INF 385T: Inclusive Design for Accessible Technology
Fall 2022 Syllabus

Instructor Information:
Instructor: Dr. Earl W. Huff Jr. (he/him/his)
Office: UTA 5.328
Office Hours:
- **In-person:** Tuesdays and Thursdays, 2:30 to 4:30 pm
- **Zoom:** by appointment

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Course Information
Room: UTA 1.208
Date and Time: Thursdays, 9:30 AM to 12:30 PM

Course Description
This course introduces the theory and practice of inclusive design principles for developing accessible technology. Inclusive design focuses on understanding the diversity of human characteristics (e.g., age, gender, race/ethnicity, disability, etc.) and applying a human-centered approach in designing technology to satisfy user requirements. Students will learn to use inclusive design processes to recognize user characteristics, discover user needs, produce design solutions, and develop prototypes during this course. Topics include, but are not limited to, inclusive design, ability-based design, disability-related terminology, and assistive technologies. Students will be required to engage in class discussions, complete in-class and homework assignments, give oral presentations, work in small groups, and complete a semester project. This course assumes students will have prior knowledge or experience in user experience (UX) design and/or human-computer interaction. No prior programming experience is required.

Course Objectives
By the end of this course, students will be able to:

1. Identify and explain various disability characteristics in the context of technology use.
2. Explain assistive technologies and how they are used by people with disabilities.

3. Explain the inclusive design principles and apply it towards the development of accessible technology.
4. Identify the characteristics of inclusive technologies.
5. Have an awareness of ethical considerations in disability research as it relates to understanding user needs.
6. Design and implement inclusive and accessible technology.

Personal Goals for Students

- Get students to initiate an accessibility-first approach to design
- Think how current technology may/may not be accessible
- To think about ALL possible users of a technology
- Be equipped with the skills, knowledge, and tools for a career in UX/UI research and design
- Come away with a prototype (design or implementation) to add to students' portfolio

Course Readings, Documents, and Assignments

All course readings, assignments, documents, and announcements will be posted on Canvas.

Class Structure

Students will be engaged in their own learning through in-class discussions and exercises. Students are expected to be active participants during lectures. Each class will consist of a lecture, active discussions, in-class exercises, and an in-class assignment.

Grading

Area	Points
Participation	20 pts
Homework	30 pts
Reflection journal entries	50 pts
Project Check-in #1	10 pts
Project Check-in #2	10 pts
Peer Evaluation	10 pts
Individual Project Score (from peer evaluations)	20 pts
Semester project (see breakdown)	50 pts

-	**Team proposal**	5 pts
-	**Project proposal**	5 pts
-	**Midterm report**	5 pts
-	**Deliverable 1 (artifact design/implementation)**	15 pts
-	**Deliverable 2 (project report)**	10 pts
-	**Final presentation**	10 pts

Grade Distribution

Grade	Cutoff	Points
A	95%	>= 190
A-	90%	>= 180
B+	87%	>= 174
B	84%	>= 168
B-	80%	>= 160
C+	77%	>= 154
C	74%	>= 148
C-	70%	>= 140
D+	67%	>= 134
D	64%	>= 128
D-	60%	>= 120
F	< 60%	< 120

Participation (20 pts)

It is expected that you will be engaged in the class discussions and activities. This includes the in-class exercises and assignments. The in-class exercises are small activities to demonstrate the concepts being taught during lecture. These can occur at specific junctures during the lecture and will not be announced in advance. In-class assignments are typically conducted after the lecture portion of class. There will be one in-class assignment for each class (except during the weeks of project proposal and semester project presentations). All in-class assignments are to be submitted through Canvas before the end of the class period. If you must leave class early with a valid reason, please let me know immediately. In-class assignments cannot be made up.

Homework (30 pts)

There will be six homework assignments issued throughout the course. The homework assignments are to test your comprehension of the concepts learned in each course module. All homework are individual; you may not work with other people. All homework will be submitted through Canvas. Homework assignments will be due the Wednesday before class at 11:59 pm.

