Introduction User Interface Design
SYLLABUS Fall 2012

Lecturer: Dr. Rosa Arriaga E-mail: arriaga@cc.gatech.edu Address: TSRB 328
Office hours: Monday 11-noon & Tuesday 3:00- 4:00 pm; and by appointment

Course credit: **3 hours** All course documents are on T-square

Teaching Assistants: Blacki Li Magliozzi (blacki@gatech.edu)
Office hour: by appointment

Required Readings

- Norman, Donald *The Design of Everyday Things* (Doubleday, 1988) 0-385-26774-6 You may find old editions of this called The Psychology of Everyday Things. It's the same book, but the publisher changed the name, thinking it would sell better. This is a great introduction to human factors in design and pre-dates the modern proliferation of ubiquitous computing, the web, and even most highly graphical PC applications. It's exactly because the examples are old that we can see how many bad design decisions haven't changed in the past 20 years. A fun read.

- Sharp Helen, Yvonne Rogers and Jenny Preece, *Interaction Design: Beyond Human-Computer Interaction (2nd Edition;* Wiley, 2007). This book is an introduction to human factors and user interface design, but most of the book is a methodology handbook for designing and evaluating for usability. It's a very practical and hands-on introduction with thoughtful illustrations. We will cover almost all of the content of this book, but not in chapter order.

Course Description

From the course catalog:
Human computer interface is considered in terms of user-system compatibility. Concepts in human factors and interface design are covered in relation to capabilities of both humans and computers.

Beyond the course catalog:
This course is meant to introduce you to human centered computing. This mode of design puts the user first and "technology-for-its own sake" second. Students will be introduced to design principles which they will be expected to implement in a variety of group assignments. This course introduces students to "real world" working culture where you are given a project and a team with whom to develop it

Themes: **Community Engagement & Safety on the Atlanta Beltline**
Community Engagement & Art on the Atlanta Beltline

Class Credo

I am committed to respecting the opinions of others and to creating an environment where everyone can share their thoughts and experiences without fear of being judged in or outside of class. Enrollment in this class is taken as an assurance that students too will adhere to this philosophy.

Course Expectations

This is a 3000-level course which requires that students have mastered the skills and study habits necessary for being engaged members of the class. Students are expected to come to class prepared to discuss the material assigned for each day.

Because the course has **MANY** deadlines that come in quick succession (see Evaluation and Course Schedule), success in the class requires that students use excellent organizational and time management skills in order to master the learning goals.

Student Outcomes

This class is designed to help students develop and use the critical thinking skills and evaluation prowess that are characteristic of interface designers. My goal is to create a dynamic learning environment--one where I will set the stage for learning, and where students will take responsibility for their own learning as well as contribute to the learning of others. I encourage students to go beyond the class material and to seek information that supports this goal.

In completing this course you will…

- Be knowledgeable about human-computer interaction concepts and techniques.
- Demonstrate that design is a systematic and data driven process
- Design system that understand the context of the user so that the systems you design are desirable in that they are a natural next step in accomplishing a task
- Gain experience as a designer of interactive technology by getting your hands dirty prototyping interfaces and functions (but not programming or developing the back-end).
- Learn quantitative methods to evaluate technology for usability
- Design technology that is easy to use and supports users with varying levels of expertise. In doing so you will want to change the world so that technology is less daunting for many users.

Course Structure

My lectures will draw extensively from the textbook material. The Norman book is an integral part of this course and we will cover it in the first 2 weeks of class. It will be the bases of class discussion, activities and quizzes. There will be power point presentation handouts for the Sharp et als. chapters. These will be available online. We may also have guest lecturers (real and virtual) that will introduce/reinforce human computer interaction (HCI) concepts. All material introduced in lectures is subject to testing.

Half of your grade will be based on group assignments. As such, it is imperative that you are a good team member as other are counting on your valuable input. If this is a particularly challenging semester for you academically or emotionally you may consider taking this class at a later date—as there will be little room for “no-show” or “minimalist attitudes.” Your team will be allowed to “vote you off” if they can show that you are a hindrance to their learning or performance. You will then be graded on an individual project (however you will have failed the peer evaluation component making it statistically impossible for you to earn an A in the course).

This course requires that you spend a considerable amount of time working with your group outside of class. The standard rule is 3 hours per 1 hour of class. In order to alleviate the challenge that scheduling poses we will use a couple of Fridays as in-class studios, where you can work on your assignment.

