

Course Syllabus

Overview

This course will teach you about the importance of the human-computer interface in the design and development of things people use. We will touch on many of the perceptual, cognitive, and social characteristics of people, as well as methods for learning more about the people you wish to use your systems (analyzing the tasks they perform, the way they perform them, the way they think and feel about what they do, etc.). We will discuss the capabilities and limits of computers and other related systems, and discuss how that affects design and implementation decisions.

We will also cover methods of **evidence-based design**, and ways to ideate, brainstorm, implement, evaluate, and improve a design. This includes discussion of User Centered Design and Universal Design philosophies. The course will be a blend of perceptual/psychological, social, digital design, visual design, computer science elements as well as other elements of design (e.g., process design, physical design). You will work on individual assignments and group projects to learn in a hands-on way about the various stages of an effective design process, and effectively designed products and services. This course is a complement to the two other core courses in the **MS-HCI Program** (<http://mshci.gatech.edu/>) at Georgia Tech; specifically PSYC 6023 Research Methods for HCI, and CS/PSYC/ID/LMC 6753 Professional Preparation.

In particular, it is important to understand that throughout the entire MS-HCI program, we consistently emphasize User-Centered Design, Evidence-Based Design, and Universal Design approaches. However, each class focuses on different aspects of these topics. You can expect, for example, to see the HCI Foundations and Research Methods for HCI classes spending different portions of time on three main phases, something like this:

	Needs Analysis	Design and Prototype	Evaluation
Research Methods for HCI	40%	20%	40%
HCI Foundations	25%	50%	25%

This class seeks to:

- Facilitate communication between students of psychology, design, and computer science on user interface development projects.

- Provide the future user interface designer with concepts and strategies for making design decisions.
- Expose the future user interface designer to tools, techniques, and ideas for interface design.
- Introduce the student to the literature of human-computer interaction.
- Stress the importance of good user interface design.

Learning Objectives

By the conclusion of this course, students should be able to:

- Explain core user-centered design concepts from the field of HCI.
- Describe the capabilities and limitations of computers and other related systems, and how that affects design and implementation decisions.
- Explain the perceptual, cognitive, and social characteristics of people and the relevance of these qualities for user interface design.
- Utilize user-centered design strategies and tools to ideate, brainstorm and implement useful, usable, and engaging user interfaces.
- Utilize user-centered design methods to design and conduct user interface evaluations.

Semester Theme

We are going to adopt the theme of "wellbeing" for the semester. Students will be asked to complete group projects in which they design interactive computing systems that address the topic of wellbeing, a broad concept that is broadly defined by the Centers for Disease Control & Prevention as:

“the presence of positive emotions and moods (e.g., contentment, happiness), the absence of negative emotions (e.g., depression, anxiety), satisfaction with life, fulfillment and positive functioning. In simple terms, well-being can be described as judging life positively and feeling good. For public health purposes, physical well-being (e.g., feeling very healthy and full of energy) is also viewed as critical to overall well-being” (<https://www.cdc.gov/hrqol/wellbeing.htm#three>).

As such, the concept of wellbeing is a broad and holistic one that will allow students to explore a variety of subtopic areas, challenges, and computing solutions. This space allows us to consider many users, many tasks and goals, with plenty of room for creativity in the lectures, discussions, and in the projects. Think outside the box!

We will also consider especially challenging design cases, such as new situations and applications, boundaries of social experience, and solutions for special populations (particularly thinking about vulnerable and marginalized groups). Solutions must be digital prototypes, but beyond that you have a great deal of freedom in what you design.

Note that not *everything* in the class will be centered on the theme. We are just trying for a bit of common ground across the projects.

