



CSCI 4250/6250 – Fall 2013

Computer and Network Security

Instructor: Prof. Roberto Perdisci
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CSCI 4250/6250

- ▶ What is the purpose of this course?
 - ▶ Combined Undergrad/Graduate Intro to Computer and Net Security
 - ▶ Focuses on understanding security principles, protocols, and pitfalls:
 - ▶ How do systems fail under attack?
 - ▶ Defend yourself: best practices, design more secure systems
- ▶ What this course is not!
 - ▶ This is ***not a hacking course***
 - ▶ While we will talk about vulnerabilities and attacks, we will not focus on how to write exploits
 - ▶ Focus will be on analyzing security mechanisms, pitfalls, learn from past mistakes, and think about how to design more secure systems



Course Topics

- ▶ Introduction: CIA, Design Principles, Crypto concepts
- ▶ Access Control and Security Models
- ▶ More crypto
 - ▶ confidentiality and integrity
 - ▶ Symmetric- and Public-key crypto
 - ▶ SSL / IPSec / DNSSEC
- ▶ OS and software security
- ▶ Malware, Botnets
- ▶ Web security
- ▶ Operational network security and privacy
 - ▶ Spoofing, Poisoning, Firewalls, IDS, Anonymity, etc...
- ▶ Physical Security (if time allows...)



Books

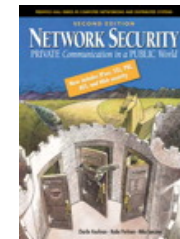
▶ **Textbook 1:** *Introduction to Computer Security*

- ▶ Michael T. Goodrich and Roberto Tamassia
- ▶ Addison Wesley



▶ **Textbook 2:** *Network Security: Private Communication in a Public World, 2/e*

- ▶ Charile Kaufman, Radia Perlman, Mike Speciner
- ▶ Prentice Hall



▶ **Recommended Readings:** *Introduction to Computer Security*

- ▶ Matt Bishop
- ▶ Addison Wesley



▶ See website for other recommended readings...

- ▶ <http://www.cs.uga.edu/~perdisci/CSCIx250-F13/Syllabus.html>



How will students be evaluated?

- ▶ **Class participation: U,G=5%**
- ▶ **Paper Reviews: U=N/A, G=10%**
- ▶ **Development Projects and Assignments: U,G=25%**
- ▶ **Midterm Exam: U=35%, G=30%**
- ▶ **Final Exam: U=35%, G=30%**



Class Participation (5%)

- ▶ **Class participation is required**
 - ▶ Students will need to sign the attendance log at the beginning of sample lectures
- ▶ **Not all topics discussed during lectures are covered in the textbooks**
- ▶ **Lectures will be interleaved with assignments/projects discussions**



Paper Presentations (U=N/A, G=10%)

- ▶ Throughout the term, graduate students will be required to read a number of academic/technical papers
- ▶ For each paper, students will be required to prepare a presentation to be given to the entire class
 - ▶ Introduce problem
 - ▶ Summarize paper
 - ▶ Briefly describe proposed system/algorithms
 - ▶ Report most important experimental results
 - ▶ Live demonstration (when appropriate)
 - ▶ More detailed guidelines later...
- ▶ **NOTE:** Some of the topics discussed in the assigned papers may be part of the midterm and final exams for everybody!



Development Projects + Assignments (25%)

- ▶ Students will be required to complete a number of development projects
 - ▶ Development in C, Java, or Python
 - ▶ (other languages conditioned to my explicit approval)
 - ▶ Some projects must be conducted individually
 - ▶ Others may be conducted in pairs (I will indicate which ones), in which case the evaluation will be the same for both students
 - ▶ Most projects will be evaluated with a **binary criteria**
 - ▶ It works correctly => X points (X depends on project difficulty)
 - ▶ It does not work (does not compile, fails tests, etc.) => 0 points
 - ▶ I will announce possible exceptions to this rule for specific projects
 - ▶ Development Projects and Assignments under Linux
 - ▶ You will use a specific VM image (provided later...)



Development Projects + Assignments (25%)

- ▶ **Other assignments will include**
 - ▶ Pencil-and-paper homework
 - ▶ Hands-on network experiments / analysis

- ▶ **Lateness Policy**
 - ▶ Students will be allowed a maximum of **one** late submission
 - ▶ Max delay = 7 days
 - ▶ Past this threshold, all future late assignments will be penalized 100%

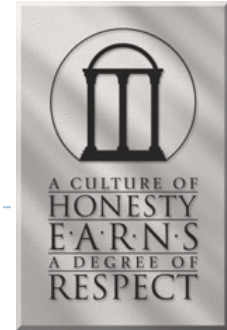


Exams

- ▶ **Midterm Exam (U=35%, G=30%)**
 - ▶ Will cover all topics discussed up to one week before the exam
- ▶ **Final Exam (U=35%, G=30%)**
 - ▶ Can cover **all topics**
 - ▶ Main focus on second part of the course
 - ▶ Will include some questions about most important topics covered in the first part of the course
- ▶ Both Midterm and Final may also contain some questions related to papers assigned for review



Academic Integrity



- ▶ Every student must abide by UGA's **academic honesty policy**
- ▶ Dishonest behavior including cheating, copying, or forging experimental results **will not be tolerated** and will be reported according to UGA's policies
- ▶ **Always adopt an ethical conduct**
 - ▶ **Never use what you learn to attack real systems!!!**
- ▶ Specific to Development Projects:
 - ▶ You are **allowed** to search for examples and documentation
 - ▶ You are **not allowed** to reuse other people's code (no cut and paste!)
 - ▶ Use examples to understand how the code works and then **write your own code!**



Logistics

▶ Course Website

- ▶ <http://www.cs.uga.edu/~perdisci/CSCIx250-F13/Calendar.html>
- ▶ I will post info on topics covered in class, assignments, projects, and related deadlines

▶ Mailing List

- ▶ CSCIx250-F13@listserv.uga.edu
- ▶ Assignment 0.1:
 - ▶ See course calendar for instructions on how to subscribe to the list (only UGA.edu email addresses are allowed)
- ▶ Use mailing list to ask any questions about the course (avoid posting questions specific to your case on the list)
- ▶ You can also use the mailing list for discussion
- ▶ DO NOT expect me to answer to all questions. I will answer only to important questions/urgent issues, anything else can be addressed during last 5min of class



Logistics

- ▶ **As a reminder... Classes are on**
 - ▶ Monday at 2:30-3:20pm, Boyd 306
 - ▶ Tuesday and Thursday at 2-3:15pm, Forestry 306
- ▶ **Office hours**
 - ▶ Thursdays, 11am-1pm
 - ▶ GSRC Room 423
- ▶ **TA**
 - ▶ Lee Harrison <lee2704 [at] uga [dot] edu>



Questions?

