Introduction to Human Computer Interaction

Intro to Human-Computer Interaction (HCI) - CSCI 445

Spring 2022

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Associate Professor

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Office Hours: My WebEx room Link - https://montana.webex.com/meet/q73b956 **Please e-mail me letting me know you will be there!** *Office hours: https://www.cs.montana.edu/office-hours.html*

TA: TBA

EMAIL: TBA

P: TBA

Office: TBA Office hours: TBA

Course Overview: *This course provides an introduction to human computer interaction for innovation in technologies. Students will explore the core principles, methodologies, and applications of human-centered design computing practices, in essence how may we "humanize technology" to empower our users and create a more positive human experience. Example topics include: conceptualizing interaction, universal principles of design, persuasive technology, dark designs (addiction, habit forming, persuasion), human perception and cognition, immersive interaction (virtual/augmented/mixed reality), artificial emotional intelligence, experimental design and statistical analysis, empathy and bias in interaction design, gamification, social interactions, and human-robot interaction. Applications in manufacturing, transportation, and healthcare will be discussed. Explores course content through a variety of case studies, assignments and discussions.*

E-mail and Course Communications:

Regarding any email exchange, **I will get back with you within 24-48 hours; please no last-minute requests or questions as likely I will not respond in time to help you!**
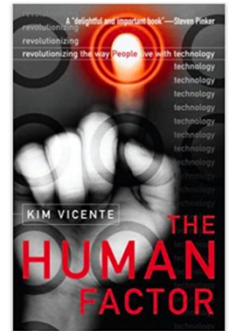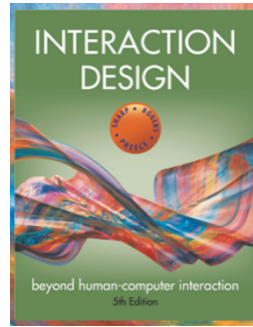
Course Communications:
All communication will be done via D2L, I try to keep the number of announcements to a minimum (as I know you are managing several other course announcements). To make sure we are communicating and clear on course expectations, each week I will post a weekly announcement regarding due dates and general course news. My hope is this helps you stay organized ☺!

Things to Know
If you get sick and cannot get your assignment in on time, you must contact me or the TA before or within 2 days of missing class to discuss your options. Those who are participating in school sanctioned events also need to contact me or the TA before the assignment is due to discuss your options (will need a note from the school for this).

Optional "Textbooks":
- Interaction Design: Beyond Human-Computer Interaction 5th Edition (ISBN-10 : 1119547253, ISBN-13 : 978-1119547259) - **Optional**
- The Human Factor, 1st Edition by Kim Vincente - **Optional**

Learning Objectives: Upon successful completion of this course, you will:
- Effectively understand and communicate the relevance of the human centered design process in the practice of computer science.
- Be able to perform analysis, establish requirements, design and evaluate interactive computer-based systems and products with respect to the user.
- Analyze HCI issues in ubiquitous computing, robotics, virtual reality, multimedia, and web-based related environments.
- Acquire a basic knowledge about human cognition and relevant methodology.
- Apply an interactive design process and universal design principles to designing HCI systems.

What I Expect of You:
- Review all lecture notes + videos.
- Complete assignments on time
- **Actively** participate in class where requested via D2L, especially in sharing discoveries with one another

Grading: You will be evaluated on:
- Participation, (actively discussing design principles, asking questions, providing examples),
- Assignments.
- Quality of work completed from week to week.

Late Policy

Assignments will be submitted through D2L unless instructed otherwise, and **late assignments will be deducted 10% each day it is late.** Exception will only be given to extreme cases, like a student being sick with a Dr's note. In this case, the student must contact me or the TA before the due date/time in order to get a delay in the assignment.

Course Requirements

Case Study Assignments (70%): *The purpose of the case study assignments is to allow you to <u>apply</u> the human centered computing design principles learned over the course of the semester and to utilize the tools and concepts. These assignments are intended for you to use, develop, and perfect your problem solving and critical thinking skills. A description of the case study assignments will be given at least 7 days prior to their due date.*

Final Exam (30%): *This will be a take-home exam posted via D2L during the last week of exams, you will be given 3-5 days to complete the exam.*

Grading:

Work in this course will be graded to criteria. In other words, you won't be graded on a curve. Each deliverable is designed to test your achievement against one or more of the learning objectives.

Quality of Assignments

As a junior/senior-level student in a field that requires excellent communication skills, this course has high expectations on the written quality and presentation of completed assignments and reports. Assignments should be well organized, be thoroughly proofread, and free from grammatical errors. The use of appropriate, clear titles and headings is also important. Each assignment will have quality of written assignments as a graded component.

An overall course grade will be assigned based on performance using the following percentages:

Course Requirement	Percentage of grade
Take-Home Final Examination	30%
5 D2L Case-Study Assignments to be shared and discussed via D2L at least one week prior to the posted deadlines in D2L.	70% (each assignment counts 14% of total grade)

Assignment*	Due Date	Percentage of Grade
Case Study #1	Feb. 11th by 11:59 pm	14%
Case Study #2	Feb. 25th by 11:59 pm	14%
Case Study #3	Mar. 11th by 11:59 pm	14%
Case Study #4	April 1st by 11:59 pm	14%
Case Study #5	April 22nd by 11:59 pm	14%
Final Exam	May 9th by 11:59 pm	30%

Case Study Assignments will be posted at least 5 days before the assignment is due.