Class Meetings

Meeting Time: Mon/Wed 9:30-10:45am

Meeting Place: Remote, via Microsoft Teams

Class Staff

Instructor

Andrea G. Parker, PhD

- Email: andrea [at] cc.gatech.edu
- Office Hours: TBA, by appointment

Teaching Assistants

Hannan Abdi

- Email: hannan.abdi@gatech.edu (<mailto:hannan.abdi@gatech.edu>)
- Office Hours: TBA

Ngoc Tran

- Email: ntran66@gatech.e (<mailto:ntran66@gatech.edu>) du (<mailto:ntran66@gatech.edu>)
- Office Hours: TBA

Text books

There is one **required** text book, and two recommended text books for the class. In addition there will be additional reading assigned during the semester. Note that the recommended text books are the required text books for PSYC 6023 Research Methods for HCI.

Required text book:

Interaction Design: Beyond Human - Computer Interaction (5th ed.), by Helen Sharp, Jenny Preece, Yvonne Rogers. Wiley, 2019. ISBN-13: 978-1119547259 ISBN-10: 1119547253

Book web site: <http://www.id-book.com/> (<http://www.id-book.com/>)

Available at the GT Book Store.

Amazon: [amazon.com](https://www.amazon.com/Interaction-Design-Beyond-Human-Computer-dp-1119547253/dp/1119547253/ref=mt_paperback?_encoding=UTF8&me=&qid=1566499747) [_\(https://www.amazon.com/Interaction-Design-Beyond-Human-Computer-dp-1119547253/dp/1119547253/ref=mt_paperback?_encoding=UTF8&me=&qid=1566499747\)](https://www.amazon.com/Interaction-Design-Beyond-Human-Computer-dp-1119547253/dp/1119547253/ref=mt_paperback?_encoding=UTF8&me=&qid=1566499747) and other places. It is also available in electronic format, and for rent.

NOTE: You can use the 4th edition, if you already have it; but the 5th edition is updated and covers more material.

Recommended additional textbooks:

***Understanding Your Users: A Practical Guide to User Requirements Methods, Tools, and Techniques* (2nd ed.), by Kathy Baxter, Catherine Courage, and Kelly Caine. Elsevier, 2015.**

Available at the GT Book Store.

Amazon: [amazon.com](http://www.amazon.com/Understanding-Your-Users-Second-Technologies/dp/0128002328/ref=sr_1_1?ie=UTF8&qid=1439419751&sr=8-1&keywords=understanding+your+users) [_\(http://www.amazon.com/Understanding-Your-Users-Second-Technologies/dp/0128002328/ref=sr_1_1?ie=UTF8&qid=1439419751&sr=8-1&keywords=understanding+your+users\)](http://www.amazon.com/Understanding-Your-Users-Second-Technologies/dp/0128002328/ref=sr_1_1?ie=UTF8&qid=1439419751&sr=8-1&keywords=understanding+your+users) and other places for both new and used editions. It is also available in electronic format, and for rent.

***Measuring the User Experience: Collecting, Analyzing, and Presenting Usability Metrics (Second Edition)* (2nd ed.), by Thomas Tullis & William (Bill) Albert. Waltham, MA: Morgan Kaufmann/Elsevier. 2013.**

Available at the GT Book Store.

Amazon: [amazon.com](http://www.amazon.com/Measuring-User-Experience-Second-Technologies/dp/0124157815/ref=sr_1_1?ie=UTF8&qid=1439420067&sr=8-1&keywords=Measuring+the+User+Experience%3A+Collecting%2C+Analyzing%2C+and+Presenting+Usability+Metrics) [_\(http://www.amazon.com/Measuring-User-Experience-Second-Technologies/dp/0124157815/ref=sr_1_1?ie=UTF8&qid=1439420067&sr=8-1&keywords=Measuring+the+User+Experience%3A+Collecting%2C+Analyzing%2C+and+Presenting+Usability+Metrics\)](http://www.amazon.com/Measuring-User-Experience-Second-Technologies/dp/0124157815/ref=sr_1_1?ie=UTF8&qid=1439420067&sr=8-1&keywords=Measuring+the+User+Experience%3A+Collecting%2C+Analyzing%2C+and+Presenting+Usability+Metrics) and other places for both new and used editions. It is also available in electronic format, and for rent.

