CSE 3392: Introduction to Human Computer Interaction

Spring 2020
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Instructor Information

Instructor(s):
Cesar Torres

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Engineering Research Building 559

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Office Hours:
Tuesdays & Thursdays, 3:30-4:00PM, Virtual
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Course Staff

Graduate Teaching Assistant:
Hedieh Moradi

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Office Hour and Location:
Tuesdays, 3:30-5PM, Virtual

Course Information

Section Information:
CSE 3392-001

Time and Place of Class Meetings:
Pre 3/24: Trimble Hall (TH 110), TuTh 2:00PM – 3:20PM
Post 3/24: Canvas Conferences

Course Management:

Canvas (assignment, grading, discussion)	https://uta.instructure.com/courses/44481
Piazza (communication, inquiries)	https://piazza.com/class/k48rdd3itue6d1
Pintrest (media handling, classwork bulletin)	https://pin.it/vaxamwgrlz3335

Description of Course Content:

Human-Computer Interaction (HCI) is an interdisciplinary field of study that aims to understand how computation may alter or enhance how we interact with ourselves, others, and our environment. To facilitate the conversation between human(s) and computer(s), an interface designer must understand both the human element (e.g., through cognitive science, ethnography, anthropology) and the computational element (e.g., through development of software, hardware, communication). This studio-based course will introduce a human-centered design approach for creating meaningful, usable, and critical interactions as well as technical development practices for creating the next generation of user interfaces.

Student Learning Outcomes:

- **HCI**
  - A working understanding of HCI theory and the history of HCI.
  - Ability to leverage cognitive models to guide interaction design practice.
- **Design**
  - A theoretical and practical understanding of design process.
    - Ability to asses appropriate human-centered design (HCD) methods to use.
    - Ability to carry out HCD methods.
    - Capacity to work collaboratively with others, visually communicate ideas, develop a common design language, and motivate and critique interaction design decisions.
  - Ability to identify and maximize affordances of computational media.
- **Development**
  - Ability to engage in rapid UI prototyping through mockups, wireframes, and interactive prototypes.
  - Ability to architect an interactive web application with dynamic content.
    - Working understanding of web development practices with HAML, SCSS, Coffeescript.
    - Working understanding of WebAPIs including Canvas, Geolocation, Storage, TouchEvents, and WebSocket APIs.

Class Structure:
This course will follow both a lecture and studio-based format as follows:

1) **Tuesday Studios.** We will follow a studio-based format. Attendance is required and students are expected to come prepared with necessary supplies, engage in studio activities, and use class time to work on design assignments.
2) **Thursday Lectures.** We will follow a lecture-based format. Attendance is not required, but highly encouraged. Students are expected to have completed all required readings before class.

Required Textbooks and Other Course Materials:

Textbook

Murray, Janet H. *Inventing the Medium: Principles of Interaction Design as a Cultural Practice.* MIT Press, 2011.
UTA Libraries Link

Software Applications
All software, technologies, and licenses used within this course are free, open-source, or available with a student license. Please refer to the Canvas document for additional information on how to obtain required software and how to properly configure the software on your personal computer.

Smartphone
At certain points in the course, you will need to use an external or personal smartphone to test your mobile user interfaces. Any cellphone capable of running the Chrome, Safari, or Firefox browser is acceptable. A mobile data plan will not be needed.

Computer Requirements
A computer with at least 4GB RAM running Windows 10 or MacOS will be needed to complete assignments. UTA's computing facilities are available.

Design Supplies

Description	Approximate Cost	Example Links
1 Perfect-bound Plain Paper Design Notebook (at least 100 pages; no spiral)	$16-21	Hardcover Softcover
1 Pad of Bristol Paper (9x12 or similar)	$11	9"x12" (25 sheets)
2 Art Markers (Prismacolor, COPIX, etc…) 10% or 20% Cool Grey 1 Pastel Color (your choice)	$10	Dick Blick Michaels
3 Black Fine Point Sharpies	$4	6-pack
1 Pack of Felt Tip Pens (0.1, 0.3, 0.5 mm or similar configuration)	$8	Micron pens set Staedtler pens set
1 Clear Ruler (6 inches or larger)	$3	
1 X-Acto Blade + 1 Pack of Replacement Blades	$6	X-Acto
1 Pack of Removable Glue Dots	$5	GlueDots
5-Pack of Post-Its (Standard Size; different colors)	$5	Post-It
	~ $75	

