

**Introduction**  
**CS 239**  
**Advanced Topics in Network**  
**Security**  
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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

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**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

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**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

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**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

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**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

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### Grading

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

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### 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

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### 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

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### Choosing a Project Topic

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

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### 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

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### 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

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## Project Updates

- Due at the end of the 7<sup>th</sup> week of class
  - May 14<sup>th</sup>
- 1 page report on your group's progress on its project
  - Email submission OK
- Not graded, but required
  - And should describe actual progress

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## 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

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## 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

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## Project Deadlines

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

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## 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

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## Office Hours

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

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### Class Web Page

[www.lasr.cs.ucla.edu/classes/239\\_1.spring03](http://www.lasr.cs.ucla.edu/classes/239_1.spring03)

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

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### 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

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### 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

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### 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

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### 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

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