Optional:

***The Design of Everyday Things*, by Donald Norman. Currency/Doubleday, 1990.**

***About Face: the Essentials of Interaction Design*. Cooper, A., Reimann, R., Cronin, D., & Noessel, C. (2014). John Wiley & Sons.**

Additional Reading:

Additional reading will be required. These readings will be posted as PDFs on Canvas. It is the responsibility of the students to obtain and read the extra material. The material in those extra readings may be included on tests and other evaluations in the class.

Grading

Assessment Philosophy: HCI is a very broad, interdisciplinary domain. There is simply a lot of information that an HCI professional needs to know and understand in order to be effective. It takes a number of different sources, a number of different types of learning to gather this breadth of material. Not everything can be covered in the lectures or discussed in class--reading journals and books is necessary. Not everything can be learned in books either--practice, field work, and team projects are called for. In order to assess your learning of this range of material, it is necessary to have a multitude of assessment techniques. This includes individual and team work; conceptual knowledge and rote memorization; calculations and aesthetic judgments; written assignments and exams. It is all important.

Your final grade is made up of four major components: individual homework assignments, team project deliverables, quizzes, and class participation. The weighting of these components is described below.

Students are expected to do their own work at all times and to follow the university's codes of academic conduct and honor code. Cases of suspected inappropriate collaboration or cheating will be immediately forwarded to the Dean of Student Affairs, and will be pursued to resolution. This is an unpleasant process for all involved, so please do not put yourself in this situation.

Students are expected to conduct themselves in a professional manner--this entails showing up for classes and exams at the appointed time. Late make-up exams will not be given. If some form of prior commitment or circumstance prevents a student from taking an exam at the given time, PRIOR arrangements (including documentation where appropriate) should be made with the instructor.

Extra work, after the semester, is not allowed to "bring up" a grade. A student's grade shall be earned from their performance solely on the semester's assignments.

Letter grades are determined almost entirely based on a semester-long accumulation of points, weighed in percentage as stated for each component as summarized below. Typically, the standard percent-to-letter conversion for graduate courses will be applied, such that 90-100% = A, 80-89% = B, 70-79% = C, 60-69% = D, less than 60% = F.

Prior experience suggests that work in this course will generally fall into one of four categories:

- A: Superior, striking, or unexpected pieces of work with excellent effort demonstrating a mastery of the subject matter and a thoughtful use of concepts discussed in class; work that shows imagination, clarity of presentation, originality, creativity, effort, and attention to detail.
- B: Good work demonstrating a capacity to use the subject matter, with adequate preparation and clear presentation.

- C: Work that is adequate but that would benefit from increased effort or preparation.
- D: Work that needs significantly more effort.

The final grade for the course will be computed by weighting the results from each assignment according to the following formula:

Component Weight

Homework 20%

Quizzes 30%

Project 40%

Participation 10%

Expectations of quality work showing mastery of course material will increase with every assignment, culminating in very high expectations for the final deliverables.

Extra Credit

It is the responsibility of each student to proactively monitor his or her progress in the course. Students must be attentive to their grades. If a student is not satisfied with his or her grade trajectory, the student should make an appointment to speak with the instructor **well in advance of the conclusion of the course**. The goal of such a meeting would be to assess areas in which the student needs improvement, brainstorm how the student can improve future assignment performance, and identify additional (non-graded) practice opportunities.

Extra credit assignments are rarely given and are not guaranteed. In particular, extra credit assignments will not be given to individual students; such opportunities--if available at all--would only be made available to the class at large.

Re-Grade Requests

Students can request a re-grade of any assignment. To do so, students must submit a written justification for the request to the instructor and TA via email, indicating which aspect of the grade you disagree with, describing succinctly and clearly why you believe the grade is incorrect. Please be aware that re-grade requests could result in a lower grade being assigned. **Any request must be made within 2 business days following the date that the instructor returns the graded material.** For example, if the material is returned on a

Wednesday, you have until end of day Friday to request a re-grade.

