

# Principles of Interaction Design – LMC 6313

## Syllabus

**Course Number:** LMC 6313

**Location:** Skiles 346

**Times:**

T/Th – 3:00p-3:50p

F (lab) – 11:15a-2:00p

**Instructor:** Dr. Anne Sullivan

**Instructor Email:** anne.sullivan@lmc.gatech.edu

**Office Hours:** By Appointment (Mondays are the best bet)

**Office Location:** TSRB 317C

**TA:** Takeria Blunt

**TA Email:** tblunt3@gatech.edu

**Course Website:**

<http://canvas.gatech.edu>

**Course Description:**

What is interaction, what is design, where did these notions come from, and where are they going? Through the activities in this course, you will return to questions of what kind of designer you are and wish to be, what you believe in, and how that will extend to your research and practice. You will also develop your own critical take on the material in the class and sharpen your voice and arguments about your perspectives.

Interaction design wasn't invented from scratch as a singular, monolithic practice. It was born out of the intersection of a number of disciplines from within design and human-computer interaction, and also from art, media, architecture, politics, and philosophy, and beyond. There are many different definitions of what it is and where we fit into it, and no two people we meet in this class will likely have the same definition. And that's the way it should be.

Through my suggestions and yours, we will also turn to design questions in digital culture, film, tv, fiction, gaming, music, art and beyond as we together frame our understandings. As you read,

The syllabus, dates, times, assignments, and details are subject to change by instructor notification through Canvas or email.

discuss, and create, you'll put a stake in the ground on what matters to you in design and find ways to apply it in your work and your own perspectives on design.

## Course Objectives

- To prepare students for professional employment with projects that integrate immediately useful technical methods with enduring design practices
- Introduce students to a range of perspectives on interaction design
- 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.

## Course Outcomes

- Apply principles of information/interaction design to create a complete, demonstrable prototype
- Work competently in relevant programming environments: HTML5, CSS, JavaScript, and appropriate APIs
- Present one's own design choices orally and visually in a focused, persuasive, and insightful manner
- Deepen and broaden your understanding of the principles, perspectives & practices that make up design
- Attune your sensitivity to values and ethical issues in design
- Become confident and fluent in discussing design and issues in multiple contexts
- Develop a critical stance about contemporary technology

## Attendance & Participation

Class attendance and participation is mandatory. Participation in class discussion is imperative because it allows you to explore the readings, design concepts, and projects collaboratively, and in the process, discover meanings and issues that you probably would not discover on your own. Participation in class also challenges you to continuously question, refine, and articulate your own ideas and interpretations.

## 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.

### **Statement on Inclusion and Diversity**

The Ivan Allen College of Liberal Arts supports the Georgia Institute of Technology's commitment to creating a campus free of discrimination on the basis of race, color, religion, sex, national origin, age, disability, sexual orientation, gender identity, or veteran status. We further affirm the importance of cultivating an intellectual climate that allows us to better understand the similarities and differences of those who constitute the Georgia Tech community, as well as the necessity of working against inequalities that may also manifest here as they do in broader society.

### **Information for Students with Disabilities**

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.

More information is available at: <http://disabilityservices.gatech.edu/>

### **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.

### **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](mailto: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 simultaneously 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>.

## 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)

Lab #1	15%
Lab #2	15%
Design Notes #1	5%
Design Notes #2	5%
Interactive Mockup #1 (w/testing)	10%
Interactive Mockup #2 (w/testing)	10%
Final project presentation	10%
Final project	15%
Final video documentation	5%
<u>Class participation</u>	<u>10%</u>
Total	100%

Up to 5 extra points for helpfulness and/or additional Design Notes.

## 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 choose 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 choose 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

The syllabus, dates, times, assignments, and details are subject to change by instructor notification through Canvas or email.

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 Canvas 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 your information design and interaction design choices.

The syllabus, dates, times, assignments, and details are subject to change by instructor notification through Canvas or email.



