Course Information

Course Number:	CSCE 655
Course Title:	Human-Centered Computing
Section:	600
Time:	Tue. 12:45 pm – 3:35 pm
Location:	Zach 310
Credit Hours:	3
Class Website:	https://sites.google.com/view/csce655-spring25/

Instructor Details

Instructor:	Jeeeun Kim
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Office Hours:	2-3pm, Fridays or by appointment

Course Description

This class provides an introduction to the field of Human-Centered Computing and a variety of topics within the design and development of human-computer interaction techniques. This is a highly reading and discussion-oriented class, consists of three modules (1) **lectures, (2) student presentation,** and **(3) discussions**. You will read three papers every week, across principles and theory of novel technology design and highly technical papers detailing futuristic interaction device implementation. You present twice a semester based on the topic of your choice, as a group of two, and lead a class discussion.

Course Prerequisites

Graduate classification and approval of instructor.

Special Course Designation

N/A

Course Learning Outcomes

With the focus on technical Human-Computer Interaction, students successfully completed the course will be able to build their knowledge and abilities to:

- Engage in discursive research practices within the field of human-centered computing.

- Develop a deep understanding of state-of-the-art research in various HCI topics, including AR/VR, access computing, physical computing, haptics, Human-AI interaction, and more.
- Critically evaluate the contributions, limitations, and gaps in current research and articulate their findings through class presentations.
- Collaborate with peers to select, study, and present research papers relevant to technical HCI domains, and deliver a clear, persuasive oral presentation of their research proposal, effectively pitching their vision to the class.
- Identify compelling research questions and justify their significance in the context of the course themes and the broader HCI field.
- Explore and understand the design principles, challenges, and societal implications of human-centered computing, such as mobile computing, AR/VR/XR, assistive technology, and privacy/security.
- Develop skills in technical writing and academic communication, and produce well-structured research proposals.

Textbook and/or Resource Materials

No textbook required. All materials will be posted on the class website. Machines, utilities, materials, and supplies (e.g., 3D printers, special filaments, conductive threads) will be provided. Students are recommended to invest extra materials and supplies that are essential for their final projects.

Grading Policy

- **Participation (Attendance & In-class participation): 30%**
  - Research involves active engagement in a collaborative and discursive process, including activities such as reading, presenting, and exchanging questions and ideas. Developing this skill is essential for both academic and professional readiness, and graduate school offers an ideal environment for honing it. Bring your reading notes to class, discuss them with peers, and prepare thoughtful questions. If you don't speak, the discussion would not continue. There is no right answer. Students will be warned once if arriving late to class, and subsequent tardiness will result in receiving partial attendance credit. (-1).
- **Group presentation: 30%**
  - Each week's class topic, as announced in the syllabus and on the class website, will include a list of papers for you to read, most of which will be highly technical. Student groups will select one paper, announce their choice to the class a week in advance, and present it. The instructor will dedicate the first hour to providing an overview of the topic area and summarizing the other papers not chosen by the groups for that week. The student group assigned for the week will then lead the second hour with their presentation and facilitate the discussion.

- A team must be a group of two, exceptionally solo if strongly desired. No three members are allowed for fairness.
- You will get written feedback and grade week 8 (1st presentation) and week 14 (2nd presentation).

- **Group Research proposal: 20% (written) + 20% (oral)**
  - Writing your own research proposal is the key to the academic, often advanced industry life. Think of the ways that it is the process to pitch your vision, with a comprehensive list of to-dos for appropriate approaches to try and fail.
  - **Proposal Overview:**
    - Start your proposal by clearly stating the research question and explaining its significance. Highlight why this question is important and identify the gaps in the current state-of-the-art that your research aims to address. Conduct a thorough review of the relevant literature in this area, focusing on what approaches have shown promise and why they fall short of providing ultimate solutions. Then, detail the methods you plan to use, including any preliminary results that support the feasibility of your approach and demonstrate its potential as a promising direction. Finally, outline possible risks associated with your research and propose a mitigation plan to address these challenges, ensuring the viability of your project.
  - **Grading criteria**:
    - **Completeness**: Intellectual merit, broad impact, methods, outcomes. Include a table that clearly states your research questions, methods, outcomes. One option is to develop a logic model.
    - **Written portion**
      - Introduction: rationale, key questions, and literature review (soft draft* by Week 5)
      - Study Design: Is the method appropriate to the questions you propose to address (soft draft* by Week 10)
      - Broader Impacts: Expected results and Risk assessment/mitigation (soft draft* by Week 14)
    - **Oral portion**
      - In class presentation of the proposal (10min. per team)
      - Oral portion will be **100% peer reviewed, by the ranking.**
- No written exam, no quiz

Total: 100%

Grading Scale
90% <= A
80% <= B < 90%
70% <= C < 80%
60% <= D < 70%

F = <60%

Acknowledgments
Assignments and class structures on this syllabus partially build on those who has taught it in different institutions, especially Rosa. I. Arriaga, from Georgia Tech,

Late Work Policy

Extensions/make-ups can be given 12 hours prior to the deadline upon written/in-person request. 20min will be given as a grace period. Otherwise, 50% off from the credit you got for that submission.

Work submitted by a student as makeup work for an excused absence is not considered late work and is exempted from the late work policy (Student Rule 7).

Course Schedule

Course schedule is as the following (course topics are provisional, subject to change upon progress)
All assignments are due at 11:59PM by the Monday of the following week, unless specified.

