CEN 4721 Human-Computer Interaction (Spring 2022)

Course Syllabus, last revised 12/20/2021

Course Logistics

Meeting Times:
- Monday, Wednesday, Friday
  10:40 AM - 11:30 AM (Period 4)

Meeting Location:
- Building: McCarty Hall B (MCCB)
  * Note there are multiple McCarty buildings
- Room G086

Instructor Information

Instructor: Eric Ragan, PhD
- E-mail address: eragan@ufl.edu (put "HCI class" in the subject)
- Office location: CSE 458 or Zoom by appointment

TA: Jesse Smith
- E-mail address: jd.smith@ufl.edu (put "HCI class" in the subject)
- Office location: Online

Office hours:
- TBD
- By appointment. Please email in advance (put "HCI class" in the subject)

Class web site: Available through https://elearning.ufl.edu/

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 is directed towards **junior and senior** undergraduate students who wish to learn the basic concepts and current research into the design, creation, and evaluation of 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 projects, systems, and designs based on human needs and task requirements

Course Materials

Material and Supply Fees: *None*

Required Textbooks and Software:

Required: *None*

Recommended (optional):
- Design of Everyday Things, Donald Norman
- The Human-Computer Interaction Handbook, Fundamentals, Evolving Technologies, and Emerging Applications. Edited by Julie A. Jacko. Third edition.

*Available through the UF library website.

Course Information

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. Selected readings and content will be assigned from UF library resources, videos, and other reading that will be provided by the instructor via the e-Learning Canvas.

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

Required Technology: A **reliable Internet connection** is expected. A **microphone** is needed for voice interactions and to participate in certain online class activities. Students **may be required to install software** on their own computers to in order to complete mandatory course components.

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, software, programming languages, 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 Data Structures with minimum grade of C.

Privacy
Our class sessions may include virtual online sessions, which may be audio visually recorded for students in the class to refer back and for enrolled students who are unable to attend live. Students who participate with their camera engaged or utilize a profile image are agreeing to have their video or image recorded. If you are unwilling to consent to have your profile or video image recorded, be sure to keep your camera off and do not use a profile image. Likewise, students who un-mute during class and participate orally are agreeing to have their voices recorded. If you are not willing to consent to have your voice recorded during class, you will need to keep your mute button activated and communicate exclusively using the "chat" feature, which allows students to type questions and comments live. The chat will not be recorded or shared. As in all courses, unauthorized recording and unauthorized sharing of recorded materials is prohibited.

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.

Course Components:
This course involves the following activities:
- **Lectures**: Core HCI topics will be presented and discussed.
- **Reading**: Supplemental reading assignments on many HCI topics.
- **Activities**: In-class exercises to practice and reinforce core concepts.
- **Homework**: Homework assignments to practice and reinforce core concepts.
- **Projects**: Create and evaluate human-computer interfaces using common research methods.
- **Exams:** Quizzes or exams on course topics.

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

Course Communication
Please regularly check UF email and the Announcements section of Canvas for any announcements related to the class. Announcements will also be given at the beginning of the class period. Sensitive questions/comments should be emailed to the instructor (not using the Canvas Messaging client), including "HCI" at the start of the subject line. If there are general questions (related to a certain concept) please post them in the "Discussions" section of the Course Website. All members of the class are expected to follow the rules of common courtesy in all email messages, threaded discussions, and chats. Any discourteous conduct will result in a loss of all class quiz points. Please familiarize yourself with the content located at the following link:
https://teach.ufl.edu/wp-content/uploads/2020/04/NetiquetteGuideforOnlineCourses.docx

Grading Policy

Course grades will be calculated based on a combination of weighted scores for work in different categories. The final grade (after applying weights) will be truncated to the nearest whole number to determine the letter grade.