Reflection Journal Entries (50 pts)

At the end of each week, you will submit a short reflection of what you learned in class, how it has affected your perspective on designing technology, and how you can apply what you learned into your design process. Maintaining a reflection journal will help you record your progress during the course and see what you have learned during the semester. Journal entries will be due the Wednesday before next class at 11:59 pm. At the end of the semester, I will drop the three lowest scores from your journal entry grade.

Project Check-ins (10 pts each)

There will be two check-ins during the course will you submit a short (1 page max) report of your project progress from an individual point of view. You will answer questions from a prompt provided asking about your thoughts on the project's progress, any help you or your team may need, any issues that need to be addressed, and if any member(s) of the team are not contributing to the work. These check-ins will not be shared with members of your team or any other students. This is your opportunity to privately address any concerns you may have with the project and/or teammates, which may prompt a follow-up meeting if necessary.

Peer Evaluation (10 pts)

Towards the end of the course, each student will submit a peer evaluation form for each member of their project team. The purpose is to provide me feedback on the perceived performance of your team and assess the quality of the contributions to the project. I will use the evaluations, along with the check-ins and midterm report, to determine each student's individual score for the project.

Individual Project Score (20 pts)

In addition to the group project score, there will also be an individual project score given to each student, as an assessment of their ability to contribute to the team's project. The score will be determined with aid from the check-in reports, midterm reports, and peer evaluations from your team members. The items previously mentioned will not solely be calculated into a score, they are more so to help me understand how you contributed to the project during the course.

If you feel that your individual score is unjust, you may contact me individually to appeal the score. A one-on-one meeting will be set up where you will have the opportunity to plead your case on why you feel your score should be changed. It is your responsibility to

provide sufficient cause for the change. Ultimately, the instructor will make the final decision on whether or not the score will change based on your reasonings.

Semester Project (70 pts)

As this is a project-based course, you are required to complete a semester-long, group-based project that tasks you to apply human-centered design to research, ideate, and design a prototype technology that either a) addresses an accessibility problem (i.e., improve desktop application navigation) or b) is accessible for persons with one or more disabilities. Teams will be of no more than 3 people and students can form their own team; performing the project individually is not allowed. The project is broken down into a series of deliverables (see grade breakdown above), with more detailed instructions provided during the course. The goals of this project are:

1) Apply what you learn about inclusive design, human-centered design, and accessibility to design a technology that benefits persons with disabilities and/or older adults.
2) Develop transferable soft skills (i.e., communication, teamwork, management, e.g.) by working in a team-based environment.
3) Produce a sufficient technology deliverable that can be added to your UX portfolio to demonstrate your ability to apply human-centered design to make accessible products and services.

The final deliverables for the project will be a) a technological artifact, it can be a series of mid-to-high fidelity designs or an implemented functional prototype; b) a report outlining how your investigation of users and the proposed problem led to the artifact's design (and implementation if applicable), c) and a 20 min presentation summarizing your process leading to the design of your artifact. As part of the report, individual members will submit an evaluation form for each team member assessing their contribution to the project.

Schedule

Please note that this a tentative schedule for what the class entails. The schedule is subject to change with fair notice to best meet the needs of the class. Please refer to Canvas for the most up-to-date readings, assignments, and due dates.

Week	Date	Topic	Reading(s)	Assignments
1	8/25	Foundations of Inclusive Design/Design Thinking	No readings this week	Reflection journal entry due 11:59 pm 8/30
2	9/1	Visual Disabilities	Naipal, Shivani & Rampersad, Nishanee. (2018). A review of visual impairment. African Vision and Eye Health.	Reflection journal entry due 11:59 pm 9/7 Team proposals due 11:59 pm 9/7