## Course Schedule

(Modified from Professor Molly Wright Steenson, PhD, School of Design at Carnegie Mellon University)

Week	Dates	Tu/Th Readings (due by date listed)	Key Concept	Friday Labs
1	1/8  1/10	<ul style="list-style-type: none"> <li>• Introduction</li> <li>• <a href="#">“How I Manage to Give my Students the Finger Every Semester, and Why It Made Me a Better Designer”</a> outlines the aspects of an argument — and ties them back to design (there’s a little swearing in it). The author also provides a <a href="#">description of how this works in practice, whether in writing or in design projects.</a></li> </ul>		Team selection Info design lab
2	1/15  1/17	<ul style="list-style-type: none"> <li>• Dan Saffer, <i>Designing for Interaction: Creating Smart Applications and Clever Devices</i>, 2nd ed. (Berkeley, CA: New Riders, 2010), Introduction &amp; Chapter 1. [Canvas files]</li> <li>• Video - <a href="https://www.youtube.com/watch?v=DAHSS_Wgfl">https://www.youtube.com/watch?v=DAHSS_Wgfl</a></li> <li>• Jon Kolko, <a href="#">“Design Thinking Comes of Age,”</a> <i>Harvard Business Review</i>, September 2015, <a href="https://hbr.org/2015/09/design-thinking-comes-of-age">https://hbr.org/2015/09/design-thinking-comes-of-age</a>. [Online]</li> <li>• Lauren Chapman Ruiz, “Service Design 101,” <i>interactions</i> blog, July 21, 2014, <a href="http://interactions.acm.org/blog/view/service-design-101">http://interactions.acm.org/blog/view/service-design-101</a>. [Online]</li> </ul>	What is Interaction Design?	Info design lab  <b>Design Note A due</b>
3	1/22  1/24	<ul style="list-style-type: none"> <li>• Stewart Brand, <i>How Buildings Learn: What Happens after They’re Built</i>, Ch. 1–2 (“Flow” and “Shearing Layers” — heavily photographic &amp; illustrated), p. 1–23. Numerous interaction designers say that they keep coming back to this book, written by the creator of the <i>Whole Earth Catalog</i>. [Canvas]</li> <li>• Mark Weiser, “The Computer of the 21st Century,” <i>Scientific American</i>, September 1991. [Canvas] Weiser coined the term “ubiquitous computing” and popularized it in this article. (Focus on the big ideas here and less on the old technology.)</li> <li>• Robert Venturi, Denise Scott Brown, Stephen Izenour, <i>Learning from Las Vegas</i>. (Most of this text is images and charts; the essay is brief. Pay attention to the text at the very beginning between p. 3–8; flip</li> </ul>	Learning from Architecture	Info design lab  <b>Design Note B due</b>

The syllabus, dates, times, assignments, and details are subject to change by instructor notification through Canvas or email.

		through the images, make your way through the rest of the text to p. 34 and through the rest of the book to p. 72. If you're interested, the second half of the book is important in architectural history but not required for this class.) [Canvas]		
4	1/29  1/31	<b>Anne Gone - OPEN LAB ALL WEEK</b> <ul style="list-style-type: none"> <li>James Gibson, "Affordances," in <i>The Ecological Approach to Visual Perception</i> [Canvas]</li> <li>Donald Norman, <i>Design of Everyday Things</i>, (preface to 2nd edition, Chapter 1 &amp; 4—you may read more if you like.). Read strategically: capture the main ideas in his text. [Canvas]</li> </ul>	Affordances	<b>Lab Exercise #1 due</b>
5	2/5  2/7	<ul style="list-style-type: none"> <li>Tega Brain, "<a href="#">The Environment is Not a System</a>," <i>A Peer-Reviewed Journal about Research Values</i>, 2018. <a href="#">She</a> is a professor at NYU, an artist and environmental engineer.</li> <li><a href="#">Post No Evil</a>, Radiolab (listen)</li> <li>Margaret Gould Stuart, "<a href="#">Able, Allowed, Should; Navigating Modern Tech Ethics</a>," Medium.com, May 7, 2018</li> <li>Otto von Busch &amp; Karl Palmås, "Social Means Do Not Justify Corruptible Ends: A Realist Perspective of Social Innovation and Design," <i>Sheji</i>, 2016 .</li> </ul>	Problems and Possibilities of Platforms at Scale	Axure Prototyping  <b>Design Note C due</b>
6	2/12  2/14	<b>2/12 – NO CLASS</b> <ul style="list-style-type: none"> <li>Horst Rittel &amp; Melvin M. Webber, "Dilemmas in a General Theory of Planning," <i>Policy Science</i> 4 (1973), 155–69. This is where the notion of wicked problems comes from: problems that are too big to solve, for which every solution can touch off another problem.</li> <li>Terry Irwin, "The Emerging Transition Design Approach," <i>DRS2018</i> [Canvas]</li> <li>Cheryl L. Dahle, "Designing for Transitions: Addressing the Problem of Global Overfishing," <i>Cuadernos</i> 73 (2018): 213–33. [Canvas]</li> </ul>	Transition Design	Open Lab to prepare interactive mockups  <b>Project #1 Proposal Presentations due</b>

