LMC 6313: Principles of Interaction Design SPRING 2018

Version 1 January 5, 2018
Revisions to this syllabus will be posted on tsquare and announced via gatech email

Meetings
Tuesday/Thursday Discussions/Critiques, 9:30-10:20 am, Skiles 002
Friday Labs 10:10-12:55 Skiles 346

Instructor
Janet H. Murray (jmurray@gatech.edu)
Office Hours: after class in Skiles until 11 most days by request; Mondays 3-4:30 pm, TSRB 320A
or email to schedule alternate time.
@janetmurray (tweets about digital design, media, eTV, VR)

TA
Pierce McBride pmcbride7@gatech.edu
Office Hours: Fridays, 1-3pm, Skiles 346 (Lab Classroom) or email to schedule alternate time

Students are strongly encouraged to take advantage of the instructor's office hours for exploration
and refinement of project ideas and more detailed feedback on assignments and to call upon the
TA for individual coaching, help with scoping of projects, and pointers to web tutorials and other
coding resources as needed.

Official course website: tsquare LMC 6313**.** Please familiarize yourself with the Wiki and
Resources folder. Official announcements about course schedule, assignments, etc., will be
made through this site which is linked to your gatech email and user name.

Course Objectives
To articulate goals and methods that will remain valid through long periods of technical innovation
for the design of coherent and meaningful digital artifacts.
To prepare students for professional employment with projects that integrate immediately useful
technical methods with enduring design practices
To situate the design of digital artifacts as part of the larger collective, cultural task of inventing
media formats and genres that expand human expressivity and connectedness.

Learning Outcomes
Use coherent and focused design language to critique digital artifacts.
Apply principles of information/interaction design to create a complete, demonstrable prototype.
Work competently in relevant programming environments: HTML5, CSS, SQL, PHP, Javascript..
Present one's own design choices orally and visually in a focused, persuasive, and insightful
manner.

A Constructive, Creative, and Critical Community of Practice

This course is a privileged arena for all of us to participate in the collective cultural practice of
inventing a new medium. It is meant to encourage creative risk taking and to hone critical
thinking. An important part of the learning process is working together to foster a constructive and
thoughtful design discourse. This means that students should come prepared to talk about what
works and what doesn't work in particular artifacts in a thoughtful manner, without recourse to

fashionable buzz words or empty praise, and with the double aim of expanding our palette of design strategies and making our thinking about design more disciplined and precise. The emphasis on critical discourse should not discourage students from trying approaches outside their comfort zones or contrary to the instructor's advice. The most important question is always, what can we learn from this artifact? To improve as interaction designers and to learn from one another's work, we have to all be willing to make mistakes, to be open to unexpected solutions, and to enjoy the process of challenging ourselves to imagine something better than what exists right now.

General Policies

Students are expected to indicate the source and authorship of any work not original to them, including copyrighted work or work of classmates, friends, outside collaborators, or other practitioners.

Students are expected to come to class having done the reading and the assignments on time, and to actively respond to presentations by the instructor and fellow students. Students are encouraged to bring their laptops and mobile devices to class, and are always welcome to look up information related to the discussion during class and to take electronic notes for private use.

All students will have access to the DM Lab in Skiles 346 and are expected to abide by the rules of that lab, including never propping open doors or leaving the room unlocked. Students are expected to refrain from distracting and disruptive behaviors in class and in the shared lab, and to treat one another with professional respect and courtesy. Engaging in non-course related activities such as browsing unrelated material during class is considered disruptive behavior because it is distracting to others and disrespectful of the shared enterprise.

There is zero tolerance for discrimination or harassment on any basis, including but not limited to race, color, religion, sex, national origin, age, disability, sexual orientation, gender identity, or veteran status. Georgia Tech is committed to providing its staff, faculty, and students the opportunity to pursue excellence in their academic and professional endeavors. This opportunity can exist only when each member of our community is assured an atmosphere of mutual respect. Georgia Tech's full anti-harassment policy is online here: http://www.policylibrary.gatech.edu/anti-harassment-policy

Violation of any of these expectations will result in appropriate penalties, including but not limited to reduction of grade, rescinding of lab access, or disciplinary action.

What to do if you fall behind
Everybody drops the ball sometimes, and students often find themselves unable to keep up due to an illness or family emergency. If this happens to you, come and see me about it as soon as possible to make alternate arrangements for work that has been missed, and continue coming to class.

