

# CAP5100 Human-Computer Interaction

Course Syllabus, last revised 1/7/2019

## Course Logistics

### *Meeting Times:*

- MWF Period 8 (3:00pm-3:50pm)

### *Meeting Location:*

- Computer Science & Engineering E221 (CSE E221)

## Instructor Information

### *Instructor: Eric Ragan, PhD*

- E-mail address: [eragan@ufl.edu](mailto:eragan@ufl.edu) (put "HCI class" in the subject)
- Office location: CSE Building, E458

### *Office hours:*

- Schedule in advance: MW 7<sup>th</sup> Period (1:55pm – 2:45pm)
- Or by appointment

**Class web site:** available on <https://elearning.ufl.edu/>

## Course Information

### **Catalog Description**

A study of the major topics in human-computer interaction, including interface design (principles, theories), software tools, virtual environments, interactive devices, collaboration, and visualization.

### **What is this course, and who is it for?**

This course (HCI) is directed towards graduate students who wish to learn the core concepts and current research in the design and evaluation of human-computer interfaces. This is a research-centric course. While the course requires substantial technical development, the emphasis is on the design, analysis, and evaluation of human-centered interfaces in accordance with common methodologies.

### **Upon completion of this course, students will be able to:**

- Characterize and critique core concepts and methods of human-computer interaction
- Design and build human-computer interfaces
- Evaluate human-computer interfaces
- Analyze research in human-computer interaction

### **Course Components:**

This course involves the following core components:

- **Lectures:** core HCI topics will be presented and discussed
- **Literature analysis:** recent HCI research conference and journal publications will be read, analyzed, and discussed.
- **Project:** students will create and evaluate a human-computer interface using common research methods
- **Exams:** written exams on course topics

## How does HCI fit in with other courses?

The HCI course is in of a set of three courses that include *Interaction Design* and *Research Methods*, but the other courses are not required to take this course. The overarching concept is that the three courses in total will cover the pipeline of design, implementation, and evaluation. Because the steps of the pipeline are tightly coupled, you will end up doing some of all stages in this course. However, most of the focus in this course will be on implementation and evaluation. The course is designed to emphasize the core concepts and methods used for HCI research and development.

## Programming

### Tools and Languages

You can use any development environment and programming language appropriate for class assignments or project works. This class involves group assignments, and individual requirements will vary based on team interests and abilities. Students are expected to be able to independently learn the appropriate technology or development skills as needed for their projects.

### Programming Requirements

Students should be confident and experienced with independently learning new tools or programming libraries. Programming at a Data Structures level is required. You will be required to implement an interactive system.

### Pre-requisites and Co-requisites

COP 3530, and any one programming course (COP 2800, COP 3275, or COP 3229)

## Workload:

### Weekly:

Class lectures, readings outside of class, in-class presentations/discussions

### Semester:

*January:* Students will conduct a study that compares simple interfaces for a web-based task.

*February-March:* Students will identify an HCI research goal or interface. Students will create a new interface as appropriate for the selected topic.

*March-April:* Students will evaluate the new interface.

**The course requires an average to above-average time commitment.**

## Course Materials

**Material and Supply Fees:** None

**Required Textbooks and Software:** None. There is no required textbook for the course.

**Resources:** This course will use the Canvas e-Learning course management system to post grades and to communicate with class members. If you have a question about the course that other students could benefit from hearing the answer, please post to the appropriate discussion thread on Canvas rather than sending individual emails to the instructor/TA.

**Required Reading:** Required reading assignments will be given from articles and research papers that are available through the university's digital library subscriptions.

## Grading Policy

Course grades will be calculated based on a combination of weighted scores for projects, homework, exams, and quizzes. The final grade (after applying weights) will be truncated to the nearest whole number to

determine the letter grade.

Evaluation Weights		Grading Scale
Project:	45%	100-92 A, 91-90 A-
Assignments:	20%	89-88 B+, 87-82 B, 81-80 B-
Concept review:	20%	79-78 C+, 78-72 C, 71-70 C-
Exams:	14%	69-68 D+, 68-62 D, 61-60 D-
Research participation:	1%	59-0 E

### **Late policy**

Students can submit an assignment one day late to earn up to 50% of the assignment total; otherwise, a score of zero will be earned.

### **Project (45% of final grade)**

Students will work in teams to complete a semester-long project involving the design, development, and evaluation of human-computer system. Projects are expected to be designed and presented from the context of HCI topics, methods, and theories covered in the course. More details on project concepts and expectations will be given in class. Early in the semester, teams will decide on project goals and develop an execution plan to be approved or revised by the instructor, and students will be expected to provide status updates and demonstrations throughout the class. Unless otherwise stated, each team is expected to work together to produce a single deliverable.

### **Assignments (20% of final grade)**

Assignments will be described as the course progresses. Paper summaries fall under this category. Assignments may include in-class activities as well as out-of-class work. Unless otherwise stated, homework must be submitted before class on the given deadline to be eligible for full credit.