** The UTA bookstore has made these supplies available as a kit for **$64.95** before taxes **

Descriptions of major assignments and examinations:
The course is divided into 6 modules. Each module lasts between 1-3 weeks and contains:

- 1-3 reading responses (weekly)
- 1 design report (group assignment)
- 1 module exam (45-minute, timed, take home, open book)

Design reports are submitted as PDFs and document your prototype iterations as you go through the design cycle. Reports may include any combination of observational studies (e.g., "observe how users find, collect, and use recipes"), a design prototypes (e.g., "propose a voice UI for supporting a team of

cooks prepare a meal"), or implementation problems (e.g. "create a procedure that updates ingredient amounts based on serving size"). **These reports are submitted in groups.**

The course will conclude with a 90-minute final exam (closed book).

Module Dates at a Glance

Module		Module Assignment	Module Dates	Module Release Date	Module Assignment Due Date (EOD)	Module Exam Available (Take home, 45 minute timed)
M1	Prototyping	Recipe Book	Weeks 2	Jan 24	Jan 31	Jan 31 – Feb 2
M2	Interaction Design	Recipe Book	Week 3,4,5	Feb 1	Feb 21	Feb 21 – Feb 23
M3	Procedural Affordances	Coloring Book	Week 6,7	Feb 22	Mar 6	Mar 6 – Mar 8
	Spring Break		Week 8			
M4	Encyclopedic Affordances	My Corona	Week 10, 11, 12, 13	Mar 24	April 15	April 15-17
M5	Participatory Affordances	Chatbot	Week 14, 15	Apr 17	May 1	May 1 – May 3
	Review Week		Week 16			

Class Prerequisites
CSE 3310 Software Engineering or equivalent

Grading Information

Grading:
Grades will be calculated as follows:

10% Studio Attendance and Participation (6 total; attendance on studio dates; randomly chosen)

70% Modules
- 15% Module Reading Responses (13 total, 2 lowest scores removed)
- 30% Module Design Reports (6 total)
- 25% Module Exams (6 total)

20% Final Exam

Late Policy:
- Assignments may be turned in **before** their respective module due dates (see chart above). Assignments will not be accepted past these dates. Safety submit to avoid any surprises.
- There is a 30-minute grace period for all Canvas submissions. Submitting at 12:30am still constitutes an on-time assignment. 12:31am is the cutoff. Do not abuse this grace period. Aim to submit before 11:59pm.

Penalties:
Design reports are group assignments. You submit a peer evaluation for each module. Poor group participation will result in up to a 20% penalty.

Poor participation =

- ***Going Solo*** - He went off and did his own idea.
- ***Hoarding*** - She didn't let anybody else touch the code.
- ***Ghosting*** - He didn't respond to messages we sent him. They didn't show up to the group meetings.
- ***Dropping the ball*** - They got busy with assignments from other classes.

DO NOT DIVIDE AND CONQUER. Group assignments are meant to be collaborative. At least two members of the group should be involved in each element of the assignment.

Extra Credit:
+ 2.5% Human Subjects Research Certificate

Studio Attendance
Attendance will be taken each Tuesday session of the course, excluding the first class. To be counted as present, you need to be prepared for studio (i.e. with supplies, assignments developed for critique). If you are missing supplies or materials (e.g. sketches for an in-class activity), you will be counted as 0.5 present. 6 out of the 13 studio dates will be randomly selected for attendance.

Expectations for Out-of-Class Study:
Beyond the time required to attend each class meeting, students enrolled in this course should expect to spend at least an additional 9 hours per week of their own time in course-related activities, including reading required materials, updating design reports, working with their team module assignments, or taking a module exam.

Reading Responses: Each week you will be asked to read and respond to a chapter from Murray's Inventing the Medium.

Design Reports: For each class module, you will be asked to document your exploration, progress, and results in a design report (PDF). The design report should include all observations, prototypes, and evaluations.