Sharing of work
Participation in the course implies permission for sharing work with others in the class and with future students if your work is judged to be a good example. If you are not comfortable with this, please let me know. Unless I am informed by you in writing (email) that you do not want your work shared with others in the context of current and future versions of this course, I will assume that it is available.

Adapts Disability Services Program
Students with disabilities at Georgia Institute of Technology will find programs designated to coordinate academic accommodations and promote access to all phases of university life. Such programming is coordinated through the ADAPTS-Disability Services.

The ADAPTS-Disability Services Program is a functional part of the Office of the Dean of Students. ADAPTS-Disability Services Program personnel oversee and coordinate programs to ensure accessibility to students with disabilities on an individual basis. The Georgia Institute of Technology strives to provide equal access to a college education as well as support to students with disabilities in their experience in the university community.

Writing and Speaking Support at the Communications Center

Alumni consistently emphasize the value of presentation skills for success in digital media careers. Everyone is encouraged to maximize their writing and speaking skills so that you can do justice to your very smart ideas. You can get help from the Communication Center, located in Clough Commons 447 with trained professional and peer tutors offering help to undergraduate and graduate students with written projects and presentations. Their services are free and confidential and they can be reached at commlab@gatech.edu or 404-385-3612 or via their website http://www.communicationcenter.gatech.edu/.

Coping with our High-Stress Culture

The stresses of the current year from events outside the classroom make clear how important it is to look after ourselves and one another. The beginning of the semester is a good time to think about pacing your work so you don't have to pull all-nighters and you don't get into a cycle of accelerating anxiety. Try to set aside some regular time to escape to something you enjoy for its own sake. The Recreation Center has lots of drop-in classes, organized outdoor activities, and equipment for burning off anxiety, zoning out on something mindless for a while, or revving up your spirits. Many people find yoga and meditation helpful to getting perspective on life. We live in a golden age of TV, and I am a firm believer in the healing power of narrative which can simultaneous distance us from our everyday world and reveal to us what we most deeply love, hate, and long for. So go binge watch something great – and see if you can get a friend to watch with you or to talk with you about it. We also have a Games Lab in TSRB 113 where you can remind yourself of the joy of interactivity by playing one of the oldies but goodies just for fun, or you can escape into virtual reality for a while.

If you are experiencing anxiety or depression or a medical, personal, or family crisis, or if you just feel overwhelmed and unable to cope with the many pressures of being a graduate student at Tech or a human being on this planet at this moment in time, please do not hesitate to reach out for help. Everybody needs help sometimes, and the graduate school years are often a personally challenging time in ways that can be frightening and isolating. You are not alone, and many of us are available to be sympathetic listeners and to share our own strategies for coping with stressful situations. In addition, professional counselors and medical practitioners have expertise that can be very helpful. The Dean of Students Office has a list of services here: http://studentlife.gatech.edu/content/services.

Schedule
ItM = *Inventing the Medium,* the required textbook

Week #		T/Th Topics	Key Concepts	Lab Fridays
1.	1/9 1/11	Media Design Process and Goals (ItM Intro, Ch 1) Affordances of digital medium (ItM Ch 2, 3)	Medium as -Inscription -Transmission - Representation Stability of formats, platforms, genres Media Conventions Digital Affordances Abstracting needs from media-specific conventions Clarity about the Goals of Design	Info design lab
2.	1/16 1/18	Info Design: Library/Archive Model Read Ch 7, *ItM* *Design Note A due*	Labeling Controlled vocabularies Tagging Collocation and Aggregation Facets Classification Taxonomy List and Tables Databases	Info design lab
3.	1/23 1/25	Info Design: Database/Structured Document Model Read Ch 8, 9 *ItM* Design Note B due	Metadata Semantic Segmentation Hypertext (Bush, Nelson) Semantic Web (Berners Lee)	Info design lab
4.	1/30 2/1	Info Design Continued: including Big Data, AR, VR (read Patrick Winston, look at examples from AR in action, location-specific, time travel) "Narrative" in info viz Design note C due	Big Data AI AR/VR	Lab Exercise #1 due
5.	2/6 2/8	Project #1 Design Critique Presentations due	L	Axure Prototyping
6.	2/13 2/15	Project #1 Proposal Presentations due		Open Lab to prepare interactive mockups
7.	2/20 2/22	Interactive Mockup Testing Project #1 due		Simulation lab
8.	2/27	Interaction Design: Procedurality	Procedural Abstraction	Simulation

