

# Welcome to CS 653

## Fall 2010

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# Course goals

- Advanced, fundamental networking principles
  - Mix of theory and usage in real networks
  - Exposure to networking research
- Second course in networking
  - Prerequisite: a first course

# Course topics

- 0. Architectural design principles, Review**
- 1. Internetworking:** policy routing, traffic engineering, switching
- 2. Resource management:** TCP and active queue management, router scheduling, router-assisted congestion control, CSMA
- 3. Overlays:** virtualization, DHTs, indirection, location independence, peer-to-peer systems,
- 4. Wireless:** wireless network architecture, link abstraction, TCP problems, physical layer information theory
- 5. Security:** DDoS defense mechanisms, protocol misbehavior, worms and the Internet underground

# Administrivia

- <http://www.cs.umass.edu/~arun/653/>
- Announcements:  
[cs653@edlab-mail.cs.umass.edu](mailto:cs653@edlab-mail.cs.umass.edu)
- Material
  - papers, notes, and web links on Schedule page
  - “Computer Networking: A Top-Down Approach Featuring the Internet” (5th ed.), Kurose and Ross for reviewing basic material

# Administrivia

- 4 homeworks
  - May involve some programming/scripting
- 2 take-home exams
- Project with small research component
  - Proposal + final report
- Class participation important
  - Reading preparation for each class