Outline Schedule

Part 1: Motivation (Weeks 1-2) Topics: Why are systems so difficult to use? Why do users keep making mistakes when they use our great technology? ;)

Q: Given the nature of these problems, what is the answer?

A: User-centered design.

- Reading: Norman’s "Design of Everyday Things"
- Assignments: Introduce yourself and form project teams.

Part 2: Design (Weeks 3-9) Topics: What is interaction design? The process of interaction design. Understanding and conceptualizing interaction. Understanding users. Data gathering

and data analysis. Identifying needs and establishing requirements. Interfaces and interactions. Design and prototyping.

- Reading: Preece et al "Interaction Design", 1-3, 6-11
- Assignments: Project overviews, requirements and design alternatives. Project poster session. Critiques of other project documents. Midterm exam.

Part 3: Evaluation (Weeks 10 onward) Topics: Affective aspects of interaction. Evaluation framework. Empirical and analytic evaluation.

- Reading: Interaction Design, Chapters 4-5 and 12-15.
- Assignments: Project evaluation plan and final presentations. Critiques of other project documents. Final exam.

Evaluation Components

Norman Certification: QUIZZES

Our text ***The design of everyday things*** plays a central part in the class discussion and will serve as the basis for the quizzes in the first couple of weeks.

• *On QUIZ DAYS:*

Bring (1) a folder (with flaps NOT manila) with your name and *course number (not GT id) on it
(2) your signed outline (more about this later)

EXAMS

Each of the two exams are made up of multiple choice and short answer questions. They are cumulative.

Class Attendance

Learning in this course requires that students attend class regularly, **arrive on time**, and contribute to class activities. *Each student will be assigned a number. It is each student's responsibility to sign in for each class. (For more details see Appendix). Note that it is imperative that you arrive on time (class is only 55 minutes!). Four late arrivals will count as one absence.

Attendance, promptness and preparedness are worth 10% of the course grade as follows:

Absences	Points Earned
0-2	10 /10 points**
3-4	9/10
5	8 /10 points
6-7	7/10 points
8 -9	6
10-11-	4
12- 13	2

Grades

- Team grade (50%) ASSIGNMENTS
  - Part 0: Project idea and overview (Participation Grade)
  - Part 1: Project requirements 10%
  - Part 2: Design alternatives Poster Session 10%
  - Part 3: Prototyping and Evaluation plan 10%
  - Part 4: Final Report, Final project deliverable and presentation 20%
- Individual grade (50%):
  - Class participation

- Attendance (in class assignments, poster critique, etc)10%
- Peer evaluations 10%

- Quizzes 10% (an aside about outlines)
- Final exam = 20%

The grade assignments will be as follow:

90% or > earns an A;
80%-89.999% earns a B;
70%-79.999% earns a C;
60%-69.999% earns a D;
59.999 and < earns an F

Note: Because I give students the opportunity to earn extra credit, I don't "curve" grades and I don't "round up." When in doubt, do extra credit.

Policy on Retakes and Late work

In general, there are NO RETAKES FOR QUIZZES OR EXAMS. Individuals that have excused absence will be given evaluations in a different format from that presented in class. There are STEEP penalties for late Reports.

Policy on Regrades

All regrade requests must be turned in on the class day following the day it was handed back. NO EXCEPTIONS. A short written explanation of the grading issue including appropriate supporting material (lecture notes, text book reference, etc.) is required for grade-change consideration.

Extra Credit Policy

You are allowed to bolster your final grade by 2 percentage points (earn 80% instead of 78%) by participating in studies with the Psychology Department (Experimatrix) or HCI (in CS). Three hours of experiments are equal to 1 grade point toward your final grade.
Note: Grade points only come in whole integers. If you participate in 2.999 hours of experiments, you earn 0 grade points. (Since I do not "round up," plan accordingly!)