Percent	Grade
93 - 100	A
90 - 92	A-
88 - 89	B+
83 – 87	B
80 – 82	B-
78 - 79	C+
73 – 77	C
70 – 72	C-
68 – 69	D+
63 - 67	D
60 - 62	D-
0 - 59	E

Evaluation Weights	
Projects:	40%
Assignments:	30%
Exams:	29%
Research awareness:	1%

Projects (40% of final grade)

Students will work to complete a project involving the design, development, and evaluation of human-computer applications. Projects begin early in the semester, expect continued work throughout the semester, and require multiple submissions of work. Students will implement an application and conduct user studies to collect data about the application. Students are also required to participate in study sessions of other students. More details on project expectations will be given over the course.

Assignments (30% of final grade)

In contrast to projects, assignments are smaller stand-alone activities and homework that typically consist of exercises or concept quizzes. Assignment types vary and will be described as the course progresses. Assignments may include synchronous activities (during class time) as well as on-your-own work. Assignment deadlines will be confirmed when individual assignments are posted. Submissions must be made before the given deadline to be eligible for full credit.

Exams (29% of final grade)

Three exams are scheduled for this course. The exam format typically involves a given set of questions (e.g., multiple choice and free response) in a timed completion period, but alternative formats may be considered (e.g., reading analysis, design exercises, take-home questions). The exam format will be announced prior to the exam date. The instructor may choose to adjust the number of exams with prior announcement to the class.

Research awareness (1% of final grade)

This course encourages participation in research in human-computer interaction to provide knowledge and awareness of different active research projects involving human and technology at the University of Florida. Students can participate in an approved UF research study (> 0 credits) related or relevant to human-computer interaction to receive credit for the research participation component of the grade.

Participation must be completed during the semester, 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 HCI 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 written submission covering both: 1) a half-page 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. Students who opt for the alternative format must notify the instructor by email prior to the date of the first exam.

The research awareness component is a mandatory part of the course contributing 1% of the overall course grade. Students may optionally participate in an additional study (1 credit minimum) for an additional 1%.

Extra Assignments (extra credit)

Per above, students may complete an additional "research awareness" component for an added 1% towards the overall class grade. Additional opportunities to earn extra credit are not promised and typically not available. In rare cases, relevant research at other institutions may be approved and included for an additional research participation assignment.

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 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.

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) **copying code**,
3) **social loafing** (e.g., for group work), and
4) work that is predictably or intentionally **offensive** to others.

Course Policies

Attendance:

This class expects synchronous participation (that is, attendance at the scheduled class times). By default, students are responsible for planning virtual attendance and participation during class times unless otherwise stated. However, the class is also designed around many independent exercises intended to either supplement or replace some synchronous scheduled class period times. Students in this course must accept responsibility for keeping up with required activities, assignments, readings, videos, and deadlines.

If a student is sick or will be absent (with a university-approved excused absence) 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.

Incomplete grade status:

Incomplete grading status 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

Virtual Classroom Expectations:
The class may include virtual, online activities. To be courteous to your fellow students, please:

- Be aware of your microphone. Please mute your microphone during class unless speaking.
- Be aware of your profile and background images. By default, **Zoom software saves settings for background images from previous sessions** and will be visible to the class**.** Please be courteous to avoid inappropriate imagery that may be distracting or disrespectful to others.
- Be aware of appropriate personal appearance and surroundings. It is easy to forget when the camera is on.
- Your behavior and actions can also distract or portray disrespect to others. If you choose to step away from the computer during active presentation, lecture, or group activity, it is recommended that you turn your camera off first.

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.

For any group work, groups may collaborate with one another to discuss logistical aspects of the project, brainstorm implementation solutions, and otherwise solve challenges. Any collaborated code must have a citation (comment) that includes the source (group name) and the encompassing code. If a group member plagiarizes a portion of a written assignment, the entire group will be held responsible. Therefore, it is imperative to be cognizant of all the portions of the group project, not just your responsibility.

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

Campus Resources

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 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: https://counseling.ufl.edu, 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

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/.

