CSE/SER463: Introduction to Human-Computer Interaction (Online)

Instructor

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Catalog Description

CSE463 is a 3-credit course that covers issues, trends, and research related involved in the design, evaluation, and implementation of interactive software intended for human use.

Enrollment Requirements

Prerequisite(s): Computer Science BS or Computer Systems Engineering BSE major: CSE 310 with C or better OR Informatics BS or Digital Culture (Media Processing) BA major: CPI 310 with C or better OR Computer Science and Engineering graduate student.

Overview

Welcome to "Introduction to Human-Computer Interaction," a comprehensive and advanced journey into the intersection of technology, design, and human experience. This course is meticulously crafted to provide a deep dive into the principles, theories, and practical applications of HCI. As we navigate through this multifaceted field, you will be exposed to a rich tapestry of concepts and practices that form the foundation of how humans interact with digital systems.

The curriculum is designed to not only impart theoretical knowledge but also to foster practical skills essential in crafting user-centered design solutions. You will explore the nuances of user experience (UX) design, interface creation, and usability testing, while also delving into cognitive psychology to understand user behavior and perception. The course emphasizes the importance of designing interfaces that are not just functional, but also accessible, inclusive, and engaging, catering to a diverse range of user needs and abilities.

Throughout this course, you will engage in critical analysis of case studies, participate in hands-on projects, and learn to employ state-of-the-art tools and methodologies. This immersive experience aims to equip you with the skills to critically evaluate and enhance the usability of various interfaces, understand the ethical implications of design decisions, and stay abreast of emerging trends and technologies in the field of HCI.

As you progress, you will be encouraged to think creatively and analytically, work collaboratively in teams, and develop a keen eye for detail and user-centric design. The capstone project will be a culmination of your learning, where you will apply your acquired knowledge and skills to design, prototype, and evaluate a user interface, preparing you for a successful career in the ever-evolving world of technology and user experience design.

In summary, this course is not just an academic endeavor but a transformational experience that will challenge and inspire you to become an innovative thinker and skilled practitioner in the field of Human-Computer Interaction

Course Objectives

In this course, you will:

- **Understand the Fundamentals of HCI**: Gain a comprehensive understanding of the basic principles, theories, and methodologies in human-computer interaction.
- **User-Centered Design**: Learn the principles of user-centered design, including understanding user needs, designing for usability, and evaluating user interfaces.
- **Interface Design and Development**: Develop skills in designing and prototyping user interfaces, using both traditional methods and emerging technologies.
- **Cognitive Aspects of HCI**: Understand the cognitive aspects of human-computer interaction, including how users perceive, think, and interact with technology.
- **Usability Testing and Evaluation**: Learn to conduct usability testing and evaluation, including qualitative and quantitative methods.
- **Accessibility and Inclusive Design**: Understand principles of accessibility and inclusive design to create interfaces that are usable by people with a wide range of abilities.
- **Emerging Technologies and Trends in HCI**: Stay informed about current and emerging trends in HCI, such as virtual and augmented reality, voice interfaces, and AI in user interfaces.
- **Ethical Considerations in HCI**: Explore the ethical considerations in HCI, including privacy, security, and the social impact of technology.
- **Research Methods in HCI**: Gain an understanding of research methods used in HCI, including experimental design, data collection, and analysis.
- **Real-world Applications and Case Studies**: Study various case studies and real-world applications of HCI to understand the practical implications and challenges in the field.
- **Project Development**: Engage in a capstone project that requires applying HCI principles and methodologies to design, develop, and evaluate a user interface.

Course Format

CSE463 is conducted in a student-centered environment that requires active student participation. This means that the instruction features lectures, online discussion, student-

generated information, demonstrations, and projects. Students are active participants in their own learning experience. I consider it a privilege to have each of you in my class. As your instructor, I will do whatever I can to help you learn and do well on the course assignments. However, please keep in mind that your grade in this class is earned by you, not given by the instructor. I will give you many opportunities to learn the material and demonstrate what you have learned. It is also expected that students check our course Canvas site and their email daily for any important announcements.

Sample Course Topics

- Foundations
- Cognitive perspective (I)
- Cognitive perspective (II)
- Behaviorist perspective
- Models, cycles, and frameworks
- Motivation and emotional design
- Design thinking (I)
- Design thinking (II)
- UI evaluation
- UI/UX research
- Conducting usability study
- Analyzing traditional data
- Advanced data collection tools
- Ethical issues
- Emerging trends

Assessment of Concepts and Skills/Evaluation of Student Progress

Assignments

There are a set of assignments that you must complete as part of the course. Assignments generally consist of a link to some information on the topic combined with a quiz or other activity to demonstrate your understanding of the material in the module.

