

# CAP5100 Human-Computer Interaction

Course Syllabus, last revised 1/6/2023

## Course Logistics

### **Meeting Times:**

- MWF Period 4 (10:40 AM - 11:30 AM)

### **Meeting Location:**

- McCarty Hall A ([MCCA](#)), Room G186
  - \* Note there are multiple McCarty buildings. This class is in “McCarty A”
  - \* This is an in-person class with class sessions at the scheduled time

## 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:**

- TBD
- Please email to schedule an 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

### **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, theories, 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)

## 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 different graded components. The final grade (after applying weights) will be truncated to the nearest whole number to determine the letter grade (for example, a final score of 89.9 will be interpreted as 89).

Percent	Grade
92 - 100	A
90 - 91	A-
88 - 89	B+
82 - 87	B
80 - 81	B-
78 - 79	C+
72 - 77	C
70 - 71	C-
68 - 69	D+
62 - 67	D
60 - 61	D-
0 - 59	E

Each graded item will fall into a separate category of activity with different weights applied to different categories. Grading will be based on a weighted total of different graded components:

<b>Evaluation Weights</b>	
Projects:	40%
Exams:	25%
Homework:	20%
Quizzes and activities:	14%
Research awareness:	1%

Grades for specific assignments will be periodically posted to the UF eLearning system. While the system will show individual assignment scores, please note that total scores may not account for component weights, future assignments, or missed assignments. Exercise caution when inferring your overall grade in the course based on preliminary online postings. In other words, your course total score in Canvas may not correspond to your actual course grade due to administrative settings and weights.

### **Late policy**

By default, all submissions of student work are due by the start of class time on the day of the deadline. Students can submit homework assignments one day late to earn up to 50% of the assignment total; otherwise, a score of zero will be earned. The partial credit opportunity does not apply to exams, project deliverables, or research awareness components.

### **Project (40% 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.

### **Exams (25% of final grade)**

Up to two exams will be administered in class. The formats of these exams will be described prior to exam days. Exams may require students to have a laptop computer.

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

Homework 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.

### **Quizzes and activities (14% of final grade)**

This class requires educational activities during scheduled course times. Class participation is expected and required to complete in-class activities.

- Examples of activities may include design exercises, student presentations, system analyses, research discussions, or team project discussions. Not all in-class activities are guaranteed to contribute towards the course grade.
- On some days, short quizzes or assignments will be administered in class. Specific dates or details about quiz and in-class assignments are not guaranteed to be announced ahead of time. Quizzes are designed to be short, and each usually consists of a couple questions or exercises. A time limit will be provided for each quiz. Students must be present at the start of the quiz to be eligible to participate; otherwise, a score of zero will be earned.

In rare cases where students are unable to complete an in-class activity due to excused absence, alternative assignments may be given on a case-by-case basis for students who provide advanced

notice. Alternative assignments are not guaranteed for all cases.

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

This course includes an introduction to research involving human-subjects studies and enables awareness of different active research projects involving human and technology at the University of Florida. The most common way to receive full credit for the research awareness component of the class is to participate in an approved UF research study (> 0 credits) related or relevant to human-computer interaction. Students may also optionally participate in an additional (≥ 1 credit) study for one additional 1%. The studies do not need to be directly related to information visualization.

Participation must be completed during the semester by the last day of classes (before reading day), and only approved studies registered through the CISE Department's SONA system (<https://ufl-cise.sona-systems.com>) are eligible. Students will need to (1) create an account in the system, (2) select the correct course name and number for this class, and (3) schedule and participate in an approved study to receive credit.

Students who do not wish to participate in a research study to satisfy the "research awareness" component have the option to complete a research review of a current or recent research project at UF by a faculty member in the CISE Department working in the research area of human-centered computing. This alternative assignment requires a 1-page (max) written submission covering both: 1) a one-paragraph summary of a recent research paper by the chosen faculty member published in the past 2 years, and 2) a half-page summary of an interview with a current graduate student working with the chosen faculty member. The interview should be about new research plans related to the summarized paper.

- The research awareness component is **mandatory** and makes 1% of the overall course grade.
- Students can **optionally** complete one **additional** study for an additional 1% extra credit.
- Students who opt for the alternative format must notify the instructor by email prior to the date of the first exam.
- The deadline for all research awareness completion is the **last day of class** (i.e., before reading day and before final exam week).

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

Opportunities to earn extra credit are not promised other than the additional "research awareness" opportunity. On rare occasions, the instructor may opt to offer supplemental on-topic assignments for extra credit. Details will be determined per assignment and must be agreed upon by both the instructor and the student prior to completion, and prior to the last day of class (i.e., before reading day or exam week).

### **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>

## **Course Policies**

### **Attendance:**

Class attendance is expected. Class regularly involves graded activities that require attendance and participation in order to earn credit. 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. Any graded class activities missed (e.g., quizzes, exams, presentations, homework submissions) during unapproved absences cannot be made up without the instructor's prior approval and a valid excuse. Students are responsible for knowledge of concepts and assignment requirements presented during any missed class periods whether excused or unexcused.