Communication with Professor and TA

It is each student's responsibility to document all meaningful communication with the professor and TA by sending an e-mail of the details to the person in question. (Do not purge meaningful "sent mail.") Always assume that the teacher or TA will NOT remember what you talked about before class, after class or in the corridors.
When corresponding with the professor and TA, please use professional email etiquette.
It is also each student's responsibility to keep track of all digital copies of your assignments. If material is misplaced during the semester, it is the student's responsibility to replace it upon request. (In such cases, students will not receive "late" penalties.) To ensure that your e-mail does not get mis-filed, always start your subject line with the prefix **CS-3750**:

To require with Federal privacy laws (FERPA), it is GA Tech policy only to recognize email to or from a valid GA Tech email address for course communications. Do not use gmail, yahoo or other external email accounts for any academic communications or expect replies to them.

Students with Disabilities

Students must provide the instructor with an accommodation letter from the Georgia Tech ADAPTS office (404-894-2564) within the first two weeks of class to have accommodations made.

Student Code of Conduct: Academic Honesty

Georgia Tech requires students to adhere to high standards of integrity in their academic work. **ALL** BREACHES OF ACADEMIC INTEGRITYWILL BE REPORTED TO THE DEAN OF STUDENTS AND WILL RESULT IN AN "F" IN THIS CLASS.

SEE APPENDIX FOR OTHER RELEVANT DETAILS

Tentative Course Schedule*

Lecture dates from Atlanta BeltLine will be confirmed during first week

WK	Dates	Topics	Chapters*	Assignments
1	M8/20	Syllabus Review		Group Activity CITI certification Info and Outline Info
	W	Prefaces and Psychopath OET; Psycho OE Action	N1-2	**Hand written Outlines** N vii-xxii,Ch 1-2 Bring book along so that you can follow lecture notes
	F	Knowledge in the Head and World; Knowing what to do	N3-4	Hand written Outline; (Ch 3-4)
2	M8/27	Quiz **Lecture from Atlanta BeltLine		Norman Certification (Quiz) 1 (N 1-4)
	W	To Err is human;	N5-	Hand written outlines N 5
	F	The design challenge **Lecture from Atlanta BeltLine	N6	Hand written Outlines N 6
	Saturday	TOUR OF THE BELTLINE** tentative Schedule		
3	**M9/3**	**Holiday**		
	W	User Centered Design **Lecture from Atlanta BeltLine	N7	
	F	Affective Design		
	Sat	Lantern Parade- BeltLine Observation Opportunity http://vahi.org/beltline-lantern-parade/?utm_source=VHCA+Communications&utm_campaign=92e4fe0e87-Update_2012_05_16&utm_medium=email		
4	M9/10			Norman Certification (Quiz 2) (N5-7; affective design) CITI certification Due Project Initiation Themes/Team
	W	The process of Interaction Design	S9	Part 0: Overview & ideas Start working on Assignment 0 In class exercise: early focus on Users and Tasks
	F	USER REQUIREMENTS Ch10 Notes provide excellent view of what the objective is for Report 1 - Usability objectives - User and environment properties - Personas	S10 S 10 10.1 - 10.4	**Assignment 0: Creating your project report book with a description due by 9/17 11:55pm** In class exercise: Personas
5	M9/17	Essential Use cases and scenarios - Hierarchical task analysis - Other representational techniques briefly	S10 10.5 - 10.7	Part 0: Team Presentations In class Exercise: Essential Use cases, scenarios - Hierarchical task analysis
	W	- Interview Preparation: Read Chapter 7.1-7.4 -Questionnaires - Ethnographic observation - We will come back to data analysis when we look at evaluation later Preparation: Read Chapter 7.5-7.7	S7	
	F	Data gathering and analysis; Chapters 7		In class assignment: Don't reinvent the wheel **Assignment 1: Project Report 1: Understanding the Problem due by 9/24 11:55pm**
6	M9/24 & W	Random assignment of team presentations 8-10 minutes (depending on number of teams)		Part 1 Team Presentation; Physical Copy of the Report is due
	F 9/28	Lecture: Design Criteria and		Review Report 2