Discussion Questions

Each module contains a set of discussion questions items related to the module's lectures.

Exams

The course involves two exams—one at the midpoint of course and one at the end, which will cover the content from lectures, readings, discussions, and activities, up to the specified point of the semester. The exams typically consist of 12-15 open-ended response items. Each of these items requires a short answer that takes about 5 minutes to complete.

Final Project (Group Activity)

The culminating project for the class is a group activity, consisting of a **group of four students**, that have identified a website that is not optimized in terms of usability and user experience. The goal of this project is for you to design and implement a prototype of this website and test that addresses the usability problems you identify. You will also be expected to test this prototype out versus the original site in terms of common usability metrics. The new design should be informed by the principles and theory (CLT, Usability, UX, User-centered design, heuristic evaluation, etc.) covered in the class and evaluated through a usability test.

REQUIREMENT: The Design Project must be a website with a purchase functionality i.e. e-commerce, airlines, etc. You need to at least identify two tasks on improving the design flow of the website.

The Design Project is divided into three milestones:

- Milestone 1: Project Proposal (2.5%)
- Milestone 2: Participant Video Submissions (AB Testing) (2.5%)
- Milestone 3: Project Final Submission (5%)

Module Quizzes

Each module contains a quiz with consisting of a set of multiple-choice items related to the module's lectures.

Course Policies

Academic Integrity

Students in this class must adhere to ASU's academic integrity policy, which can be found at https://provost.asu.edu/academic-integrity/policy). Students are responsible for reviewing this policy and understanding each of the areas in which academic dishonesty can occur. All engineering students are expected to adhere to the ASU Student Honor Code.

All work submitted for the course cannot have been submitted for any other course or any previous section of this same course. Student academic integrity violations are reported to the Fulton Schools of Engineering Academic Integrity Office (AIO). Withdrawing from this course will not absolve you of responsibility for an academic integrity violation and any sanctions that are applied. The AIO maintains a record of all violations and has access to academic integrity violations committed in all other ASU college/schools.

Unless explicitly allowed by your instructor, the use of generative AI tools on any course assignment or exam will be considered academic dishonesty and a violation of the ASU Academic Integrity Policy. Students confirmed to be engaging in non-allowable use of generative AI will be sanctioned according to the academic integrity policy and FSE sanctioning guidelines.

Classroom Behavior and Professionalism

Students are required to adhere to the behavior standards listed in the Student Code of Conduct found in the Arizona Board of Regents Policy Manual. (http://students.asu.edu/files/StudentCodeofConduct.pdf). Students in this class are expected to acknowledge and embrace the FSE student professionalism expectation located at: https://engineering.asu.edu/professionalism/.

It is expected that students exhibit professional behavior while participating in this class. Professional conduct includes but is not limited to positively contributing to the learning environment, adhering to the policies and procedures of the class and university, notifying the instructor in case of absence, being open to feedback from instructor, attending class on time, presuming positive intent when discussing a concern with the instructor or fellow classmates, showing initiative when collaborating with others, submitting good quality work that follows the conventions of standard English, being prepared for class with the required materials, and completing required reading and note taking before class. In your email communications with the instructor, maintain professionalism, consider your audience and purpose, take your time, and communicate clearly. Professional standards that apply to your assignments should also be exhibited in email communications.

Copyright

You must refrain from uploading to any course shell, discussion board, or website used by the course instructor or other course forum, material that is not the student's original work, unless the student first complies with all applicable copyright laws; faculty members reserve the right to delete materials on the grounds of suspected copyright infringement.

The contents of this course, including lectures and other instructional materials, are copyrighted materials. Students may not share outside the class, including uploading, selling or distributing course content or notes taken during the conduct of the course. Any recording of class sessions is authorized only for the use of students enrolled in this course during their enrollment in this course. Recordings and excerpts of recordings may not be distributed to others. (see ACD 304–06, “Commercial Note Taking Services” and ABOR Policy 5-308 F.14 for more information).

Course/Instructor Evaluation

The course/instructor evaluation for this course will be conducted online 7-10 days before the last official day of classes of each semester or summer session. Response(s) to the course/instructor are anonymous and will not be returned to your instructor until after grades have been submitted. The use of a course/instructor evaluation is an important process that allows our college to (a) help faculty improve their instruction, (b) help administrators evaluate instructional quality, (c) ensure high standards of teaching, and (d) ultimately improve instruction and student learning over time. Completion of the evaluation is not required for you to pass this class and will not affect your grade, but your cooperation and participation in this process is critical. About two weeks before the class finishes, watch for an email with "ASU

Course/Instructor Evaluation" in the subject heading. The email will be sent to your official ASU e-mail address, so make sure ASU has your current email address on file.