			Lauren Race, Claire Kearney-Volpe, Chancey Fleet, Joshua A. Miele, Tom Igoe, and Amy Hurst. 2020. Designing Educational Materials for a Blind Arduino Workshop.	
3	9/8	Auditory Disabilities (Team proposals due)	Kushalnagar, R. (2019). Deafness and hearing loss. Jessica Korte, Leigh Ellen Potter, and Sue Nielsen. 2017. The impacts of deaf culture on designing with deaf children.	Reflection journal entry due 11:59 pm 9/14 Project proposals due 11:59 pm 9/21
4	9/15	Motor/Mobility Disabilities	Physical & Mobility Impairments: Information & News Larco, A., Peñafiel, P., Yanez, C., & Luján-Mora, S. (2021). Thinking about Inclusion: Designing a Digital App Catalog for People with Motor Disability.	Reflection journal entry due 11:59 pm 9/21
5	9/22	Cognitive/Intellectual Disabilities (Project proposals due)	Sims, G., & Delisi, J. (2019). An Introductory Guide to Understanding Cognitive Disabilities. Mahzar Eisapour, Shi Cao, Laura Domenicucci, and Jennifer Boger. 2018. Participatory Design of a Virtual Reality Exercise for People with Mild Cognitive Impairment.	Reflection journal entry due 11:59 pm 9/28 Homework 1 due 11:59 10/5
6	9/29	User Research/Disability Considerations	Baxter, K., Courage, C., & Caine, K. (2015). *Understanding your users: a practical guide to user research methods* Huff Jr, E. W., Boateng, K., & Brinkley, J. (2020, December). Dear diary: Conducting diary studies with participants with visual impairments.	Reflection journal entry due 11:59 pm 10/5
7	10/6	User Requirements (Homework 1 due) Project check-in #1	M. Ferati, B. Raufi, A. Kurti and B. Vogel, "Accessibility requirements for blind and visually impaired in a regional context: An exploratory study," 2014 Gluck, A., Boateng, K., Huff Jr, E. W., & Brinkley, J. (2020, September). Putting Older Adults in the Driver Seat: Using User Enactment to Explore the Design of a Shared Autonomous Vehicle	Reflection journal entry due 11:59 pm 10/12 Homework 2 due 11:59 pm 10/19
8	10/13	Ideation Pt. 1	Huff Jr, E. W., Lucaites, K. M., Roberts, A., & Brinkley, J. (2020, December). Participatory Design in the Classroom: Exploring the Design of an Autonomous Vehicle Human-Machine Interface with a Visually Impaired Co-Designer	Reflection journal entry due 11:59 pm 10/19 Homework 3 due 11:59 pm 10/26

9	10/20	Ideation Pt 2 (Homework 2 due)	Cecily Morrison, Edward Cutrell, Anupama Dhareshwar, Kevin Doherty, Anja Thieme, and Alex Taylor. 2017. Imagining Artificial Intelligence Applications with People with Visual Disabilities using Tactile Ideation	Reflection journal entry due 11:59 pm 10/26
10	10/27	Prototyping (Midterm report due, Homework 3 due)	Brinkley, J., Daily, S. B., & Gilbert, J. E. (2019). Implementing the ATLAS Self-Driving Vehicle Voice User Interface	Reflection journal entry due 11:59 pm 11/2
11	11/3	Evaluations – Heuristics	10 Usability Heuristics for User Interface Design Kumar, B. A., Goundar, M. S., & Chand, S. S. (2020). A framework for heuristic evaluation of mobile learning applications	Reflection journal entry due 11:59 pm 11/9 Homework 4 due 11:59 pm 11/16
12	11/10	Evaluations – Usability Testing Project check-in #2	Usability Testing 101	Reflection journal entry due 11:59 pm 11/16
13	11/17	Group Project work time (Homework 4 due)	No readings this week	Reflection journal entry due 11:59 pm 11/23 Homework 5 due 11:59 pm 11/30 Peer evaluations due 11:59 pm 11/30
	11/24	Thanksgiving – No Class	No readings this week	
14	12/1	Project Presentations (Homework 5 and peer evaluations due)	No readings this week	Project deliverables 1 & 2 due 11:59 12/7 Final reflection journal entry due 11:59 pm 12/7
15	12/8	Project Presentations (if needed)/Final Reflections Project report + artifact due	No readings this week	

Policies

Land Acknowledgement

I would like to acknowledge that we are meeting on Indigenous land. Moreover, I would like to acknowledge and pay our respects to the Carrizo & Comecrudo, Coahuiltecan, Caddo, Tonkawa, Comanche, Lipan Apache, Alabama-Coushatta, Kickapoo, Tigua Pueblo,

and all the American Indian and Indigenous Peoples and communities who have been or have become a part of these lands and territories in Texas, here on Turtle Island.