Examinations

3 **quizzes** are planned for the course, and will draw upon the material covered during class sessions and in assigned readings and videos.

Homework Assignments

There will be approximately two individual homework assignments. The goal of these assignments is to give you practical experience in the processes and methods used in this field.

Project

A semester-long, team-based interface design project will be given in this course. The project will be broken down into four parts, each around three weeks in duration. The overall grade for the project will be a substantial portion of your grade, with the individual parts of the project worth approximately 10% of your grade, each. The project will have your team design, prototype, and evaluate a computer-based application. The assignments will have you evaluate users, needs, and tasks in the domain, design a mock-up for a new interface, develop a prototype of that interface, and evaluate your design. The material you turn in should be presented professionally, and should stress grammatical correctness and clarity. There will be templates available to let you know more about the format for submitting your work, and to provide some idea of what is expected. You will be judged on your originality, innovativeness, quality of writing, and correctness.

Further details will accompany each assignment.

An overview of the course project can be found [here](#).

Class Participation

Full participation in this course is a critical part of your learning experience. Your contributions to class discussions, exercises, and your classmates' projects is essential. As such, you are expected to come to each class fully prepared (having read all course readings and other pre-assigned content, having made attempts to understand the material, being an active contributor to your team project, critiquing others' projects, etc.). You should be ready to discuss the material covered in the lectures and reading. Your contributions to in-class and online discussions and activities will also be a significant portion of your class participation grade. Much of the material in this course is subjective. You are encouraged to describe your views!

This class will be delivered in a synchronous remote capacity. Class sessions will include content and activities that are critical for student learning. As such, **students are expected to attend each scheduled class session and participate fully in these sessions**. Absences should be communicated and explained to the professor and TA *before* class. Repeated unexcused absence from class will result in a reduced class participation grade.

A portion of your course grade (10%) will be determined by a subjective participation rating. Specifically, 5% of your participation grade will be determined by the professor, and assessed based on your participation in and contributions to the course as overviewed above. 5% of your participation grade will be determined by peer assessments from your team members.

NOTE: A portion of your class participation grade will be determined by the other members of your project team, via an anonymous process. If you participate and "pull your weight" in the project, you will receive full points for that; you may also receive fewer points, or even bonus points, as deserved.

Classroom Technology

Slack

This term we will be using Slack for Q&A outside of content delivered the synchronous class meetings. Any questions related to content delivered during the lecture should be posed in the Teams chat. Beyond that, students should post their questions about the course in the appropriate Slack channel. We've chosen this platform in an effort to help you get help fast and efficient help from classmates, the TA, and the instructor. Rather than emailing questions to the teaching staff, I encourage you to post your questions on Slack.

Find our class signup link [here](https://join.slack.com/t/6755hcfoundations/shared_invite/zt-gprn2fb8-4YJ60wV2eKd50n51sesORA) [.\(https://join.slack.com/t/6755hcfoundations/shared_invite/zt-gprn2fb8-4YJ60wV2eKd50n51sesORA\)](https://join.slack.com/t/6755hcfoundations/shared_invite/zt-gprn2fb8-4YJ60wV2eKd50n51sesORA).

Teams

We will use Microsoft Teams to host our live, virtual class sessions. If you have not already been added to the class team, you can join manually. To join the class "team", login to Microsoft Teams using your Georgia Tech credentials, and use the code "qesx2xx".

Canvas

We will use Canvas to post announcements, course content, the semester schedule, the syllabus, lecture slides, and for homework submissions.

Staying up-to-date

Each week, summary announcements will be posted to Canvas with essential information. Paying attention to these announcements, you will help you stay up-to-date with what is happening in the course. You are also encouraged to review Slack for Q&A that may be helpful to you.

Recording

The course content, recordings, exams, and materials provided by the instructor in this course are for the use of the students enrolled in the course and cannot be further disseminated. Electronic video/audio recordings initiated by students are not permitted unless an explicit permission is granted by faculty.