Week	Topic	Assignment
1 Jan. 14	Course Intro: Why are we here?	3 Public abstracts of funded NSF proposals within interested topics
2 Jan. 21	Interaction Design & Prototyping	
3 Jan. 28	Physical Computing	
4 Feb. 4	Persuasive Computing	
5 Feb. 11	Wearables & Ubiquitous Computing	Draft of Introduction of Proposal: Rationale, key questions, literature review
6 Feb. 18	Assistive Technology	
7 Feb. 25	AR/VR	
8 Mar. 4	**Work day; No Class**	Draft of Abstract of Proposal
Mar. 11	**Spring Break; No class**	
9 Mar. 18	Haptics	
10 Mar. 25	Novel Sensing	Draft of Study Design of Proposal: Is the method appropriate?
11 Apr. 1	Privacy & Ethics	
12 Apr. 8	Computational Interaction	

13 Apr. 15	Social Computing	Draft of Broader Impact: Expected results and Risk Mitigation
14 Apr. 22	Augmenting Interactions	
15 Apr. 29	**Final Research Proposal Elevator Pitch**	Final research proposals

*Students attend the class, meet with the instructor individually, other teams work on final projects

University Policies

Attendance Policy

The university views class attendance and participation as an individual student responsibility. Students are expected to attend class and to complete all assignments.

Please refer to Student Rule 7 in its entirety for information about excused absences, including definitions, and related documentation and timelines.

Makeup Work Policy

Students will be excused from attending class on the day of a graded activity or when attendance contributes to a student's grade, for the reasons stated in Student Rule 7, or other reason deemed appropriate by the instructor.

Please refer to Student Rule 7 in its entirety for information about makeup work, including definitions, and related documentation and timelines.

Absences related to Title IX of the Education Amendments of 1972 may necessitate a period of more than 30 days for make-up work, and the timeframe for make-up work should be agreed upon by the student and instructor" (Student Rule 7, Section 7.4.1).

"The instructor is under no obligation to provide an opportunity for the student to make up work missed because of an unexcused absence" (Student Rule 7, Section 7.4.2).

Students who request an excused absence are expected to uphold the Aggie Honor Code and Student Conduct Code. (See Student Rule 24.)

Academic Integrity Statement and Policy

"An Aggie does not lie, cheat or steal, or tolerate those who do."

"Texas A&M University students are responsible for authenticating all work submitted to an instructor. If asked, students must be able to produce proof that the item submitted is indeed the work of that student. Students must keep appropriate records at all times. The inability to authenticate one's work, should the instructor request it, may be sufficient grounds to initiate an academic misconduct case" (Section 20.1.2.3, Student Rule 20).

You can learn more about the Aggie Honor System Office Rules and Procedures, academic integrity, and your rights and responsibilities at aggiehonor.tamu.edu.

Americans with Disabilities Act (ADA) Policy

Texas A&M University is committed to providing equitable access to learning opportunities for all students. If you experience barriers to your education due to a disability or think you may have a disability, please contact the Disability Resources office on your campus (resources listed below) Disabilities may include, but are not limited to attentional, learning, mental health, sensory, physical, or chronic health conditions. All students are encouraged to discuss their disability related needs with Disability Resources and their instructors as soon as possible.

Disability Resources is located in the Student Services Building or at (979) 845-1637 or visit disability.tamu.edu.

Title IX and Statement on Limits to Confidentiality

Texas A&M University is committed to fostering a learning environment that is safe and productive for all. University policies and federal and state laws prohibit gender-based discrimination and sexual harassment, including sexual assault, sexual exploitation, domestic violence, dating violence, and stalking.

With the exception of some medical and mental health providers, all university employees (including full and part-time faculty, staff, paid graduate assistants, student workers, etc.) are Mandatory Reporters and must report to the Title IX Office if the employee experiences, observes, or becomes aware of an incident that meets the following conditions (see University Rule 08.01.01.M1):

- The incident is reasonably believed to be discrimination or harassment.
- The incident is alleged to have been committed by or against a person who, at the time of the incident, was (1) a student enrolled at the University or (2) an employee of the University.

Mandatory Reporters must file a report regardless of how the information comes to their attention – including but not limited to face-to-face conversations, a written class assignment or paper, class discussion, email, text, or social media post. Although Mandatory Reporters must file a report, in most instances, a person who is subjected to the alleged conduct will be able to control how the report is handled, including whether or not to pursue a formal investigation. The University's goal is to make sure you are aware of the range of options available to you and to ensure access to the resources you need.

Students wishing to discuss concerns in a confidential setting are encouraged to make an appointment with Counseling and Psychological Services (CAPS).

Students can learn more about filing a report, accessing supportive resources, and navigating the Title IX investigation and resolution process on the University's Title IX webpage.

Statement on Mental Health and Wellness

Texas A&M University recognizes that mental health and wellness are critical factors that influence a student's academic success and overall wellbeing. Students are encouraged to engage in healthy self-care by utilizing available resources and services on your campus *available through University Health Services*

Students who need someone to talk to can contact Counseling & Psychological Services (CAPS). 24-hour emergency help is also available through the National Suicide Prevention Hotline (800-273-8255) or at suicidepreventionlifeline.org.

The TELUS Health Student Support app provides access to professional counseling in multiple languages anytime, anywhere by phone or chat, and the 988 Suicide & Crisis Lifeline offers 24-hour emergency support at 988 or 988lifeline.orgLinks to an external site.

Texas A&M College Station

Students needing a listening ear can contact University Health Services (979.458.4584)or call the Texas A&M Helpline (979.845.2700) from 4:00 p.m. to 8:00 a.m. weekdays and 24 hours on weekends while classes are in session. 24-hour emergency help is also available through the 988 Suicide & Crisis Lifeline (988) or at 988lifeline.orgLinks to an external site..

College and Department Policies

College and departmental units may establish their own policies and minimum syllabus requirements. As long as these policies and requirements do not contradict the university level requirements, colleges and departments can add them in this section. Please remove this section if not needed.