Disability Accommodations

Suitable accommodations are made for students having disabilities. Students needing accommodations must register with the ASU Student Accessibility and Inclusive Learning Services office and provide documentation of that registration to the instructor. Students should communicate the need for an accommodation in enough time for it to be properly arranged. See ACD 304-08 Classroom and Testing Accommodations for Students with Disabilities.

Emailing Guidelines

It is important to include your **ASURITE User ID** with your email. Please direct all course-related queries to the TA for faster responses. If it needs the instructor's attention, please CC the TA as well. Please use the **Subject Format:** CSE463: Issue - ASUID/FullName

Grade Appeal Deadlines

Any grade for the in-class activity, online modules and exams can be appealed within **two weeks** of publishing the grades. There will be no adjustments in grades after the two-week deadline has passed. **Please note that a request for regrading will trigger a complete regrading of the assignment in question**.

Grading Scale

Course grades will be based on lab exercises, a basic project, an advance project, a presentation, and class participation. The maximum obtainable points are as follows:

Course grades will be based on Online Modules, an advanced project, examinations, and class participation. The maximum obtainable points are as follows:

Activity	Percent of Overall grade
Online Mod/Assignments (5 @ 5% each)	25%
Module Quizzes	5%
Module Discussions	5%
Exams (2 @ 25%)	50%
Final Project	15%

Grade	%
A	100-93
A-	92.99-90
B+	89.99-87
B	86.99-83
B-	82.99-80
C+	79.99-77
C	76.99-70
D	69.99-60
E	<59.99

Harassment and Sexual Discrimination

Arizona State University is committed to providing an environment free of discrimination, harassment, or retaliation for the entire university community, including all students, faculty members, staff employees, and guests. ASU expressly prohibits discrimination, harassment, and retaliation by employees, students, contractors, or agents of the university based on any protected status: race, color, religion, sex, national origin, age, disability, veteran status, sexual orientation, gender identity, and genetic information. Title IX is a federal law that provides that no person be excluded on the basis of sex from participation in, be denied benefits of, or be subjected to discrimination under any education program or activity. Both Title IX and university policy make clear that sexual violence and harassment based on sex is prohibited. An individual who believes they have been subjected to sexual violence or harassed on the basis of sex can seek support, including counseling and academic support, from the university. If you or someone you know has been harassed on the basis of sex or sexually assaulted, you can find information and resources at https://sexualviolenceprevention.asu.edu/faqs.

As a mandated reporter, I am obligated to report any information I become aware of regarding alleged acts of sexual discrimination, including sexual violence and dating violence. ASU Counseling Services, https://eoss.asu.edu/counseling is available if you wish to discuss any concerns confidentially and privately. ASU online students may access 360 Life Services, https://goto.asuonline.asu.edu/success/online-resources.html.

Honors Credit

This course can be adapted for Honors College credit. Students should consult with the instructor to determine an appropriate project and complete the necessary paperwork within the first two weeks of the semester.

Instructor Responsibility

I consider it a privilege to have each of you in my class. As your instructor, I will do whatever I can to help you learn and do well on the course assignments. However, please keep in mind that your grade in this class is earned by you, not given by the instructor. I will give you many opportunities to learn the material and demonstrate what you have learned.

Late Assignments

All assignments are due on the dates and times listed on the course Canvas site (unless announced by the instructor). Late assignments will be subject to a drop of **at least** 10% of the total grade per day. You are encouraged to submit the assignment even after 5 days passed the due date. **Missing or corrupted assignments will also incur a penalty of at least 10% per day.** It is the responsibility of the student to submit every assignment and project milestones on time and ensure the assignment meets all the requirements and is correct.

Syllabus

Syllabus is intended as general plan of study and may be adjusted with notice.

Threatening Behavior

Students, faculty, staff, and other individuals do not have an unqualified right of access to university grounds, property, or services (see SSM 104-02). Interfering with the peaceful conduct of university-related business or activities or remaining on campus grounds after a request to leave may be considered a crime. All incidents and allegations of violent or threatening conduct by an ASU student (whether on- or off-campus) must be reported to the ASU Police Department (ASU PD) and the Office of the Dean of Students.