Accommodations Policy

If you are a student with a disability and you need academic accommodations, please see me and contact the Disability Services (404-894-2563), <http://www.ohr.gatech.edu/ers/disability> (<http://www.ohr.gatech.edu/ers/disability>). All academic accommodations must be arranged through that office. They will then contact me with instructions.

Student Wellbeing & COVID-19

Student Illness or Exposure to Covid-19 (adapted from [here](https://provost.gatech.edu/syllabus-insert-requirements-and-guidelines-specific-fall-2020) (<https://provost.gatech.edu/syllabus-insert-requirements-and-guidelines-specific-fall-2020>).

During the semester, you may be required to quarantine or self-isolate to avoid the risk of infection to others. Quarantine is the separation of those who have been exposed to someone with Covid-19 but who are not ill; isolation is the separation of those who have tested positive for Covid-19 or been diagnosed with Covid-19 by symptoms.

If you have not tested positive but are ill or have been exposed to someone who is ill, please follow the Covid-19 Exposure Decision Tree for reporting your illness.

During the quarantine or isolation period you may feel completely well, ill but able to work as usual, or too ill to work until you recover.

Unless you are too ill to work, you should be able to complete your remote work while in quarantine or isolation.

If you are ill and unable to do course work this will be treated similarly to any student illness. The Dean of Students will have been contacted when you report your positive test or are told that it is necessary to quarantine and will notify your instructor that you may be unable to attend class events or finish your work as the result of a health issue. Your instructor will not be told the reason. The Institute has asked all faculty to be lenient and understanding when setting work deadlines or expecting students to finish work, and so you should be able to catch up with any work that you miss while in quarantine or isolation. Your instructor may make available any video recordings of classes or slides that have been used while you are absent, and may prepare some complementary asynchronous assignments that compensate for your inability to participate in class sessions.

Ask your instructor for the details.

CARE Center, Counseling Center, Stamps Health Services, and the Student Center (adapted from [here](https://provost.gatech.edu/syllabus-insert-requirements-and-guidelines-specific-fall-2020) (<https://provost.gatech.edu/syllabus-insert-requirements-and-guidelines-specific-fall-2020>))

These uncertain times can be difficult, and many students may need help in dealing with stress and mental health. The CARE Center and the Counseling Center, and Stamps Health Services will offer both in-person and virtual appointments. Face-to-face appointments will require wearing a face covering and social distancing, with exceptions for medical examinations. Student Center services and operations are available on the Student Center website. For more information on these and other student services, contact the Vice President and Dean of Students or the Division of Student Life.

Accommodations for Students at Higher Risk for Severe Illness with Covid-19 (adapted from [here](https://provost.gatech.edu/syllabus-insert-requirements-and-guidelines-specific-fall-2020) (<https://provost.gatech.edu/syllabus-insert-requirements-and-guidelines-specific-fall-2020>))


Students may request an accommodation through the Office of Disability Services (ODS) due to 1) presence of a condition as defined by the Americans with Disabilities Act (ADA), or 2) identification as an individual of higher risk for Covid-19, as defined by the Centers for Disease Control (CDC). Registering with ODS is a 3-step process that includes completing an application, uploading documentation related to the accommodation request, and scheduling an appointment for an “intake meeting” (either in person or via phone or video conference) with a disability coordinator.

If you have been approved by ODS for an accommodation, I will work closely with you to understand your needs and make a good faith effort to investigate whether or not requested accommodations are possible for this course. If the accommodation request results in a fundamental alteration of the stated learning outcome of this course, ODS, academic advisors, and the school offering the course will work with you to find a suitable alternative that as far as possible preserves your progress toward graduation.

Some Other Comments...

Respect and Consideration: Please, above all, be respectful and considerate of others in the class. It should go without saying, but this includes showing up on time for classes, team meetings, exams, etc. Please turn your cell phone, pager, PDA, or any other alarms and ringers **off** while you are in class. Given the remote delivery of this course, please also make sure to be respectful in all online course environments (e.g., muting while not speaking during synchronous class sessions, respectful communication in the online chat, etc.) If you disturb the class, you may be asked to leave.

