Introduction
CS 239
Advanced Topics in Network Security
Peter Reiher
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Description of Class
- Topics to be covered
- Prerequisites
- Grading
- Reading materials
- Projects
- Office hours and web page
- Class presentations and participation

Topics to Be Covered
- Problems and solutions in network security
- Concentrating on unsolved problems and recent research
- Mostly on wide area/infrastructure problems
- Rather than securing your own LAN

In More Detail
- IP spoofing
- Routing and DNS security
- Securing multicast protocols
- Security for ubiquitous/pervasive environments
- DDoS problems and solutions
- Worms
- Security alert systems
- Security for active networks
- Evaluating network security mechanisms
- Privacy in networks

Prerequisites
- I assume you have taken:
  - Advanced networking classes
  - My class in computer security
- I won’t be presenting reviews or assigning “catch up” readings
- If you haven’t taken these or similar classes, it’s up to you to catch up on your own

Class Format
- A seminar class
- No formal lectures
- Each session, a student(s) presents existing research on topic
- Remainder of class spent discussing the topic
- Class intended for students with serious interest in research in network security
Grading

- Class participation – 40%
  - Includes in-class presentation on research topic
- Project – 40%
  - Includes in-class presentation on your project
- Final – 20%

Reading Materials

- No textbook
- I will assign 2-3 papers (or substantial web pages) for each topic
- Student in charge of session may assign 1-2 more papers
- If you haven’t read the papers before the class, you probably won’t be able to participate well in the discussion

Projects

- Either individual or small group
  - Depending on size of class
- Usually requiring program development
- Related to some topic covered in class
- Must be approved by instructor

Choosing a Project Topic

- Submit a 1 page proposal
  - By April 18th
  - Email submissions OK
- I will approve them and perhaps offer suggestions
- Must be submitted, but not part of grade

What Makes a Good Project?

- Something new
- Something you’re interested in
- Maybe it can turn into a paper for you
- Feasible to demonstrate something interesting within the quarter
  - Running code or other practical demonstration, not just a paper
- For this class, a very solid design on a really new idea might be enough

Possible Project Topics

- Basically, choose from one of the areas we’ll be discussing
- Or another topic of your choice that’s within the general parameters of the class
Project Updates

• Due at the end of the 7th week of class
  – May 14th
• 1 page report on your group’s progress on its project
  – Email submission OK
• Not graded, but required
  – And should describe actual progress

Project Reports

• Written report on the project
• Should:
  – Describe project
  – Discuss how project was performed
  – Cover difficulties and interesting points
  – Describe the implementation
• Expected to be around 15 pages

Project Demos

• Must show working version of project to instructor
• Schedule time individually for this
• Must be done by the first day of finals week
• If not something demo-able, expect to spend ½ hour to 1 hour defending your project against a serious critique
  – And I might bring in ringers

Project Deadlines

• Submit project proposal – April 18th
• Submit project update – May 4th
• In-class project presentations – June 2nd and 4th
• Demonstration and written report due – June 11th

Final Exam

• A take-home final
  – Since our exam slot is so crummy
• Open book
  – Essay questions concentrating on applying knowledge
• When I’ll hand it out and when it will be due to be announced later
  – Definitely due no earlier than our exam slot

Office Hours

• MW 1-2
• Held in 3732J Boelter Hall
• Other times available by prior arrangement
Class Web Page

www.lasr.cs.ucla.edu/classes/239_spring03

- Readings will be posted there
  - With links to papers
- Also links to other interesting info

Presentations

- To be assigned today
- All students must participate in a presentation
- I will do the first one, to give you an idea of what’s expected
- Goal is to provide a quick overview of topic and set of ideas to start discussion
- Goal is not to spend two hours reviewing the assigned papers

Slides for Presentation

- Not required, but often a good idea
- If possible, send them to me ahead of time
  - In which case, I’ll post them on the web page early
- If that’s not possible, send them after class
  - In which case, I’ll post them on the web page late
- I’ll bring a projector to every class

In-Class Participation

- 40% of your grade
- Partially (15%) based on your presentation
- But you also must participate in class discussions (the other 25%)
- Nobody will get an A without being active in class discussions!
- If you regularly can’t make classes, you won’t do well in this class

Class Discussions

- Should be focused on:
  - Analysis of the problems
  - Critiques of existing solutions
  - Suggestions of improvements
  - Or new solution approaches
- Think of it as being part of a research team looking at this problem