COVID-19
- **You are expected to wear approved face coverings at all times during class and within buildings even if you are vaccinated.**
- If you are sick, stay home and self-quarantine. Please visit the UF Health Screen, Test & Protect website about next steps, retake the questionnaire and schedule your test for no sooner than 24 hours after your symptoms began. Please call your primary care provider if you are ill and need immediate care or the UF Student Health Care Center at 352-392-1161 (or email covid@shcc.ufl.edu) to be evaluated for testing and to receive further instructions about returning to campus.
- If you are withheld from campus by the Department of Health through Screen, Test & Protect, you are not permitted to use any on campus facilities. Students attempting to attend campus activities when withheld from campus will be referred to the Dean of Students Office.
- UF Health Screen, Test & Protect offers guidance when you are sick, have been exposed to someone who has tested positive or have tested positive yourself. Visit the UF Health Screen, Test & Protect website for more information.
- Please continue to follow healthy habits, including best practices like frequent hand washing. Following these practices is our responsibility as Gators.

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://career.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://sccr.dso.ufl.edu/policies/student-honor-code-student-conduct-code/;https://care.dso.ufl.edu.

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

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
• Curtis Taylor, Associate Dean of Student Affairs, 352-392-2177, taylor@eng.ufl.edu
• Toshikazu Nishida, Associate Dean of Academic Affairs, 352-392-0943, 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.

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/.

Course Topics, Schedule, and Major Deadlines

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

Mondays	Wednesdays	Fridays
	Jan. 5 Course introduction	Jan. 7 Foundations
Jan. 10 History of interaction	Jan. 12 Perspectives of HCI	Jan. 14 Design and affordances
Jan. 17 Holiday – No class	Jan. 19 User-centered design	Jan. 21 User-centered design **HW**: Design critique
Jan. 24 **Activity**: Design scenario	Jan. 26 Project overview	Jan. 28 **Activity**: Project planning
Jan 31. **Project pitches**	Feb. 2 Agile software development **HW**: Design scenario	Feb. 4 Project development
Feb. 7 Perception and cognition **Project**: Preliminary plan	Feb. 9 Ethics of working with people **HW**: Agile	Feb. 11 Concept review
Feb. 14 **Exam I**	Feb. 16 Basics of user studies	Feb. 18 Formal models **HW**: IRB training
Feb. 21 **Activity**: Formal models **Project**: Study 1 plan	Feb. 23 Research topics in HCI	Feb. 25 Finalize user study 1 plan **HW**: Keystroke-level modeling
Feb. 28 **User study 1**: Usability testing	Mar. 2 **User study 1**: Usability testing	Mar. 4 **User study 1**: Usability testing
Mar. 7 Spring break – no class	Mar. 9 Spring break – no class	Mar. 11 Spring break – no class
Mar. 14 Qualitative analysis	Mar. 16 **Activity**: Qualitative analysis **Project**: Study 1 summary	Mar. 18 **Activity**: Qualitative analysis
Mar. 21 Experiments and inferential statistics	Mar. 23 * Experiments and inferential statistics **HW**: Qualitative analysis	Mar. 25 Experiments and inferential statistics
Mar. 28 Data reporting and visualization	Mar. 30 Concept review	Apr. 1 **Exam II**
Apr. 4 Accessibility **HW**: Statistics	Apr. 6 Finalize user study 2 plan	Apr. 8 Naturalness and multimodal interfaces **Project**: Study 2 plan
Apr. 11 **User study 2**: Controlled experiment **HW**: Visualization	Apr. 13 **User study 2**: Controlled experiment	Apr. 15 **User study 2**: Controlled experiment
Apr. 18 Human-centered AI	Apr. 20 Final review **Project**: Final project deliverables	Apr. 22 Reading days April 21 and 22 No class
Apr 25 No class	Apr. 27 No class	Apr. 28 **Thursday** **Final Exam** 5:30 PM – 7:30 PM	Apr. 29 No class