Statement on Flexibility

In acknowledgment of COVID 19 and its impact on the University of Texas at Austin community, this course will reaffirm one of the core values here at UT Austin: responsibility. Our responsibility to ourselves and each other is to put our humanity at the forefront of our academic pursuits. With that being said, this semester I commit to being adaptable in this time of great need, which is reflected in the course policies below around attendance, grading, and assignments/exams. If you experience any hardships such as illness, accident, family crisis please know that these policies may be amended and therefore you should communicate with me as soon as you feel comfortable doing so. If for any reason you do not feel comfortable discussing with me, please visit Student Emergency Services. For additional campus resources, please visit protect.utexas.edu.

Students Rights & Responsibilities

- You have a right to a learning environment that supports mental and physical wellness.
- You have a right to respect.
- You have a right to be assessed and graded fairly.
- You have a right to freedom of opinion and expression.
- You have a right to privacy and confidentiality.
- You have a right to meaningful and equal participation, to self-organize groups to improve your learning environment.
- You have a right to learn in an environment that is welcoming to all people. No student shall be isolated, excluded or diminished in any way.

With these rights come responsibilities:

- You are responsible for taking care of yourself, managing your time, and communicating with the teaching team and with others if things start to feel out of control or overwhelming.
- You are responsible for acting in a way that is worthy of respect and always respectful of others.
- Your experience with this course is directly related to the quality of the energy that you bring to it, and your energy shapes the quality of your peers' experiences.
- You are responsible for creating an inclusive environment and for speaking up when someone is excluded.
- You are responsible for holding yourself accountable to these standards, holding each other to these standards, and holding the teaching team accountable as well.

Personal Pronouns

Professional courtesy and sensitivity are especially important with respect to individuals and topics dealing with differences of race, culture, religion, politics, sexual orientation, gender identity & expression, and nationalities. Class rosters are provided to the instructor with the student's legal name, unless they have added a "chosen name" with the registrar's office, which you can do so here: https://utdirect.utexas.edu/apps/ais/chosen_name/. I will gladly honor your request to address you by a name that is different from what appears on the official roster, and by the pronouns you use (she/he/they/ze, etc). Please advise me of any changes early in the semester so that I may make appropriate updates to my records. For instructions on how to add your pronouns to Canvas, visit https://utexas.instructure.com/courses/633028/pages/profile-pronouns. More resources available on the Gender and Sexuality Center's website, www.utgsc.org.

Basic Needs Security

Any student who faces challenges securing their food or housing and believes this may affect their performance in the course is urged to contact the Dean of Students for support. UT maintains the UT Outpost (https://deanofstudents.utexas.edu/emergency/utoutpost.php) which is a free on-campus food pantry and career closet. Furthermore, please notify the professor if you are comfortable in doing so. This will enable him to provide any resources that he may possess.

Academic Integrity

In addition to academic performance, students are expected to demonstrate the qualities of honesty and integrity. All submissions by a student are expected to be the original work product of the submitting student. Material that violates this requirement in any way, or that constitutes any form of dishonesty, cheating, fabrication, the facilitation of academic dishonesty, and/or plagiarism, may result in the student receiving a failing grade in the course ('F') and in appropriate disciplinary action being initiated. The possible sanctions include, but are not limited to, grade penalties, permanent record on your transcript of academic dishonesty, loss of registration privileges, disqualification, and dismissal. Please see the official UT Policy on Cheating and Plagiarism (Policy Statement 08-02) for more details about the consequences of academic dishonesty. It is accessible online at:

https://deanofstudents.utexas.edu/conduct/standardsofconduct.php

Students submissions in this course may be processed by TurnItIn, a tool that compares submitted material to an archived database of published work to check for potential plagiarism. Other methods may also be used to determine if a paper is the student's original work. Regardless of the results of any TurnItIn submission, the faculty member will make the final determination as to whether or not a paper has been plagiarized.