		Alternatives		Working with Requirements Exercise
7	M10/1	PROTOTYPING - Low and high fidelity prototyping - Conceptual design Preparation: Chapter 11.1-11.3	S11	Conclude Requirements exercise
	W	- Concrete and scenario-based design Preparation: Read Chapter 11.4-11.7		**Story Board and Sketching Exercise**
	F			**Review of Past Posters**
		BeltLine Observation Opportunity Atlanta Street Alive		
8	M 10/8			Card Based Prototypes
	W	- Introduction to HCI styles - Command interfaces Preparation: Read pp. 216-224		**Working with Metaphors**
	F			**Assignment 2-Project Report 2 due 10/14 by 11:55pm**
9	M10/15-	Fall Reces		
	W 10/17	8:30 - 9:45AM TSRB 132-134 Breakfast will be served ☺		**Part 2. Design Alternatives (Poster Presentation)** BeltLine Administrators will be present Physical Copy of the Report is due Poster session to illustrate design alternatives.
	F	Poster Session Debriefing & Prep for Report 3 EVALUATION - Usability testing - Field studies Preparation: Read Chapter 14.1-14.3	S14	**Peer Evaluation Sheets Due**
10	10/22 W F	In Class Studio Time Various exercises to determine bench mark tasks	S15	
11	10/29; W F	Lecture, Studio session, Test and Evaluation Plan Friday: Pilot/Demo Testing		**Assignment 3- Project Report3: Prototyping and evaluation plan due 11/4 by 11:55pm**
12	11/5 W& F			
13	11/12 W F	Monday: Debriefing & Report 4 Wednesday: Employing Norman Principles? Friday: Testing In class		Monday: Physical Copy of the Report is due
14	11/19 W	Monday: Experimental Design Wednesday: Heuristic Evaluation/Walk through	S4 S5	
	F 11/23	**Thanksgiving Break**		
15	11/26 W F	Monday: Human Capabilities Part1 Wednesday: Human Capabilities Part2 Friday: Studio		Assignment 4: Project Report 4 due 12/2 by 11:55pm
16	Dec 3	**Randomly assigned** **Monday- (3-groups)** **Wednesday- (2-Groups)** **Friday- (2 Groups)**		**Project Presentations** **12 MINUTES Each** Physical Copy of the Report is due
17	**12/10**	**FINAL** **Monday 11:30 am - 2:20 pm**		**Peer Evaluation 2 due**

*N= Norman ; S= Sharp et al

Appendix
RELEVANT DETAILS

Policy on Late Projects and Exams
Late papers/projects are heavily penalized: -10 points on the first day, additional -10 points on the second day. A zero will be entered for work that is 3 days late..

A "day" refers to day of the week, NOT class day; every day counts (even weekends).

It is each student's responsibility to check the course website and the e-mail address you have provided the school system on a regular basis. If you know you have sports team or other obligations, please plan ahead accordingly.

If you find yourself falling behind because of personal, psychological or any other reasons please come by and speak to me so that we can figure out a way to help you.

Class Attendance
At the discretion of the professor, habitual late attendance (5 minutes or more) will count as an absence. Points will also be deducted for lack of class preparedness as noted in this syllabus.

Excusable absences are limited to medical treatment and death in the family. There is a buffer (3 free absences) included in the absence policy for all the other reasons why students don't come to class (not feeling well, interviews, etc). Manufacturing a false excuse is a violation of the Honor Code. All excused absences must be cleared through the Office of the Dean of Students. Students are responsible for getting lecture notes from a classmate.

Each student is responsible for signing the attendance sheet; no individual can sign in for another student. If someone is caught signing in for someone else, both students will receive an absent mark.

CITI DETAILS
- CITI Certification
  - Go to www.citiprogram.org to register for a user name and password.
  - Teaches key points concerning research with human subjects
  - Social/Behavioral Module
  - Can be added to your CV (3 year certification)
- More Details
  - http://www.compliance.gatech.edu/citi-training-information/

Student Code of Conduct: Academic Honesty
Georgia Tech requires students to adhere to high standards of integrity in their academic work. Plagiarism and cheating will not be tolerated. All breaches or academic integrity are taken seriously. ALL assignments, quizzes and exams are assumed to be your INDIVIDUAL effort. All papers/material submitted to this class must be original to **THIS** class, not something submitted to another class and reformatted to meet this course's requirements. Reformatting a previous/concurrent paper to fit the current specifications is academic dishonesty and as such a violation of the honor code.

IGNORANCE IS NOT AN EXCUSE. WHEN IN "DOUBT"---DON'T.
ALL BREACHES OF ACADEMIC INTEGRITY ARE REPORTED TO THE DEAN OF STUDENTS AND WILL RESULT IN AN "F" IN THIS CLASS.

As an example of identifying source materials, this syllabus and this course are heavily influenced by the material prepared by **Dr. Colin Potts. We are in fact tandem teaching this course**