### **Concept review (20% of final grade)**

Some days of the class will be dedicated to concept review, analysis, and critique. Students will present and discuss assigned research papers in class. Presentation length and discussion requirements will be determined by the instructor prior to presentation topic assignments, as specifics will depend on the number of enrolled students and course logistics. In addition, active and meaningful participation in discussions led by other students will contribute towards the presentation grade. Concept review sessions have two components:

- 1) In-class presentations and discussions lead by small teams
- 2) Concept summaries submitted by all students (including presenters and discussion leaders). Concept summaries are due before the start of the class following the concept review day.

For grading, each of the two components will make up half of the contribution for the concept review score.

### **Exams and quizzes (14% of final grade)**

Up to two exams will be administered in class. Smaller exams may also be given with prior notice.

### **Research participation (1% of final grade)**

Students can participate in an approved research study related or relevant to HCI to receive credit for the research participation component of the grade. Students may participate in an additional study for an additional 1%. Participation must be completed during the semester. Students who do not want to participate in a research study may opt for an alternative paper review assignment if they notify the instructor before the first exam.

### **Extra Assignments (extra credit)**

Opportunities to earn extra credit or are not promised, but the instructor may opt to offer supplemental assignments for extra credit. Details will be determined per assignment and must be agreed upon by both the instructor and the student.

## Graduate Grading Scale Note:

Graduate students need an overall GPA of 3.00 truncated and a 3.00 truncated GPA in their major (and in the minor, if a minor is declared) at graduation. For more information on grades and grading policies, please visit: <http://gradcatalog.ufl.edu/content.php?catoid=4&navoid=907#grades>

## Honor Code & Collaboration:

High level questions, syntax topics, and algorithms can be discussed amongst each other and amongst the groups. Not allowed in this course include the following:

- 1) **plagiarism** (misrepresenting others' ideas as your own, can be fixed with simple citation),
- 2) **copying code**,
- 3) **social loafing** (e.g., for group work), and
- 4) **work offensive to others**.

As for other courses in CISE in the past, offenders will be held to the UF Honesty Policy (see below) including reporting incidents to the Dean of Students. The results of this have included failing grades, ethic lectures, and a permanent mark in records (which can lead to expulsion).

## Course Policies

### Attendance:

Attendance will not be graded. Engagement in class discussions is graded, however, so if students must miss class, the instructor recommends increasing participation on the other days. If a student is sick or will be absent for a significant period of time, please contact the instructor to work out a way to catch up. Providing the instructor with advanced notice (at least 2 weeks) is expected.

### Make-ups:

Students who contact the professor **before the due date** with appropriate requests for extension and/or makeup assignments will be given an additional amount of time to make up late assignments equal to the time lost due to the unforeseen circumstance.

### Incompletes:

Incompletes will be granted for only the most extreme circumstances, e.g., medical or family reasons. To be considered for an incomplete, the student **must** 1) let the professor know in advance that they are seeking an incomplete, and 2) provide documentation to support the request.

Requirements for class attendance and make-up exams, assignments, and other work are consistent with university policies that can be found at: <https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>

### Classroom Expectations:

To be courteous to your fellow students, please:

- Turn all cell phone ringers to silent and step outside to take calls.
- Turn off all audible notifications on laptops and phones.
- Refrain from texting during class.
- Use laptops only for taking notes or looking up relevant information (no Facebook, YouTube, Twitter, etc.).

## University Policies and Resources

### University Honesty Policy

UF students are bound by The Honor Pledge which states, "We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code." On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied:

*"On my honor, I have neither given nor received unauthorized aid in doing this assignment."*

The Honor Code (<https://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/>) specifies a number of

behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor or TAs in this class.

## Students Requiring Accommodations

Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565, <https://www.dso.ufl.edu/drc> ) by providing appropriate documentation. Once registered, students will receive an accommodation letter which must be presented to the instructor when requesting accommodation. Students with disabilities should follow this procedure as early as possible in the semester.

## Student Privacy

There are federal laws protecting your privacy with regards to grades earned in courses and on individual assignments. For more information, please see:

<http://registrar.ufl.edu/catalog0910/policies/regulationferpa.html>

## UF Counseling Services

Resources are available on-campus for students having personal problems or lacking clear career and academic goals. The resources include:

**Counseling and Wellness Center:** <http://www.counseling.ufl.edu/cwc>,  
and 392-1575; and the University Police Department: 392-1111  
or 9-1-1 for emergencies.

**U Matter, We Care:** If you or a friend is in distress, please contact [umatter@ufl.edu](mailto:umatter@ufl.edu) or 352 392-1575 so that a team member can reach out to the student.