Grade Grievances:
Any appeal of a grade in this course must follow the procedures and deadlines for grade-related grievances as published in the current University Catalog:

> *In attempting to resolve any student grievances regarding grades, it is the student's obligation first to make a serious effort to resolve the matter with the individual with whom the grievance originated. Individual course instructors retain primary responsibility for assigning grades. The instructor's judgment is final unless compelling evidence shows preferential treatment or procedural irregularities. If students wish to appeal, their request must be submitted in writing—on an appeal form available in departmental or program offices—to the department chair or program director. The student has one calendar year from the date the grade is assigned to initiate the grievance. The normal academic channels are department chair or program director and then academic Dean. However, before considering a grievance, the department chair or program director will refer the issue to a departmental or program committee of faculty. If the student does not find the committee's decision acceptable, the student may appeal to the academic Dean. The decision of the Dean is final. Information specific to the procedures to be followed in each academic unit is available in the office of the academic Dean.*

Course Schedule

As the instructor for this course, I reserve the right to adjust this schedule in any way that serves the educational needs of the students enrolled in this course. – Cesar Torres

Week 1 • Course Intro

	Tuesday (Jan 21)	Thursday (Jan 23)
Lecture	Course Overview Intro to HCI Design cycle	Action Cycle / Gulfs Mental/Conceptual Models Formative Evaluation
Module		-

Week 2 • Introduction to Prototyping

	Tuesday (Jan 28)	Thursday (Jan 30)
Topics	Prototyping Theory High/Low Fidelity Look & Feel Implementation Role	Affordances Interaction Sketches Metaphors
Module	#1 - Prototyping	

END OF MODULE – MODULE ASSIGNMENTS DUE – MODULE EXAM RELEASED
JAN 31

Week 3 • Heuristics

	Tuesday (Feb 4)	Thursday (Feb 6)
Topics	Wireframing (FIGMA) Layout Typography Color Saliency	Heuristic Evaluation
Module	#2 – Interaction Design	

Week 4 • Web Programming

	Tuesday (Feb 11)	Thursday (Feb 13)
Topics	Wireframe to HAML/SASS	Web Programming
Assignments	#2 – Interaction Design	

Week 5 • Cognitive Walkthrough

	Tuesday (Feb 18)	Thursday (Feb 20)
Topics	Cognitive Walkthrough Setting up Cloud9	Heuristic Evaluation II
Module	#2 – Interaction Design	

END OF MODULE – MODULE ASSIGNMENTS DUE – MODULE EXAM RELEASED
FEB 21

Week 6 • Computational Representation

	Tuesday (Feb 25)	Thursday (Feb 27)
Topics	Cloud9 JS/Coffee Paper.js	Coloring Interaction Mouse Events
Module	#4 – Procedural Affordances	

Week 7 • Advanced Computational Representations

	Tuesday (Mar 3)	Thursday (Mar 5)
Topics	User Study Design Likert Scales Semantic Differentials	User Study Design Creativity Support Tools Flow Likert Scales Interviewing
Module	#4 – Procedural Affordances	

END OF MODULE – MODULE ASSIGNMENTS DUE – MODULE EXAM RELEASED
Mar 6

Week 8 • Spring Break

	Tuesday (Mar 10)	Thursday (Mar 12)
Topics	Spring Break	Spring Break

Week 9 • Extended Spring Break

	Tuesday (Mar 17)	Thursday (Mar 19)
Topics	Extended Spring Break	
Module	#4 Spatial & Encyclopedic Affordances	

Week 10 • Attention

	Tuesday (Mar 24)	Thursday (Mar 26)
Topics	Human-Model Processor Pre-attentive Features Visual Variables Memory and Chunking Theory Hicks' Law Fitts' Law GOMS Direct manipulation	Task Analysis WebAPI – Motion/Location/Maps Activity Recognition Tangible User Interfaces
Module	#4 Spatial & Encyclopedic Affordances	

Week 11 • Spatial Affordances

	Tuesday (Mar 31)	Thursday (Apr 2)
Topics	Card sorts	Semantic segmentation Information visualization
Module	#4 Spatial & Encyclopedic Affordances	

Week 12 • Information Organization

	Tuesday (Apr 7)	Thursday (Apr 9)
Topics	Ruby on Rails x SQLite Scraping the Web	Information Retrieval Series of Tubes (TCP/HTTP/WS)
Module	#4 Spatial & Encyclopedic Affordances	

Week 13 • Tools

	Tuesday (Apr 14)	Thursday (Apr 16)
Topics	Wizard of Oz Prototyping VUI prototyping	Observational Studies Personas
Module	#4 Spatial & Encyclopedic Affordances	

