignment, and ‘F’ in the course, and/or appropriate annotation on campus-wide student records.

Important Dates Spring 2023

```
    Jan 9 - Date classes begin
    Jan 13 - Last day to add without instructor permission
    Jan 20 - Last day for refund of 100% tuition and fees
    Jan 30 - Pell Grant census date
    Jan 30 - Last day for refund of 50% tuition and fees
    Feb 6 - Last day to add or audit classes with instructor permission
    Mar 1 - Midterm grades posted
    Mar 3 - Last day to drop an individual class
    Apr 10 - Last day for complete withdrawal from all classes
    Apr 26 - Last day of classes
    Apr 28 - May 4 - Final Exam dates
    May 9 - Final grades posted
```

Check the academic calendar for exact dates.

Disability Statement

DSU strive to make learning materials and experiences accessible for all students so If you are a student with a medical, psychological, or learning disability or anticipate physical or academic barriers based on

disability, you are welcome to let me know so we can discuss options. Students with documented disabilities are required to contact the Disability Resource Center located in the North Plaza Building, Next to the Testing Center (435-652-7516) to explore eligibility process and reasonable accommodations related to disability.

Title IX Statement

DSU seeks to provide an environment that is free of bias, discrimination, and harassment. If you have been the victim of sexual harassment/misconduct/assault we encourage you to report this to the college's Title IX Director, Cindy Cole, (435) 652-7731, cindy.cole@dixie.edu. If you report to a faculty member, she or he must notify the Title IX Director about the basic facts of the incident.

Email Disclaimer

You are required to frequently check your campus email account. Important class and university information will be sent to your campus email account, including Utah Tech bills, financial aid/scholarship notices, notices of canceled classes, reminders of important dates and deadlines, and other information critical to your success at Utah Tech and in your courses. To access your campus email account, visit mail.utahtech.edu. Your username is your Digital ID (e.g. D00111111) If you have forgotten your PIN, visit my.utahtech.edu and click the "Forgot Pin" button.

College Policies

Policy for absences related to college functions

Disability Resource Center

IT Help Desk

Library

Testing Center

Tutoring Center