The syllabus, dates, times, assignments, and details are subject to change by instructor notification through Canvas or email.

7	2/19  2/21	<ul style="list-style-type: none"> <li>Lucy Suchman, Human Machine Configurations, p. 25–84</li> <li>Janet Vertesi, “Seamful Spaces: Heterogeneous Infrastructures in Interaction,” <i>Science, Technology and Human Values</i> 39.2: 264–284.</li> </ul> <p><b>2/21 – NO CLASS</b></p>	Plans & Situated Action	Simulation Lab  <b>Interactive Mockup Testing Project #1 due</b>
8	2/26  2/28	<ul style="list-style-type: none"> <li>Forlizzi, J. and Battarbee, K. (2004). Understanding Experience in Interactive Systems. Proceedings of DIS04. New York, NY: ACM Press, 261–268.</li> <li>Forlizzi, J. (2010). All Look Same? A Comparison Of Service Design And Experience Design. <i>interactions</i>, 17/5, September+October 2010, 60–62.</li> <li>Forlizzi, J. and Zimmerman, J. (2013). Promoting Service Design as a Core Practice in Interaction Design. Proceedings of IASDR13. <a href="http://design-cu.jp/iasdr2013/papers/1202-1b.pdf">http://design-cu.jp/iasdr2013/papers/1202-1b.pdf</a></li> </ul>	Experience Design and Service Design	Simulation Lab  <b>Design Note D due</b>
9	3/5  3/7	<ul style="list-style-type: none"> <li>Molly Wright Steenson, <i>Architectural Intelligence: How Designers &amp; Architects Created the Digital Landscape</i> (Cambridge: MIT Press, 2017). (<b>Required reading: Chapter 6, p. 165–190 and p. 221–22</b>; additional optional reading: pp. 191–220 and if you wish, the whole of chapter 6).</li> <li>Daniel Cardoso Llach. 2015. <i>Builders of the Vision: Software and the Imagination of Design</i>. London, New York: Routledge 2015. (<b>Required reading: pp. 1–4 and pp. 49–72</b>; additional optional reading: whole chapters 1 and 3).</li> <li>Graham Dove, Kim Halskov, Jodi Forlizzi, John Zimmerman, “UX Design Innovation: Challenges for Working with Machine Learning as a Design Material,” CHI ’17 Proceedings of the 2017 CHI Conference on Human Factors in Computing Systems, p. 278–288. [Canvas]</li> <li>Paola Antonelli, “<a href="#">AI is Design’s Latest Material</a>,” Google Design. A quick Q&amp;A with the Museum of Modern Art’s Senior Design Curator.</li> </ul>	Artificial Intelligence	Simulation Lab  <b>Design Note E due</b>
10	3/12 3/14	<b>OPEN LAB ALL WEEK</b>		<b>Lab Exercise #2 due</b>

The syllabus, dates, times, assignments, and details are subject to change by instructor notification through Canvas or email.