	3/1	and Complexity Read Chapter 12 Recommended: Review Chapters 5, 10, 11 Design note D due	and Parameterization Transparency of tools Visibility of machines Scripting the Interactor Companions and expectation-setting Introduction to Game Model	lab
9.	3/6 3/8	Interaction Design: Games and Simulations Read Chapter 13 Design note E due	5-part structure Replay Modeling systems with readable causation	Simulation lab
10.	3/13 3/15	Project #2 Design Critique Presentations due		Lab Exercise #2 Dueß
Spring Break				L
11.	3/27 3/29	Project #2 Project Proposal Presentations Due		Open Lab
12.	4/3 4/5	Interactive Mockup Testing #Project 2		Open Lab
13.	4/10 4/12	Open Lab week –		Open lab week to combine Mockup + Lab 1 or Mockup + Lab 2 into Complete Final Project
14.	4/17 4/19	Final Semester Project Presentations Slides due on Wiki – final oral presentations with demo walkthroughs begin		No lab – final project proposals continue
15.	4/24	No class – Open Lab for revisions to running projects, preparation of videos		
Finals week	5/1	All revisions to slides, projects, videos due by 5pm		

Requirements and Grading

(Note: you must complete *all* of these requirements to receive a grade in the course. If you fail to hand in any one of these, regardless of your total points, you will receive a grade of Incomplete)

2 Lab exercises @ 10 points each = 20 points
2 Applied reading Design Notes (A,B,C,D, or E) @ 5 points each = 10 points
2 Design Critiques @ 5 points each = 10 points
2 Topic Presentations @ 5 points each =10 points
2 Interactive Mockups with User Testing @ 5 points each = 10 points
1 expanded final project including Oral / Slide Presentation (10 points), video documentation (5 points) and final running project (15 points) = 30 points
Class participation =10 points

Up to 5 extra points for helpfulness and additional Design Notes

Handing in Work on the Wiki: Instructor comments will be returned through the Assignments mechanism on tsquare, but students should hand in work by uploading to the Resources/Student WorkS18 folder and – most importantly—by posting a link to the completed assignment on the appropriate weekly Wiki page by 8pm Monday of the week it is due. The tsquare Wiki is used to allow students to see one another's answers to assignments in order to foster a community of practice, and to allow us to call up all the answers to a week's assignments in class as efficiently as possible. It keeps track of the time an assignment is posted. Students should place their link so that the earliest responses are at the top of the list.

Required Reading
Janet Murray, *Inventing the Medium: Principles of Interaction Design as a Cultural Practice* (MIT Press 2011) (selected chapters – see Schedule) On electronic reserve from library.gatech.edu. Associated website: http://inventingthemedium.com .

Recommended Readings

Bush, Vannevar. " As We May Think." *Atlantic Monthly*, July 1945 1945, 101-108.

Berners-Lee, Tim, "Giant Global Graph" http://dig.csail.mit.edu/breadcrumbs/node/215 Berners-Lee, Tim, James Hendler and Ora Lassila. "The Semantic Web." *Scientific American*, no. May 2001 (2001). https://www-sop.inria.fr/acacia/cours/essi2006/Scientific%20American_%20Feature%20Article_%20The%20Semantic%20Web_%20May%202001.pdf

Berners-Lee, Tim, Nigel Shadbolt and Wendy Hall. "The Semantic Web Revisited." *IEEE Intelligent Systems*, (2006). http://dl.acm.org/citation.cfm?id=1155373

G. Bowker and S. L. Star, *Sorting Things Out* (1999)

Required / Recommended Resources

Download one of the following code editors (required) or substitute of your choice

- Visual Studio Code (Recommended) https://code.visualstudio.com/
- Sublime Text https://www.sublimetext.com/

- Brackets http://brackets.io/
- Atom https://atom.io/

Download one of the following interface prototyping tools (required) or substitute of your choice

- Axure (Recommended) https://www.axure.com/edu
- Sketch + Invision https://www.sketchapp.com/store/edu/ o XD http://www.adobe.com/products/xd.html
- Framer https://framer.com/

Recommended Tutorials ·

- http://lynda.com
- www.codeacademy.com

Recommended Text

- Lupton, Ellen. Graphic Design: The New Basics (some content available online: http://gdbasics.com)

See wiki for other recommendations related to project work.

