

# Welcome to CS386M: Communication Networks

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## Course Goals

- Goal
  - Study advanced, fundamental networking principles
- Focus
  - Foundational material: long half-life
  - Understand how networks work
  - Principles commonly found in network designs
    - Case study: the Internet
  - Goals of network design
    - What have we accomplished? Where are we falling short?
  - Directions for designing next-generation Internet
- First graduate-level course
  - Assumes an undergrad course in networks

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## Course Topics

- Network review
  - packet-, circuit-switching primer
  - Basic network operations, functionalities, protocols ...
- Network design/implementation: Common themes
  - Signaling, state management, randomization, indirection, multiplexing, virtualization, scalability
- Internet design
  - Design principle, the big picture, lessons learned
- Current research and practices
  - Network security, network management, overlays/DHT/p2p, new network architecture, extreme networking

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## Course Mechanics

- Basic course information
  - Course number: 55820
  - Time: Monday & Wednesday 2:00 - 3:30; RAS 215
  - Office hours: Monday & Wednesday 3:30-4:30pm, ACES 5.248
  - Contact information: [yzhang@cs.utexas.edu](mailto:yzhang@cs.utexas.edu)
- Teaching assistant
  - Mi Kyung Han (e-mail: [hanmi2@cs.utexas.edu](mailto:hanmi2@cs.utexas.edu))
  - Office hours: TBA
  - Location: TBA
- Grading
  - Class Participation (5%)
  - Paper reviews (10%)
  - Mid-term Exam (20%)
  - 2-4 Homework Assignments (30%)
  - Project (35%)
    - Group project on some research project
- Class home page & mailing list
  - See <http://www.cs.utexas.edu/~yzhang/teaching/cs386m-s8/>

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## Projects

- Two phases:
  - Phase1: Survey a research area - write a survey / project proposal
  - Phase2: Define and carry out a project
    - Identify an interesting question/hypothesis
    - Experimental evaluation/test
- Timeline:
  - Phase1: Friday, February 29<sup>th</sup>, 2008
  - Phase2: Friday, May 2<sup>th</sup>, 2008
- Possible project areas:
  - Network measurement
  - Intrusion detection & defense: ddos, worms, viruses, spyware ...
  - Network management: fault diagnosis and fixes, ...
  - Overlay/DHT/p2p, application-level networking,
  - "Extreme" network architectures, ...
  - Will post a list of potential project ideas soon.  
But you are encouraged to come up with your own projects.

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- Questions??
- Let's begin!
  - Should be a fun course!

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