School of Computing

CPSC 4200/6200: Computer Security Principles

Fall 2017 Syllabus

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Office hours: MW 9:00 AM – 11:00 AM; By Appointment

Time and Location: MW 2:30 PM – 3:45 PM, Kinard Laboratory of Physics 001

Class website: http://people.cs.clemson.edu/~hongxih/teaching/2017fall/cpsc420620/2017fall.htm

Course Description: This course provides an introduction to the various basic technical and administrative aspects of Computer Security, and addresses the foundation for understanding the key issues associated with protecting information assets, determining the levels of protection and response to security incidents, and designing security mechanisms.

The purpose of the course is to provide the student with an overview of the field of Computer Security. Students will be exposed to the spectrum of Security activities, methods, methodologies, and procedures. Topics covered include: physical security, secure software life cycle, web security, operating system security, database security, network security, system threats, and programming for software security.

Topics:

- Physical Security
- Operating Systems Security
- Malware
- Mobile Platform Security
- Network Security
- Software Security
- Web Security
- Cryptography
- Security Models and Practice

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<th>Evaluation Procedures:</th>
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<tbody>
<tr>
<td>Homework Assignment/Survey Paper (4+2)</td>
<td>10%</td>
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<tr>
<td>Midterm Exam (1)</td>
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<tr>
<td>Final Exam (1)</td>
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<tr>
<td>Group Project (1)</td>
<td>10%</td>
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<td>Class Projects (5)</td>
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Grading: Letter Grade

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<tr>
<th>Grade</th>
<th>Range</th>
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<tr>
<td>A</td>
<td>90 – 100</td>
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<td>B</td>
<td>80 – 89</td>
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<td>C</td>
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<td>D</td>
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<td>F</td>
<td>0 – 59</td>
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Class Project

The projects will involve writing programs that demonstrate important information security concepts. The purpose of the projects is to connect theory with practice by giving you practical experience in network security. Each project will require a substantial time commitment. The most common reason for not doing well on projects is not starting them early enough. You will be given plenty of time to complete each project. However, if you wait until the last minute to start, you may not be able to finish. Start early and plan to have it finished a few days ahead of the due date.

Many unexpected problems typically arise during programming, particularly when debugging. You should plan for these things to happen. The school computer lab will be available for project work. We will also make an environment available for you that can be used to work on projects on your own computer. Your lack of starting early is not an excuse for turning in your project late, including having your computer crash. There are a number of sources for help. This includes office hours, and discussion groups on the class website.

Group Project

The goal of group project in this course is to give you the opportunity to study particular areas of security in greater detail. Therefore, you are expected to perform a substantial project; this involves selecting an open problem, reading the related articles, designing a solution, and presenting your results.

For your project, you need to pose a question, design a framework in which to answer the question, and write up your results. There will be three deliverables for this project which will count toward your final project grade: a project proposal (30%), a class presentation (20%), and a final report (50%).

1. **Project proposal**
   Your project proposal should be around 2 pages in length. The project proposal should clearly state the goals of your project and the question you are investigating. Describe why you think the project you are proposing is interesting and important. Your project plan should include (1) related work that shows you have enough background in the area to
know that you are not simply reproducing someone else's work, (2) hypotheses about the conclusions you expect to draw from the work, (3) experimental setup which describes what experiments you plan to conduct and how you plan to do your measurements, and (4) a detailed schedule for your work including dates, milestones, and tasks that will be done by each group member.

2. **Project presentations**
   Each group will give a project presentation in class. *Project presentation* should be 8 minutes, with about 2 minutes for questions afterwards.

3. **Final report**
   Your final report should be roughly 6 pages in length, including graphs, diagrams, and citations. You should present your method/design in detail to address the proposed problem, but you only need to describe how your method/design could be implemented and evaluated. You should discuss future work and possible follow-on projects. In addition, there should be a description about contributions of each group member.

**Submission**

All work will be submitted electronically. Homework and Projects are due at 11:59 PM on the due date described in the assignments. Late policy is as follows:

- 10% grade penalty for one day of lateness
- 50% grade penalty for two days of lateness
- A grade of zero for >2 days of lateness

**Academic Integrity**

As members of the Clemson University community, we have inherited Thomas Green Clemson’s vision of this institution as a “high seminary of learning.” Fundamental to this vision is a mutual commitment to truthfulness, honor, and responsibility, without which we cannot earn the trust and respect of others. Furthermore, we recognize that academic dishonesty detracts from the value of a Clemson degree. Therefore, we shall not tolerate lying, cheating, or stealing in any form. In instances where academic standards may have been compromised, Clemson University has a responsibility to respond appropriately to charges of violations of academic integrity.