# Schedule and outline

#### Texts

- Certified Ethical Hacker CEH Certified Ethical Hacker All-in-One Exam Guide, Fifth Edition, 5th Edition
- Other texts could also be used

#### Week 1 (week of Jan 10)

- Topics:
  - <u>Syllabus</u>
  - Intro <u>s1</u>
  - Ethical Hacking <u>s2</u>
  - $\circ$  Information gathering <u>s3</u>
- Readings: CEH1-3
- Labs: <u>p1</u>

## Week 2 (week of Jan 17)

- Topics:
  - Virtualbox review
  - Authentication <u>s4</u>
  - MFA
  - BIOMETRICS
  - Rainbow tables
  - $\circ$  Passwords
  - Gaining Access
    - Local password attacks
    - Privilege escalation
  - $\circ\,$  Physical Security
  - $\circ~$  Hacking windows or linux without knowing password.
    - Rescue cd
    - Hirens
    - Reset SAM
  - Bios security
- Readings: CEH4
- Labs:
  - <u>p2</u>

• <u>p3</u>

## Week 3 (Week of Jan 24)

- Topics:
  - OS Security
  - $\circ \ \ Maintaining \ Access$ 
    - Rootkit <u>s5</u>
    - Trojan and Backdoor
- Readings: <u>Rootkits</u>
- <u>Reptile rootkit setup</u>
- <u>Reptile rootkit Demo</u>
- Labs:
  - <u>p4</u>

## Week 4 (Week of Jan 31)

- Topics:
  - More OS Security
  - C&C server
  - <u>Powershell empire</u>
  - Data Hiding: <u>s6</u>
  - Review <u>here</u>
- Labs:
- <u>p4a</u>
- Test 1 Presentation

## Week 5 (Week of Feb 7)

- Topics:
  - MITM
  - <u>Ssh downgrade example</u>
  - <u>MITM with dns\_spoof</u>
  - Network attacks with SCAPY
  - replay
  - DOS
- Readings:
  - <u>Man in the middle</u>
  - <u>Scapy slides 1</u>
- Projects:
  - $\circ$  <u>p5</u> (man in the middle)
  - <u>p6</u>
  - <u>p7</u>

## Week 6 (Week of Feb 14)

- Topics:
  - More scapy
  - Malware?
  - Ransomware
- Readings:
  - $\circ~$  CEH Chapter 5 ~
  - FIN vs RST packets
  - $\circ \ \ Social \ Engineering \underline{s7}$
  - <u>Ransomware</u>
- Projects:
  - <u>p8</u>
  - <u>p9</u>

## Week 7(Week of Feb 21)

#### **No school Monday**

- Topics:
  - IDS<u>IDS</u>
- Readings:
- Projects:
  - ° <u>p10</u>

## Week 8(Week of Feb 28)

- Topics:
  - IDS, Firewalls, and Honeypots
- Readings:
  - $\circ\,$  CEH Chapter 9 IDS, Firewalls, and Honeypots

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s<u>8</u>
Projects:

p<u>11</u>
Cloud based IDS

Test 2 (???)
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#### Week 9(Week of Mar 7)

- Topics:
  - Web hacking
  - $\circ$  Application security
  - <u>http://code.google.com/edu/security/index.html</u> (gruyere)
  - Proxy servers
- Readings:
  - $\circ$  Chapter 7
  - <u>Slides</u>
  - <u>Proxy Slides</u>
- Projects:
  - <u>p12</u>
  - <u>p13</u>
- Presentations?

## **Spring Break (Week of Mar 14)**

#### Week 10 (Week of Mar 21)

- Topics:
  - Application security
  - https://owasp.org/www-project-mutillidae-ii/
  - Burpsuite
  - SqlInjection
- Video Lectures:
  - <u>Sql Injections</u>
  - More SQL Injections
- Readings:
  - <u>Injection Slides</u>
- Projects:
- <u>p14</u>Presentations?

## Week 11 (Week of Mar 28)

- Topics:
  - Application Security
  - Software Security
    - Buffer overflows
- Readings:
  - <u>Buffer overflows</u>
  - $\circ$  Overflows slides
- Video Lectures:
- <u>Buffer overflow slides</u>
- Projects:
  - <u>CTF1</u>
  - <u>buffer overflow</u>

## Week 12 (Week of Apr 4)

• Topics:

- Cryptography
- CTF work
- Forensics
- Readings:
  - <u>encryption</u>
  - CEH Chapter 10
- Video Lectures:
  - Encryption 1
  - Encryption 2
- Projects:
  - <u>ctf2</u>

## Week 13 (Week of Apr 11)

Malware workshop April 12

- Topics:
  - $\circ\,$  wireless and mobile security
  - <u>bluetooth no audio</u>
  - <u>wireless</u>
- Projects:
- <u>p15</u>
- Readings:
   CEH Chapte
  - CEH Chapter 8

## Week 14 (Week of Apr 18)

- Topics:
  - Fun random stuff?
  - <u>https://jhalon.github.io/over-the-wire-leviathan/</u>
  - <u>https://www.hackthis.co.uk/levels/main/4</u>
- Projects:
  - <u>p16</u>
  - $\circ~$  Maybe one last project
- Test 3

## Week 15 (Week of Apr 25)

Final?