Course Summary:

Date	Details	Due
Mon Aug 24, 2020	 D0: Team Name, Initial Topic, and Team Contract (https://gatech.instructure.com/courses/138720/assignments/551338)	due by 11:59pm
Fri Sep 4, 2020	 Project Panels #1 (https://gatech.instructure.com/courses/138720/assignments/575656)	due by 11:59pm
Fri Sep 11, 2020	 D1 - Understanding the Problem (https://gatech.instructure.com/courses/138720/assignments/551340)	due by 11:59pm
Wed Sep 16, 2020	 Quiz 1 (https://gatech.instructure.com/courses/138720/assignments/591336)	due by 11:59pm
Tue Sep 29, 2020	 Project Panels #2 (https://gatech.instructure.com/courses/138720/assignments/592188)	due by 11:59pm
Wed Sep 30, 2020	 Homework #1 (HW1): UI Critique (https://gatech.instructure.com/courses/138720/assignments/591482)	due by 11:59pm
Mon Oct 12, 2020	 D2 - Requirements Gathering, Establishing Requirements & Developing Design Alternatives (https://gatech.instructure.com/courses/138720/assignments/589142)	due by 11:59pm
Mon Oct 26, 2020	 Quiz 2 (https://gatech.instructure.com/courses/138720/assignments/619944)	due by 10:45am
Fri Nov 6, 2020	 D3 - System Prototype and Evaluation Plan (https://gatech.instructure.com/courses/138720/assignments/551344)	due by 11:59pm
Thu Nov 12, 2020	 HW #2: Visual Design & Prototyping (https://gatech.instructure.com/courses/138720/assignments/623698)	due by 11:59pm
Wed Nov 18, 2020	 Quiz 3 (https://gatech.instructure.com/courses/138720/assignments/638436)	due by 11am
	 Quiz 3	

Sat Nov 21, 2020

 <https://gatech.instructure.com/courses/138720/assignments/638436> due by 11:59pm
(2 students)

Wed Dec 2, 2020


 [D4 - Discount Evaluation](https://gatech.instructure.com/courses/138720/assignments/629718)
<https://gatech.instructure.com/courses/138720/assignments/629718> due by 11:59pm

 [Team Project Extra Credit](https://gatech.instructure.com/courses/138720/assignments/634504)
<https://gatech.instructure.com/courses/138720/assignments/634504> due by 11:59pm

 [\(old\) D4 - Discount Evaluation](https://gatech.instructure.com/courses/138720/assignments/551346)
<https://gatech.instructure.com/courses/138720/assignments/551346>

 [D2 - Design Alternatives](https://gatech.instructure.com/courses/138720/assignments/551342)
<https://gatech.instructure.com/courses/138720/assignments/551342>

 [Final Exam](https://gatech.instructure.com/courses/138720/assignments/551348)
<https://gatech.instructure.com/courses/138720/assignments/551348>

 [Homework 2: Two-person Team
Mini-Design: Auditory User Interface](https://gatech.instructure.com/courses/138720/assignments/551352)
<https://gatech.instructure.com/courses/138720/assignments/551352>

 [In-Class Design Exercise](https://gatech.instructure.com/courses/138720/assignments/551354)
<https://gatech.instructure.com/courses/138720/assignments/551354>

 [In-Class Design Exercise 2](https://gatech.instructure.com/courses/138720/assignments/551356)
<https://gatech.instructure.com/courses/138720/assignments/551356>

 [Participation Grade - Instructor](https://gatech.instructure.com/courses/138720/assignments/655106)
<https://gatech.instructure.com/courses/138720/assignments/655106>

 [Participation Grade - Peer](https://gatech.instructure.com/courses/138720/assignments/655096)
<https://gatech.instructure.com/courses/138720/assignments/655096>