Assignments

Design Notes (choose 2 of A,B,C,D, E – see schedule for dates and topics) 2 are required, for 5 points each. You may chose any 2 but they must be handed in on the appropriate due date; up to 5 points extra credit for any additional posts.

Design notes should be brief -- no more than 250 words and they should be focused on a single exceptionally good or bad use of a new or familiar digital media convention in a new or familiar digital artifact, or the need to invent a new convention to cover a situation that is particularly frustrating. It's a good idea to include pointers to web sites and user videos that show the artifact in action so we can discuss it in class, and to upload a screenshot or simple sketch to make clear the specific interaction. If the design element you are critiquing is faulty, propose a better approach; if it is exemplary, indicate how it could be (or has been) applied to other artifacts

Projects: Two Axure Interactive Mockups, with one developed into a working Prototype
This is a project-based course in which multiple assignments and labs support the creation of two testable interactive mockups – one information design project and one simulation project, from which students will chose one to develop into a more fully realized working Prototype as the "Final Semester Project"

Students are strongly encouraged to pick a single focus (e.g. the situation of farmers in the third world, the tribulations of international students doing job searches, the complexity of commuting in Atlanta, the complexity of finding a free tennis court in Atlanta) for both the information design and the simulation design projects. The focus should be something you already know a lot about and are deeply interested in. Look at last year's projects to get an idea of something suitable – it can be anything from a social issue to a commuting problem. It should be something complicated that is better understood by aggregating information and creating replayable simulations, the approaches we will be exploring.

The two projects are:

Info Design Focus: An application that meaningfully combines information in multiple media types from multiple sources into one resource that is more useful or expressive than the individual components (e.g. a guide to skateboarding sites that includes user ratings, photographs, videos, and maps; an analysis of a political issue drawing on text and video news sources, partisan websites and blogs, and authoritative statistical resource). The final project must run in a browser, using SQL and a server-side language (PHP will be emphasized in class).

Explanatory Simulation Focus: An interactive model of a complex system (e.g. a lemonade stand, a biological ecosystem, an income equality/inequality economy, a failing romantic relationship, a holiday dinner party with quarrelsome family members) using javascript and HTML5 that affords replay and helps the interactor to understand a scenario with multiple parameters and multiple significant potential outcomes by encouraging replay and providing clear contrasts in outcomes with readable though complex chains of causality.

Lab exercises will be directly related to these project areas, and will provide the basis for expanding the Axure mockup into a working web application for the Final Project. Everyone must complete both lab exercises, but you only have to apply the technologies you will learn for those exercises to one of your design ideas.

Design Critiques
For the Information and Simulation units of the course you will be choosing a single artifact like the one you will be prototyping. For example, if you are mocking up a resource for people with disease A, you might choose an informational site about disease A that you find faulty and expect to improve on, or an app for caregivers for those with disease B that you will be using as a partial model for your prototype. Your Design Critique must follow the topics and sequencing in the powerpoint template file in the tsquare Resources folder.. (The assignment may be handed in as PDF or powerpoint file but no other formats please.)

Project Proposals
The second step in creating the Axure mockup is creating a Project Proposal. The proposal must follow the template in the Resources folder. The proposal should reflect the fact that the Axure Mockup is meant to give you the opportunity to design beyond your abilities to realize in running code.

Interactive Mockups
Interactive Mockups are prototypes of the interaction and information design of your proposed final project, but, unlike the final project, created in a rapid prototyping environment such as Axure. The Interactive Mockup should include real content that can be clicked through in a way that illustrates and justifies the interaction design and information design that you are proposing. It should have enough content to support a persuasive scenario of use, and to elicit helpful feedback from fellow student testers.

Final Semester Project
At the end of the semester you will take one of your Axure Mockups and implement a coherent working version of it in the technologies of the Lab Exercises (SQL, HTML, Javascript). You will also make a final slide presentation summarizing some of the key points of your Design Critique and Project Proposal, and a video documenting your project. The content should be more complete than the Axure Mockup and the playable prototype should support a scenario that makes clear the appropriateness of you information design and interaction design choices.