

CS 7001 Course Overview

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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
 - 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 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
 - Yanjun Zhao zhao@cc.gatech.edu
- To talk to us: grab us after class, or email for appointment: feamster@cc.gatech.edu, agray@cc.gatech.edu
- 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