Excused absences must be consistent with university policies in the Graduate Catalog (<https://catalog.ufl.edu/graduate/regulations> ) and require appropriate documentation. Additional information can be found here: <https://catalog.ufl.edu/UGRD/academic-regulations/attendance-policies/>

For make-up assignments, students must contact the professor **before the due date** with appropriate requests to be considered by the instructor for extension and/or makeup assignments. If approved, an additional amount of time to make up late assignments may be given equal to the time lost due to the unforeseen circumstance. 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 at in advance that they are seeking an incomplete, and 2) provide documentation to support the request.

### **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 at 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.

## **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://sccr.dso.ufl.edu/policies/student-honor-code-student-conduct-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.

**Plagiarism** (misrepresenting others’ ideas as your own) is a serious violation of the honesty policy. Any time writing, ideas, or code is taken from another person or source without acknowledgement, this is considered plagiarism. This includes copying text from papers or from shared student notes—even when adjusting some words or language. Many cases of plagiarism can be avoided simply by providing a citation to give appropriate credit to the original source of the content for each idea from another place.

### **Honor Code Violations**

As for other courses in CISE in the past, offenders will be held to the UF Honesty Policy

(<https://sccr.dso.ufl.edu/policies/student-honor-code-student-conduct-code/>) 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).

**Zero-tolerance policy:** This course adopts a **zero-tolerance policy** for honor code violations, cheating, or plagiarism. At any time that a student is caught cheating with compelling evidence, the faculty member is required to report the incident to the University. The faculty member will recommend to the University a **minimum punishment of a final grade of E for the course** (lowest letter grade possible) in addition to a score of 0 for assignment/test where the cheating occurred. The University maintains records of such reports filed across all the courses the student takes and will make the final decision; the University may choose a more severe punishment including suspension.

### **Collaboration limitations:**

High level questions, procedures, and algorithms can be discussed amongst each other and amongst the students/groups. Sharing of work is not permitted for individual assignments. In addition, while group work typically expects collaboration and sharing of materials within the group, some group assignments may include individual components that students should complete individually without collaboration or sharing. Examples not allowed in this course include the following:

- 1) **plagiarism** (misrepresenting others' ideas as your own; can often be fixed with simple citation),
- 2) **sharing or copying code** without permission and attribution,
- 3) **sharing questions or answers of assignments, quizzes, or exam** with other students
- 4) **social loafing** (e.g., for group work), and
- 5) work that is predictably or intentionally **offensive** to others.

### **Students Requiring Accommodations**

Students with disabilities who experience learning barriers and would like to request academic accommodations should connect with the disability Resource Center by visiting:

<https://disability.ufl.edu/students/get-started/>.

It is important for students to share their accommodation letter with their instructor and discuss their access needs as early as possible in the semester.

### **Course Evaluation**

Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at <https://gatorevals.aa.ufl.edu/students/>. Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via <https://ufl.bluera.com/ufl/>. Summaries of course evaluation results are available to students at <https://gatorevals.aa.ufl.edu/public-results/>.

### **In-Class Recording**

Students are allowed to record video or audio of class lectures. However, the purposes for which these recordings may be used are strictly controlled. The only allowable purposes are (1) for personal educational use, (2) in connection with a complaint to the university, or (3) as evidence in, or in preparation for, a criminal or civil proceeding. All other purposes are prohibited. Specifically, students may not publish recorded lectures without the written consent of the instructor.

A "class lecture" is an educational presentation intended to inform or teach enrolled students about a particular subject, including any instructor-led discussions that form part of the presentation, and delivered by any instructor hired or appointed by the University, or by a guest instructor, as part of a University of Florida course. A class lecture does not include lab sessions, student presentations, clinical presentations such as patient history, academic exercises involving solely student participation, assessments (quizzes, tests, exams), field trips, private conversations between students in the class or between a student and the faculty or lecturer during a class session.

Publication without permission of the instructor is prohibited. To “publish” means to share, transmit, circulate, distribute, or provide access to a recording, regardless of format or medium, to another person (or persons), including but not limited to another student within the same class section. Additionally, a recording, or transcript of a recording, is considered published if it is posted on or uploaded to, in whole or in part, any media platform, including but not limited to social media, book, magazine, newspaper, leaflet, or third party note/tutoring services. A student who publishes a recording without written consent may be subject to a civil cause of action instituted by a person injured by the publication and/or discipline under UF Regulation 4.040 Student Honor Code and Student Conduct Code.

### **Commitment to a Safe and Inclusive Learning Environment**

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
- Jennifer Nappo, Director of Human Resources, 352-392-0904, [jpennacc@ufl.edu](mailto:jpennacc@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@eng.ufl.edu](mailto:nishida@eng.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.

## **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: <https://registrar.ufl.edu/ferpa.html>

## **Campus Resources**

The University of Florida offers a variety of services available for all students. Please take advantage of the services that are here for your benefit, support, and safety.