The following scale** will be used:

%	Grade	Performance Quality*
93-100	A	Superior performance in all aspects of the course with work exemplifying the highest quality. Unquestionably prepared for subsequent courses in field.
90-92	A-	Superior performance in most aspects of the course; high quality work in the remainder. Unquestionably prepared for subsequent courses in field.
83-89	B	High quality performance in all or most aspects of the course. Very good chance of success in subsequent courses in field.
80-82	B-	High quality performance in some of the course; satisfactory performance in the remainder. Good chance of success in subsequent courses in field.
73-79	C	Satisfactory performance in the course. Evidence of sufficient learning to succeed in subsequent courses in field.
70-72	C-	Satisfactory performance in most of the course, with the remainder being somewhat substandard. Evidence of sufficient learning to succeed in subsequent courses in field with effort.
63-69	D	Evidence of some learning but generally marginal performance. Marginal chance of success in subsequent courses in field.

**Adapted from [Faculty Resource on Grading](.).

Right to revise

The instructor reserves the right to revise this syllabus.

Tentative Schedule*

Wk.	Topic
1	Intro to HCI
2	Intro to Human Factors
3	Bad Designs & Systems Thinking
4	Universal Principles of Design Part I
5	Universal Principles of Design Part II
6	Human Perception and Cognition
7	Emotional Interaction and Dark Designs, Technology Addiction
8	Unconscious Bias **VR Experience Required for Case Study Assignment (check out VR headset at MSU library or use at library) – Details TBA/Stay Tuned!**
9	Persuasive Technology/Gamification
10	User-Centered Design Process
11	User Information Gathering, Survey Design, Content Analysis, Perceived Usability Metrics
12	Design and Evaluation Methods/Heuristic Evaluation
13	Overview of Usability Testing for HCI applications
14	Design of HCI Experiments
15	Future Trends in HCI – Virtual, Mixed, and Augmented Reality, Affective Computing, Social Interaction
16	Future Trends in HCI – Human-Centered Artificial Intelligence
17	Final Exam Take-Home - TBA

* Subject to change, and it will change ☺

------ My role is to both, challenge and support you, and I promise to do both! ------

What motivates you? What motivates me? Each day I wake up, I am motivated to make a difference in the lives of those around me, each day I try to remember the opportunity I have to do just that!
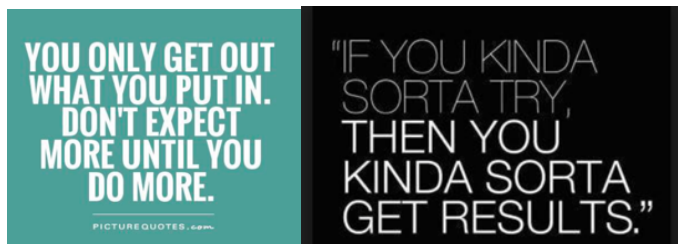
Students with Disabilities:

If you are a student with a disability and wish to use your approved accommodations for this course please contact me during my office hours to discuss. Please have your Accommodation Notification or Blue Card available for verification of accommodations. Accommodations are approved through the Office of Disability Services located in SUB 174. Please see Disability Services for more information by clicking here.

Diversity Statement:

Respect for Diversity: It is my intent that students from all diverse backgrounds and perspectives be well-served by this course, that students' learning needs be addressed both in and out of class, and that the diversity that students bring to this class be viewed as a resource, strength and benefit. It is my intent to present materials and activities that are respectful of diversity: gender identity, sexual orientation, disability, age, socioeconomic status, ethnicity, race, religion, culture, perspective, and other background characteristics. Your suggestions about how to improve the value of diversity in this course are encouraged and appreciated. Please let me know ways to improve the effectiveness of the course for you personally or for other students or student groups.

In addition, in scheduling exams, I have attempted to avoid conflicts with major religious holidays. If, however, I have inadvertently scheduled an exam or major deadline that creates a conflict with your religious observances, please let me know as soon as possible so that we can make other arrangements.

Inclusivity Statement:

I support an inclusive learning environment where diversity and individual differences are understood, respected, appreciated, and recognized as a source of strength. We expect that students, faculty, administrators and staff at MSU will respect differences and demonstrate diligence in understanding how other peoples' perspectives, behaviors, and worldviews may be different from their own.

Statement on Academic Writing and Student Responsibilities:

Students writing in an academic setting are responsible for approaching all assignments with rigor, integrity, and in compliance with the University Code of Student Conduct. This responsibility includes:

1. consulting and analyzing sources that are relevant to the topic of inquiry;
2. clearly acknowledging when they draw from the ideas or the phrasing of those sources in their own writing;
3. learning and using appropriate citation conventions within the field in which they are studying; and
4. asking their instructor for guidance when they are uncertain of how to acknowledge the contributions of others in their thinking and writing**.**

When students fail to adhere to these responsibilities, they may intentionally or unintentionally "use someone else's language, ideas, or other original (not common-knowledge) material without properly acknowledging its source"(http://www.wpacouncil.org). When the act is intentional, the student has engaged in plagiarism.

Plagiarism is an act of academic misconduct, which carries with it consequences including but not limited to receiving a course grade of "F" and a report to the Office of the Dean of Students. Unfortunately, it is not always clear if the misuse of sources is intentional or unintentional, which means that you may be accused of plagiarism even if you do not intentionally plagiarize. If you have any questions regarding use and citation of sources in your academic writing, you are responsible for consulting with your instructor *before* the assignment due date. In addition, you can work with an MSU Writing Center tutor at any point in your writing process, including when you are integrating or citing sources. You can make an appointment and find citation resources at www.montana.edu/writingcenter.