		<b>SPRING BREAK</b>		
11	3/26	<ul style="list-style-type: none"> <li>Safiya Umoja Noble, <i>Algorithms of Oppression</i>, 2018, chapter 1</li> <li>Dan Hurley, "<a href="#">Can an Algorithm Tell when Kids Are in Danger?</a>" <i>New York Times</i>, January 2, 2018.</li> </ul>	Data Collection and Algorithmic Bias	Open Lab
	3/28	<ul style="list-style-type: none"> <li>Rachel Courtland, "<a href="#">Bias detectives: the researchers striving to make algorithms fair</a>" <i>Nature</i>, June 20, 2018</li> <li>Mimi Onouha, "<a href="#">The Point of Collection</a>," <i>Medium.com</i>, 2016</li> </ul>		<b>Project #2 Project Proposal Presentations Due</b>
12	4/2	<ul style="list-style-type: none"> <li>Karl Marx, <i>Capital</i> vol. 1, Chapter 7 [Canvas]. A surprising thing about Marx is that he's sometimes funny and pretty snarky. We're reading this to situate a conversation on labor-process and use-value so that we can talk about it in a digital sense.</li> <li>Lilly Irani, "<a href="#">Difference and Dependence among Digital Workers: The Case of Amazon Mechanical Turk</a>," <i>South Atlantic Quarterly</i>, 2015.</li> </ul>	The Question of Labor in the Digital Age	Open Lab
	4/4	<ul style="list-style-type: none"> <li>Michel de Certeau, "'Making Do:' Uses and Tactics," <i>The Practice of Everyday Life</i>, 1984. Pay attention to the difference between strategy and tactics. You may find yourself returning to this differentiation as we talk about the organization of things between top-down and bottom-up.</li> </ul>		<b>Interactive Mockup Testing #Project 2</b>
14	4/9	<p><b>OPEN LAB ALL WEEK</b></p> <ul style="list-style-type: none"> <li>Batya Friedman, Peter H. Kahn, Jr., and Alan Borning, "Value Sensitive Design and Information Systems," in: <i>Human-Computer Interaction in Management Information Systems: Foundations</i>, 2006. This piece is longer and more academic in tone. Focus on sections 1–3, then skip to p. 15, to "Practical Suggestions for Using Value Sensitive Design," then go back to read the case studies that start on page 4. (Friedman's research in this area goes back some 25 years, and it's more relevant than ever.)</li> </ul>	Values & ethics	Open lab week to combine Mockup + Lab 1 or Mockup + Lab 2 into Complete Final Project
	4/11	<ul style="list-style-type: none"> <li>Cory Knobel &amp; Geof Bowker, "Values in Design," <i>Communications of the ACM</i> 54: 7 (July</li> </ul>		

The syllabus, dates, times, assignments, and details are subject to change by instructor notification through Canvas or email.

		2011): 26–28. Very short. Introduces the idea of values in design.		
15	4/16	<ul style="list-style-type: none"> <li>Paola Antonelli, "<a href="#">States of Design 04: Critical Design</a>," <i>Domus</i> 949 (July/August 2011).</li> </ul>	Speculative & Critical Design	Open lab
	4/18	<ul style="list-style-type: none"> <li>Anthony Dunne, Fiona Raby, <i>Speculative Everything</i>, excerpts (ch. 1–3). [Canvas]</li> <li><a href="#">And please take a look at this debate that took place around the Republic of Salvation (Michael Burton and Michiko Nitta) project in the Design and Violence exhibition at MoMA</a>. It sparked a debate about elitism, classism, anti-subalternism, north vs. south, racism, and more.</li> </ul>		
16	4/23	<b>OPEN LAB for finishing final project</b>		
FINAL	4/30	<b>2:40p – 5:30p – Demonstrations of final projects</b> All revisions to slides, projects, videos due by 4/30 - 11:59pm		<b>Final projects due</b>

## Honor Code Statement

Students are expected to adhere to the Georgia Tech Honor Code: <http://honor.gatech.edu>.