## Safe and inclusive learning environment

The University of Florida shall actively promote equal opportunity policies and practices conforming to laws against discrimination. The Herbert Wertheim College of Engineering values broad diversity within our community and is committed to individual and group empowerment, inclusion, and the elimination of discrimination. It is expected that every person in this class will treat one another with dignity and respect regardless of gender, sexuality, disability, age, socioeconomic status, ethnicity, race, and culture.

If you feel like your performance in class is being impacted by discrimination or harassment of any kind please contact your instructor or any of the following:

- Your academic advisor or Graduate Program Coordinator
- Robin Bielling, Director of Human Resources, 352-392-0903, [rbielling@eng.ufl.edu](mailto:rbielling@eng.ufl.edu)
- Curtis Taylor, Associate Dean of Student Affairs, 352-392-2177, [taylor@eng.ufl.edu](mailto:taylor@eng.ufl.edu)
- Toshikazu Nishida, Associate Dean of Academic Affairs, 352-392-0943, [nishida@ufl.edu](mailto:nishida@ufl.edu)

### *Sexual Discrimination, Harassment, Assault, or Violence*

If you or a friend has been subjected to sexual discrimination, sexual harassment, sexual assault, or violence contact the Office of Title IX Compliance, located at Yon Hall Room 427, 1908 Stadium Road, (352) 273-1094, [title-ix@ufl.edu](mailto:title-ix@ufl.edu)

## Software Use

All faculty, staff, and students of the University are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against University policies and rules, disciplinary action will be taken as appropriate. We, the members of the University of Florida community, pledge to uphold ourselves and our peers to the highest standards of honesty and integrity.

### ***Course Evaluation***

Students are expected to provide feedback on the quality of instruction in this course by completing online evaluations at <https://evaluations.ufl.edu/evals>. Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at <https://evaluations.ufl.edu/results/>.

## Course Topics, Schedule, and Major Deadlines

This schedule is tentative and may change (notice will be given if changes are made).

<b>Mondays</b>	<b>Wednesdays</b>	<b>Fridays</b>
Jan. 7 Course overview	Jan. 9 Foundations	Jan. 11 History of interaction
Jan. 14 User-centered design	Jan. 16 Design, function, & emotion <b>Reading:</b> Design principles	Jan. 18 <b>Concept:</b> Perception and attention
Jan. 21 Holiday – no class	Jan. 23 Project planning <b>Reading:</b> Knowledge and evaluation	Jan. 25 <b>Concept:</b> Formal models
Jan. 28 Evaluation methodology	Jan. 30 Project pitches <b>Reading:</b> Perspectives on HCI	Feb. 1 <b>Concept:</b> Distributed cognition
Feb. 4. Experimental design <b>Project: Proposal</b>	Feb. 6 Project planning <b>Reading:</b> Privacy	Feb. 8 <b>Concept:</b> Fitts' law
Feb. 11 Ethics, user studies, and IRB <b>Project: Related literature</b>	Feb. 13 Transparency and deception <b>Reading:</b> Ethics and deception	Feb. 15 <b>Concept:</b> Common ground
Feb. 18 Review <b>Project: IRB training</b>	Feb. 20 <b>Exam I</b>	Feb. 22 <b>Concept:</b> Embodied interaction
Feb. 25 Questionnaires and surveys <b>Project: IRB submission</b> <b>Project: Preliminary video</b>	Feb. 27 Interviews and focus groups <b>Reading:</b> Qualitative analysis	Mar. 1 <b>Concept:</b> Context
Mar. 4 Spring break – no class	Mar. 6 Spring break – no class	Mar. 8 Spring break – no class
Mar. 11 Project peer review	Mar. 13 Project peer review <b>Reading:</b> Multimodal interaction	Mar. 15 <b>Concept:</b> Naturalness
Mar. 18 * Project review <b>Project: Usability evaluation complete</b>	Mar. 20 * Crowdsourcing <b>Reading:</b> Crowdsourcing	Mar. 22 <b>Concept:</b> Extended data capture
Mar. 25 Plans and context <b>Project: Preliminary report</b>	Mar. 27 * Qualitative methods <b>Reading:</b> Emotion and motivation	Mar. 29 * Qualitative methods Transparency
Apr. 1 Reporting data <b>Project: Pilot study complete</b>	Apr. 3 Inferential statistics <b>Reading:</b> Data representation	Apr. 5 <b>Concept:</b> In the wild
Apr. 8 Statistics and reporting	Apr. 10 Project review <b>Reading:</b> Controlled experiments	Apr. 12 <b>Concept:</b> Alternative evaluation
Apr. 15 Human computation	Apr. 17 <b>Exam II</b>	Apr. 19 Project review
Apr. 22 <b>Project:</b> Project presentations	Apr. 24 <b>Project:</b> Project presentations <b>Project: Final deliverables</b>	Apr. 26 Reading day – no class
Apr. 29 No class	May. 1 Final Exam 12:30 PM - 2:30 PM	May. 3 No class