

# CS 7001 Course Overview

Nick Feamster and Alex Gray

College of Computing

Georgia Institute of Technology

# First things first...

- First: Welcome!
- Who you are
- Who we are

# Goals of this course

- Get you focused on the right *goal*: research ... in fact great research
  - What makes some research great?
  - How can we maximize our chances of doing great research?
  - What are some good examples? (Invited speakers, internal and external)
  - A theme: cross-disciplinary thinking

# Goals of this course

- Make the *big picture* clear to you
  - Why you're doing a PhD
  - Your career with a PhD: Professor? Industry or government lab? Entrepreneur?
  - Structure of the PhD

# Goals of this course

- Give you a start on the basic *skills* of research
  - Idea generation, creativity
  - Critique, writing, presenting, promoting
  - Programming, math, human-centered research
  - Organization, productivity, time management

# Goals of this course

- Introduce you to *this* research environment
  - The unique vision of the College
  - What goes on in the three Divisions and the Centers
  - Help you get on a research path that's good for you: exploratory mini-projects

# Goals of this course

- Give you tips to enhance your *personal* PhD experience
  - Anti-isolation... friends, social life
    - student panel on life in Atlanta, Friday happy hour
    - diversity, women in computing
    - counseling
  - Motivation, procrastination
    - Note that motivation is helped by success (see *skills*), and knowing the *big picture*

# Goals of this course

- Tell you *everything else* we think might help you during (or right after) your PhD
  - Getting fellowships
  - Teaching and TAing
  - Getting funding
  - Commercializing your research



# Perspective

- How this course has changed
  - Used to consist of research lectures by our faculty, and the mini-projects
  - We were asked to improve it (at the last minute)
  - This is the second run – we are much happier with it but will appreciate your ideas for how to improve it

# Perspective

- How this course has changed
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  - We were asked to improve it (at the last minute)
  - This is the third run – we are much happier with it but will appreciate your ideas for how to improve it
- Now: only course of its kind
  - “Teaching how to do research??”, “Teaching cross-disciplinary thinking??”, “Talking about the psychological challenges of being a PhD student??”

# Course Assignments and Grading

- **CS 7001 has a Letter Grade: A, B, or Fail**
- **Components of your grade:**
  - 4 Assignments (30%)
  - 3 Mini-Assignments (20%)
  - 1 Main Project (30%)
  - 1 or more Mini-Projects (10%)
  - Participation (10%)
- **Note well:**
  - To pass, you must have more than 50% in each component AND more than 66% total points
  - A's and B's will be determined based on the distribution of scores

# Mini-Assignments

- 1. Why do you want a Ph.D.? (due Sep 5)**
  - Purpose: Goal setting
- 2. Project Interim Report (due Oct 15)**
  - Purpose: Keep you from last-minute-itis
- 3. Time Audit Trail**
  - Purpose: Time management
- 4. Personal Web Page**
  - Purpose: Public relations (“marketing”)
- 5. Elevator Pitch**
  - Purpose: Clarify your thinking, and marketing

# Assignments

- 1. Recognizing good ideas**
- 
- 3. Creating ideas**
- 
- 5. Critiquing ideas**
- 
- 7. Communicating ideas**

# Assignment 1:

## Recognizing good ideas

- Task
  - Select latest proceedings from top conference
  - Select two papers you think represent good ideas
  - Write critical evaluation: summary, why you think it's a good idea, possible future extensions, etc.
- Purpose
  - Experience reading conference proceedings, and thinking critically about research
  - Developing research “taste”

# Assignment 2:

## Generating ideas

- Task
  - Read summaries of other students' selections from top conferences
  - Select two papers and propose a research problem or direction that is a combination of the two ideas
- Purpose
  - Experience one way to come up with an idea
  - Learn about another area outside of your own
  - Foster cross-disciplinary thinking

# Assignment 3:

## Critiquing ideas

- Task
  - Review each other's writeups from Assignment 2 (research ideas)
  - Mock program committee meeting
- Purpose
  - Critically evaluate peers' research ideas
  - Practice writing reviews
  - Glimpse into selection/rejection process



# Assignment 4:

## Communicating ideas

- Task
  - Develop a “multi-resolution” summary of your research
  - 5-second, 30-second, 5-minute, 1-hour “elevator pitches”
  - Deliver 30-second summaries in class
- Purpose
  - Practice talking to others about your research
  - Clarifying your own thinking about your research focus

# Main project

- One main project
  - Can be the same as 8903, but does not have to be the same
- Task
  - Project writeup and presentation (details to follow)
- Purpose
  - Ensure that your first research experience has a tangible (and perhaps publishable) “artifact”
  - Thus: go deeply into something, regardless of whether it will remain your topic
  - Teach skills that are complementary to performing the research itself

# Mini-Project(s)

- Complete at least one mini-project
- Your responsibility to find a mini-project
  - Some professors may post them
  - For other professors, you may have to take the initiative
- Task
  - Defined/evaluated by the professor
- Purpose
  - Exploration: Interact/work with a different professor or research group

# Participation

- It matters
  - The primary content will be delivered in lecture
  - Community-building exercise
  - Guest lectures may not post slides
- Purpose
  - Meet and interact with your peers
  - Learn the course material
  - Have fun
- Sorry, we'll have to take attendance...

# Pseudo-Assignments

- Halloween Costume Contest
- End-of-Semester Social

# How will grading work?

- Q: “Can I get a B, or even fail?”
  - Yes.
- Q: Do grades matter?
  - PhD grades are internally expected to be A’s.
  - On the other hand, externally no one cares about PhD grades.
  - If you fail a required course, you must retake it.

# How will grading work?

- For each component of your grade, you will receive a sub-grade of A, B, or F
  - If you receive a B or F, you may resubmit it to try to get an A, by the due date of the next assignment or mini-assignment
  - If you didn't submit at all, you may not submit after the assignment due date
  - A pseudo-submission (left to the discretion of the TA's) will not count as a submission
- We are trying to be nice, but don't try to abuse or game the system – it will backfire. We expect that you are mature adults, not undergrads.

# Logistics

- TA's:
  - Wei Guan [wguan@cc.gatech.edu](mailto:wguan@cc.gatech.edu)
  - Yanjun Zhao [zhao@cc.gatech.edu](mailto:zhao@cc.gatech.edu)
- To talk to us: grab us after class, or email for appointment: [feamster@cc.gatech.edu](mailto:feamster@cc.gatech.edu), [agray@cc.gatech.edu](mailto:agray@cc.gatech.edu)
- [http://www.gtnoise.net/classes/cs7001/fall\\_2008](http://www.gtnoise.net/classes/cs7001/fall_2008)
- <http://www.gtnoise.net/mailman/listinfo/cs7001>



# Last but not least...

- Questions?
- Introduce yourself!
  - Name
  - Areas of interest
  - Some things you like to do
  - Have your neighbor take a picture of you