### *Health and Wellness*

#### **U Matter, We Care:**

Your well-being is important to the University of Florida. The U Matter, We Care initiative is committed to creating a culture of care on our campus by encouraging members of our community to look out for one another and to reach out for help if a member of our community is in need. If you or a friend is in distress, please contact [umatter@ufl.edu](mailto:umatter@ufl.edu) so that the U Matter, We Care Team can reach out to the student in distress. A nighttime and weekend crisis counselor is available by phone at 352-392-1575. The U Matter, We Care Team can help connect students to the many other helping resources available including, but not limited to, Victim Advocates, Housing staff, and the Counseling and Wellness Center. Please remember that asking for help is a sign of strength. In case of emergency, call 9-1-1.

**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.

#### **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)

**Sexual Assault Recovery Services (SARS)**

Student Health Care Center, 392-1161.

**University Police Department** at 392-1111 (or 9-1-1 for emergencies), or <http://www.police.ufl.edu/>.

Academic Resources

**E-learning technical support**, 352-392-4357 (select option 2) or e-mail to Learning-support@ufl.edu. <https://lss.at.ufl.edu/help.shtml>.

**Career Resource Center**, Reitz Union, 392-1601. Career assistance and counseling. <https://www.crc.ufl.edu/>.

**Library Support**, <http://cms.uflib.ufl.edu/ask>. Various ways to receive assistance with respect to using the libraries or finding resources.

**Teaching Center**, Broward Hall, 392-2010 or 392-6420. General study skills and tutoring. <https://teachingcenter.ufl.edu/>.

**Writing Studio, 302 Tigert Hall**, 846-1138. Help brainstorming, formatting, and writing papers. <https://writing.ufl.edu/writing-studio/>.

**Student Complaints Campus**: [https://www.dso.ufl.edu/documents/UF\\_Complaints\\_policy.pdf](https://www.dso.ufl.edu/documents/UF_Complaints_policy.pdf).

**On-Line Students Complaints**: <http://www.distance.ufl.edu/student-complaint-process>.



## Course Topics, Schedule, and Major Deadlines

This schedule is tentative and may change. Advance notice will be given for any deadline changes.

<b>Mondays</b>	<b>Wednesdays</b>	<b>Fridays</b>
Jan. 9 Course introduction	Jan. 11 Foundations	Jan. 13 History of interaction
Jan. 16 Holiday – No class	Jan. 18 Perspectives of HCI <b>HW:</b> Reading 1 - Design principles	Jan. 20 Design and affordances
Jan. 23 User-centered design <b>HW:</b> Reading 2 – Perspectives on HCI	Jan. 25 User-centered design	Jan. 27 Project overview
Jan 30. Project planning <b>HW:</b> Reading 3 – Knowledge and eval.	Feb. 1 <b>Project pitches</b>	Feb. 3 Project development
Feb. 6 Perception and cognition <b>Project:</b> Proposal	Feb. 8 Ethics of working with people <b>HW:</b> Reading 4 – Perception and attent.	Feb. 10 Basics of user studies
Feb. 13 Formal models <b>HW:</b> IRB training	Feb. 15 Formal models	Feb. 17 Project development <b>HW:</b> Reading 5 – Formal models
Feb. 20 Concept review <b>HW:</b> Keystroke-level modeling	Feb. 22 Finalize preliminary evaluation plan <b>Project:</b> Related literature	Feb. 24 <b>Exam I</b>
Feb. 28 Plans and context	Mar. 1 Situated and distributed cognition <b>HW:</b> Reading 6 – Distributed cognition	Mar. 3 Project development <b>Project:</b> Preliminary video
Mar. 6 Qualitative analysis <b>HW:</b> Reading 7 – Qualitative examples	Mar. 8 Project review	Mar. 10 Embodied interaction <b>HW:</b> Reading 8 – Embodied interaction
Mar. 13 Spring break – no class	Mar. 15 Spring break – no class	Mar. 17 Spring break – no class
Mar. 20 Experiments and inferential statistics <b>Project:</b> Preliminary report	Mar. 22 Experiments and inferential statistics	Mar. 24 Experiments and inferential statistics
Mar. 27 Data reporting and visualization <b>HW:</b> Reading 9 – Data representation	Mar. 29 Project review <b>HW:</b> Statistics	Mar. 31 Accessibility
Apr. 3 Common ground <b>HW:</b> Reading 10 – Common ground	Apr. 5 Finalize evaluation plan	Apr. 7 Naturalness and multimodal interfaces <b>HW:</b> Reading 11 – Naturalness
Apr. 10 <b>Project:</b> Controlled experiment <b>Project:</b> Pilot study complete	Apr. 12 <b>Project:</b> Controlled experiment	Apr. 14 <b>Project:</b> Controlled experiment
Apr. 17 Final review	Apr. 19 <b>Exam II</b>	Apr. 21 <b>Project:</b> Project presentations
Apr 24 <b>Project:</b> Project presentations	Apr. 26 <b>Project:</b> Project presentations <b>Project:</b> Final project deliverables	Apr. 28 No class