END OF MODULE – MODULE ASSIGNMENTS DUE – MODULE EXAM RELEASED
Apr 15

Week 14 • Machines

	Tuesday (Apr 21)	Thursday (Apr 23)
Topics	Storyboarding	Contextual Inquiry
Module	#5 Participatory Affordances	

Week 15 • Companions

	Tuesday (Apr 28)	Thursday (Apr 30)
Topics	TBD	Ubiquitous Computing
Module	#5 Participatory Affordances	

END OF MODULE – MODULE ASSIGNMENTS DUE – MODULE EXAM RELEASED
Apr 31

Week 16 • Review Week

Review Period (May 5 & May 7)

Week 17 • Finals Week

	Tuesday (May 12)
Topics	Final Exam 11 – 1:30 p.m. (attendance is required)

Institution Information

UTA students are encouraged to review the below institutional policies and informational sections and reach out to the specific office with any questions. To view this institutional information, please visit the Institutional Information page (http://www.uta.edu/provost/administrative-forms/course-syllabus/index.php) which includes the following policies among others:

- Drop Policy
- Disability Accommodations
- Title IX Policy
- Academic Integrity
- Student Feedback Survey
- Final Exam Schedule

Additional Information

Attendance:
At The University of Texas at Arlington, taking attendance is not required but attendance is a critical indicator of student success. Each faculty member is free to develop his or her own methods of evaluating students' academic performance, which includes establishing course-specific policies on attendance. As the instructor of this section, I will take attendance on the dates mentioned above. However, while UT Arlington does not require instructors to take attendance in their courses, the U.S. Department of Education requires that the University have a mechanism in place to mark when Federal Student Aid recipients "begin attendance in a course." UT Arlington instructors will report when students begin attendance in a course as part of the final grading process. Specifically, when assigning a student a grade of F, faculty must report the last date a student attended their class based on evidence such as a test, participation in a class project or presentation, or an engagement online via Canvas. This date is reported to the Department of Education for federal financial aid recipients.

Lab Safety Training:
Students registered for this course must complete all required lab safety training prior to entering the lab and undertaking any activities. Once completed, Lab Safety Training is valid for the remainder of the same academic year (i.e., Fall through Summer II) and must be completed anew in subsequent

years. There are no exceptions to this University policy. Failure to complete the required training will preclude participation in any lab activities, including those for which a grade is assigned.

Emergency Exit Procedures:
Should we experience an emergency event that requires evacuation of the building, students should exit the room and move toward the nearest exit, which is located down the staircase in either direction exiting the. When exiting the building during an emergency, do not take an elevator but use the stairwells instead. Faculty members and instructional staff will assist students in selecting the safest route for evacuation and will make arrangements to assist individuals with disabilities.

Student Success Programs:
UT Arlington provides a variety of resources and programs designed to help students develop academic skills, deal with personal situations, and better understand concepts and information related to their courses. Resources include tutoring by appointment, drop-in tutoring, etutoring, supplemental instruction, mentoring (time management, study skills, etc.), success coaching, TRIO Student Support Services, and student success workshops. For additional information, please email resources@uta.edu, or view the Maverick Resources website.

The IDEAS Center (https://www.uta.edu/ideas/) **(**2nd Floor of Central Library) offers **FREE** tutoring and mentoring to all students with a focus on transfer students, sophomores, veterans and others undergoing a transition to UT Arlington. Students can drop in or check the schedule of available peer tutors at www.uta.edu/IDEAS, or call (817) 272-6593.

The English Writing Center (411LIBR):
[Optional.] The Writing Center offers **FREE** tutoring in 15-, 30-, 45-, and 60-minute face-to-face and online sessions to all UTA students on any phase of their UTA coursework. Register and make appointments online at the Writing Center (https://uta.mywconline.com). Classroom visits, workshops, and specialized services for graduate students and faculty are also available. Please see Writing Center: OWL for detailed information on all our programs and services.

The Library's 2nd floor Academic Plaza (http://library.uta.edu/academic-plaza) offers students a central hub of support services, including IDEAS Center, University Advising Services, Transfer UTA and various college/school advising hours. Services are available during the library's hours of operation.

Emergency Phone Numbers

In case of an on-campus emergency, call the UT Arlington Police Department at **817-272-3003** (non-campus phone), **2-3003** (campus phone). You may also dial 911. Non-emergency number 817-272-3381