CS530L – lab component of Security Systems course

August 25, 2017

Correlation
lab component << >> main course

• loosely coupled
• contributes to course grade
  – directly: via grading of individual labs
  – indirectly: subject matter may appear in exams
• cumulative lab results are reported to Professor Neuman who considers them in determining course grade
Lab sessions per week

- a 50-minute lab lecture
  - Friday 4:30 pm, in OHE122
  - addresses the theory that the exercise demonstrates
  - explains the exercise procedurally

- an 80-minute lab exercise
  - at a time the following week
  - performed hands-on
  - per specific instructions
  - assisted by graders

Lab website

http://www-scf.usc.edu/~csci530l/

or equivalently

http://ccss.usc.edu/530l
# 7 candidate timeslots for scheduling

<table>
<thead>
<tr>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:00a-10:20a</td>
<td>9:00a-10:20a</td>
<td>10:30a-11:50a</td>
<td>1:30p-2:20p</td>
</tr>
<tr>
<td>12:00-1:20p</td>
<td>12:00-1:20p</td>
<td>1:30p-2:20p</td>
<td>3:00p-4:20p</td>
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</tbody>
</table>

actual 2017 times offered (compatible with room and grader availability) to be determined and communicated to you shortly for your preference selection

Location: OHE406 - fourth floor Olin Hall

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# Lab mechanics

- sign up for a lab session
- by filling out a form
- the form is not live yet
  - check the class website in the next few days
  - an announcement will be posted there
  - it will direct you to a URL
  - visit that URL for a form on which you can check off which of the 7 timeslots are feasible for you, and instructions for filling it out
  - respond at that point ASAP (so that I have time to process the responses before next lecture)
Suppose I have a Tuesday/Thursday morning class. I uncheck those mornings, expressing my conflict then and availability otherwise. (By default all times are initially checked.)

Lab exercise mechanics

- before: preview website’s posted instructions
- attend your chosen/assigned lab session
- lab will be attended by assisting lab grader
- recover and install your removable hard drive
- perform the week’s prescribed lab
- after: turn in requested result electronically
  - email it to csci530l@usc.edu
  - use prescribed email title for each lab
  - deadline: start of following week’s lab timeslot regardless whether a lab is then actually performed (or is remote)
Lab mechanics

- there are 10 lab exercises
- each is followed by a few questions
- every question must be answered
- each lab graded fail/lo-pass/pass/hi-pass
- 9 highest grades averaged (i.e., lowest discarded)
- average will influence course grade
  - average > 2 raises/enhances
  - average < 2 lowers/damages
  - average = 2 no effect

Lab workstation installations

- operating platform is Windows 10
- hosting virtual (VMware) operating systems
  - CentOS 6.4 linux
  - CentOS 4.3 with Snort and overflowable stack
  - Kali linux with hashcat pw cracker and heartbleed attacker
  - Fedora 19 with heartbleed-vulnerable openSSL
Policies

- no late submissions
- submissions not accepted without attendance
- follow course online homes
  - lab website at
    http://www-science.usc.edu/~csci530l/
    (different from professor’s main site for the course)
  - lab lectures on DEN (www.uscden.net)

Representative lab topics

- Cryptography/key mgmt
- Authentication
- Authorization
- Application security
- Packet sniffing
- Firewalls
- Intrusion detection
- ARP spoofing
- Tunnels & VPNs
- Computer forensics

subject to adjustment – some changes might be made
Which labs use which VMs?

- Cryptography/key mgmt – CentOS-6.4
- Authentication – kali linux
- Authorization – CentOS-6.4
- Application security
  - Stack overflow uses CentOS 4.3 min-gdb
  - Heartbleed uses kali linux
  - c sign extension bug uses CentOS-6.4
- Packet sniffing – CentOS-6.4
- Intrusion detection – CentOS 4.3 min-gdb

- the other 4 – DETER/remote  n/a

Calendar schedule

Starting calendar schedule

<table>
<thead>
<tr>
<th>Fri lecture</th>
<th>Topic</th>
<th>lab meeting week of</th>
</tr>
</thead>
<tbody>
<tr>
<td>9/1</td>
<td>Cryptography</td>
<td>9/4</td>
</tr>
<tr>
<td>9/8</td>
<td>Authentication</td>
<td>9/11</td>
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<tr>
<td>9/15</td>
<td>Authorization</td>
<td>9/18</td>
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<tr>
<td>9/22</td>
<td>Application security</td>
<td>9/26</td>
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Subsequent calendar to be determined
depends when Professor Neuman’s midterm falls

- Prof Neuman’s lectures vs our labs – note 15 weeks vs only 10
  - we conclude by around mid-November
DEN students

next Friday expect announcement of a URL (or posted earlier on lab website) where you can download VMware virtual machines identical to those in the lab (please install VMware Workstation Player in order to use them)

Today’s take-away for your to-do list

- Non-DEN students
  - please check the class website for announcement and follow its instructions for expressing your timeslot availability
- DEN students
  - install VMware Workstation Player if you don’t already have some version of VMware
Email contacts

- csci5301@usc.edu
  lab graders, me, course TA, prof collectively
- davidmor@usc.edu
  me individually

Thank you

- for sharing an interest in the subject matter
- for your kind attention today