Q Drop Policy

If you want to drop a class after the 12th class day, you'll need to execute a Q drop before the Q-drop deadline, which typically occurs near the middle of the semester. Under Texas law, you are only allowed six Q drops while you are in college at any public Texas institution. For more information, see: http://www.utexas.edu/ugs/csacc/academic/adddrop/qdrop

Sharing of Course Materials

No materials used in this class, including, but not limited to, lecture hand-outs, videos, assessments (quizzes, exams, papers, projects, homework assignments), in-class or Canvas course materials, review sheets, and additional problem sets, may be shared online or with anyone outside of the class unless you have my explicit, written permission. Unauthorized sharing of materials promotes cheating. It is a violation of the University's Student Honor Code and an act of academic dishonesty. The University is well aware of the sites used for sharing materials, and any materials found online that are associated with a specific student, or any suspected unauthorized sharing of materials, will be reported to Student Conduct and Academic Integrity in the Office of the Dean of Students. These reports can result in sanctions, including failure in the course.

Late Work and Makeups

Late submissions for homework, reflection journal entries, and semester project deliverables will be accepted with a penalty. In-class assignments will not be allowed to be submitted late. For homework assignments and journal entries, I will accept late submissions for up to 24 hours beyond the due date for a 5% penalty and up to 48 hours for a 10% penalty. For semester project deliverables, I will accept late submissions up to 24 hours for a 10% penalty. Submissions beyond the late submission window will NOT be accepted unless:

1. The instructor granted an extension in advance of the due date.
2. Document was provided of an unforeseeable circumstance(s) (as assessed by the instructor's discretion).

Attendance

You will not be graded directly on attendance. It is expected that you will be present for all course-related activities. Other than an occasional need to be absent from class (for a valid reason), you should plan to be in class. As mentioned previously, in-class assignments will not be made up.

Towards the latter half of the semester, I may allocate a portion of class time for teams to work on their semester project. If you are absent or are unable to participate in your team meetings, it is your responsibility to communicate to your team regarding your absence and how you can contribute.

Excused Absence: The only absences that will be considered excused are for religious holy days or extenuating circumstances due to an emergency. If you plan to miss class due to observance of a religious holy day, please let me know at least two weeks in advance. For religious holy days that fall within the first two weeks of the semester, the notice should be given on the first day of the semester. You will not be penalized for this absence, although you will still be responsible for any work you will miss on that day if applicable. Check with us for details or arrangements.

If you have to be absent, use your resources wisely. Check materials on Canvas (including recorded lectures, lecture slides etc.), ask your team and other classmates to get a run-down and notes on any lessons you miss. If you find there are topics that we covered while you were gone that raise questions, you may want to contact the instructor and schedule a meeting to discuss. If you arrange such a meeting, please email me specific questions you have in advance so that I can make the most of our time. "What did I miss?" is not specific enough. If you have to miss class for an extended period due to a protracted illness or similar reason, I will treat your needs as a special case and I will do everything I can to help you survive and complete the class.

Resources and Support for Students

Services for Students with Disabilities

The university is committed to creating an accessible and inclusive learning environment consistent with university policy and federal and state law. Please let me know if you experience any barriers to learning so I can work with you to ensure you have equal opportunity to participate fully in this course. If you are a student with a disability, or think you may have a disability, and need accommodations please contact Services for Students with Disabilities (SSD). Please refer to SSD's website for contact and more information: http://diversity.utexas.edu/disability/. If you are already registered with SSD, please deliver your Accommodation Letter to me as early as possible in the semester so we can discuss your approved accommodations and needs in this course.

Counseling and Mental Health Center

The Counseling and Mental Health Center serves UT's diverse campus community by providing high quality, innovative and culturally informed mental health programs and services that enhance and support students' well-being, academic and life goals. To learn more about your counseling and mental health options, call CMHC at (512) 471-3515. If you are experiencing a mental health crisis, call the CMHC Crisis Line 24/7 at (512) 471- 2255.

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The Sanger Learning Center

Did you know that more than one-third of UT undergraduate students use the Sanger Learning Center each year to improve their academic performance? All students are welcome to take advantage of Sanger Center's classes and workshops, private learning

specialist appointments, peer academic coaching, and tutoring for more than 70 courses in 15 different subject areas. For more information, please visit http://www.utexas.edu/ugs/slc or call 512-471-3614 (JES A332).

BeVocal

BeVocal is a university-wide initiative to promote the idea that individual Longhorns have the power to prevent high-risk behavior and harm. At UT Austin all Longhorns have the power to intervene and reduce harm. To learn more about BeVocal and how you can help to build a culture of care on campus, go to: https://wellnessnetwork.utexas.edu/BeVocal.

Wellness Center resources for self-care

Virtual Mindfulness and Stress Reduction Activities

Undergraduate Writing Center: http://uwc.utexas.edu/

Libraries: http://www.lib.utexas.edu/

ITS: http://www.utexas.edu/its/

Student Emergency Services: http://deanofstudents.utexas.edu/emergency/

UT University Health Services: https://healthyhorns.utexas.edu/

COVID-19 Update: "Keep Learning" Resources

This course may be offered in a format to which you are unaccustomed. If you are looking for ideas and strategies to help you feel more comfortable participating in our class, please explore the resources available here: https://onestop.utexas.edu/keep-learning/.

If you have concerns about the safety or behavior of fellow students, TAs or instructors, call BCAL (the Behavior Concerns Advice Line): 512-232-5050. Your call can be anonymous. If something doesn't feel right—it probably isn't. Trust your instincts and share your concerns.

Emergency Evacuation Procedures

The following recommendations regarding emergency evacuation are from the Campus Safety Office, 512-471-5767, https://safety.utexas.edu/

- Occupants of buildings on The University of Texas at Austin campus must evacuate buildings when a fire alarm is activated. Alarm activation or announcement requires exiting and assembling outside.

- Familiarize yourself with all exit doors of each classroom and building you may occupy. Remember that the nearest exit door may not be the one you used when entering the building.
- Students requiring assistance in evacuation shall inform their instructor in writing during the first week of class.
- During an evacuation — follow the instructions of faculty or class instructors.
- In the event of an evacuation, follow the instruction of faculty or class instructors. Do not re-enter a building unless given instructions by the following: Austin Fire Department, The University of Texas at Austin Police Department, or Fire Prevention Services office.
- For more information, please visit emergency preparedness.

Title IX Reporting

Title IX is a federal law that protects against sex and gender-based discrimination, sexual harassment, sexual assault, unprofessional or inappropriate conduct of a sexual nature, dating/domestic violence and stalking at federally funded educational institutions. UT Austin is committed to fostering a learning and working environment free from discrimination in all its forms. When unprofessional or inappropriate conduct of a sexual nature occurs in our community, the university can:

1. Intervene to prevent harmful behavior from continuing or escalating.
2. Provide support and remedies to students and employees who have experienced harm or have become involved in a Title IX investigation.
3. Investigate and discipline violations of the university's relevant policies.

Beginning January 1, 2020, Texas Senate Bill 212 requires all employees of Texas universities, including faculty, report any information to the Title IX Office regarding sexual harassment, sexual assault, dating violence and stalking that is disclosed to them. Texas law requires that all employees who witness or receive any information of this type (including, but not limited to, writing assignments, class discussions, or one-on-one conversations) must be reported. I am a Responsible Employee and must report any Title IX related incidents that are disclosed in writing, discussion, or one-on-one. Before talking with me, or with any faculty or staff member about a Title IX related incident, be sure to ask whether they are a responsible employee. If you would like to speak with someone who can provide support or remedies without making an official report to the university, please email advocate@austin.utexas.edu. For more information about reporting options and resources, visit http://www.titleix.utexas.edu/, contact the Title IX Office via email at titleix@austin.utexas.edu, or call 512-471-0419.