Department of Computer & Information Science & Engineering

CEN 5100 – Spring 2020
Human-Computer Interaction
MCCB G108
M, W, F: 10.40 am – 11.30 am

Please add the course code in the subject line of emails sent to the instructor to ensure receipt of your emails,
e.g., "CEN5100 HCI: Email topic"

Syllabus Table of Contents

Instructor Information

- *Instructor:* Sharon Lynn Chu, Ph.D
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  - *Office Hours:* Email me to set up an appointment
  - *Email:* slchu@ufl.edu
  - *Personal website:* https://cise.ufl.edu/~slchu/
  - *Lab website:* http://elxlab.cise.ufl.edu/
- *Teaching Assistant:* TBC
  - Office Hours: TBC
  - Office: TBC
  - *Email:*

Course Information

Prerequisites

COP 3530, and any one programming course (CGS 2414, CGS 3460, or CGS 3464).

Course Description

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. Credits: 3.

Notes. This course will not teach programming or technical implementation. System development is required as part of the course project, but students are expected to either already have the necessary technical skills, or find out about them on their own. This is the graduate version of the HCI course.

Who Is This Course For?

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

How Does This Course Fit With Other Courses?

The HCI course is in a set of three courses that include *User Experience Design* and *Research Methods for Human-Centered Computing,* but the two other courses are not required to take this course. The overarching idea is that the three courses all together will cover the pipeline of design, implementation, and evaluation. However, because the steps of the pipeline are tightly coupled, you will engage to different extents in all of the stages in this course. The focus in this course will be on the core concepts and methods used for HCI research and development.

Learning Outcomes:

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

- Characterize and critique core concepts and methods of human-computer interaction
- Know and understand different application areas of human-computer interaction
- Design and build human-computer interfaces
- Evaluate human-computer interfaces
- Analyze research in human-computer interaction

Programming

Tools and Languages

You can use any development environment and programming language appropriate for class assignments or project work. 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.

Course Outline:

A tentative schedule for the course is shown at the end of this syllabus. The schedule is subject to change.

Class Format and Components:

Important note about class format

This class is research-centric, in other words, it is focused on helping students to understand scholarly work and current thinking in the field of Human-Computer Interaction. As such, engaging with the HCI literature will be essential for this class. Lectures will help to introduce concepts, but students will need to critically think about, analyze and discuss the concepts.

Class sessions

The class will meet 3 times per week in 50 mins session.

Course components

This course involves the following components:

- **Lectures** – Attend class lectures on core HCI topics and concepts
- **Readings** – Read, analyze and discuss assigned papers, book chapters or online resources related to HCI
- **In-class quizzes and tests** – Take 2 tests and several quizzes on assigned readings and/or videos
- **In-class discussion participation** – Contribute to class-wide discussions related to the readings
- **Paper presentation and critique** – Present a paper and critique a paper in class
- **Project** – Complete a semester-long project that involves the design, implementation and evaluation of an interactive system
- **Extra credit** – Participation in CISE HCC experiment pool

In-Class Quizzes and Tests

Several quizzes and at least 2 tests will be given throughout the semester. The quizzes will cover assigned readings for the day, and tests will cover the lectures, readings that have been assigned, and the in-class discussions. If students are late for class and miss the quizzes or tests, the instructor is not required to allow the students to take the quizzes or tests. If the students fail to attend class, no make-up quizzes or tests will be allowed unless valid excuses with documentation are presented.

In-Class Discussion Participation

In-class discussions will be on the assigned readings for the day. All students will have to read the assigned papers, and submit their notes on the papers. Students will need to actively and meaningfully participate in discussions that the instructor or other students lead in the class. Participation in in-class discussions will also help to assess class attendance. Grades for this course component will be based on both the notes submission and in-class participation. More information on discussions will be given in the class.

Paper Presentation and Critique

This component consists of 2 parts:

1) Students will have to present assigned HCI research papers in class in a team. Presentation length and requirements will be described by the instructor in class.
2) Students will have to critique and synthesize assigned HCI research papers in class in a team. The critique will include a discussion of strengths and weaknesses of the concepts presented in the paper, how the paper is situated within the overall HCI space, what kinds of questions the paper raises, etc. More information will be given in class. A student cannot present and discuss the same paper.

Semester Project
Students will work in teams to complete a semester-long research project involving the design, development, and evaluation of human-computer system. Projects are expected to be in 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 in class throughout the semester. Unless otherwise stated, each team is expected to work together to produce stated deliverables.

Extra Credit - CISE HCC Experiment Pool
The human-centered computing (HCC) research faculty in the CISE department recruit periodically throughout the semester for participants in their research studies. As part of this course, you are eligible to earn extra credit by participating in up to 2 CISE human-subjects research studies. Each study participated in will be worth 1-2%, and students can earn up to 2% extra credit on their final course grade.

Participation in human-subjects studies will be handled by the CISE department's Research Participant System which can be accessed at https://ufl-cise.sona-systems.com. To view and sign up for a study, log in to the system using your GatorLink username and password. Once you have successfully logged in, you will be able to see a list of studies with available timeslots. If there are no studies listed, there are currently no opportunities to participate, and you should check back later. Since the system works on a first-come basis, it is recommended you do not wait until the end of semester when the number of timeslots is limited.

If you schedule an appointment for a study, it is your responsibility to show up or cancel at least 24 hours before the appointment. Multiple unexcused absences will lock you out of the system. In addition, it is your responsibility to assign earned credits to the correct course. At the end of the semester, your instructor will be provided a history of your participation for grading purposes. For assistance with the Research Participation System, please view the Frequently Asked Questions located at https://ufl-cise.sona-systems.com/faq_view.aspx.

Participation in studies is optional, but strongly encouraged. A replacement extra credit activity of a 500-word essay can be requested if students do not want to participate in the experiment pool (contact the instructor if you would like to submit an essay). One essay will be worth 1% (up to 2 essays can be submitted). It is possible that no extra credit opportunities will be available this semester if no studies are recruiting for participants. In this case, essays will not be accepted.

Textbooks

No textbook is required for this course. Readings will be posted to the course website up to three weeks prior to the due date. Students will be responsible for accessing the readings and downloading any relevant links provided.

However, the following books may be especially useful for students:

- *The Design of Everyday Things*, by Norman, ISBN-10 # 0465050654
- *Interaction Design: Beyond Human-Computer Interaction*, by Rogers, Sharp, and Preece, John Wiley & Sons. ISBN-10 # 0470665769

Software

Students are required to bring a laptop to class[1] to take the in-class quizzes and participate in both the in-class activities and project working sessions. It is the responsibility of the student to gain access to whatever software they may need to complete their assignments and projects.

[1] Consistent with UF College of Engineering computer requirements: "The University of Florida requires students to have access to a computer. The College of Engineering further requires that students have access to and on-going use of a laptop/mobile computer." For more information, see http://www.eng.ufl.edu/students/career-resources/computer-requirements/

Course Grading

Course Grades

Students' performance in the course will be determined based on the table below. All individual submissions and deliverables of each component below will be graded out of 10 points. The total score for a component will be converted to account for the %s as listed below.

- **In-class quizzes and tests [28%]**
  [Of 28%:]
  - Quizzes 30%
  - Midterm test 10%
  - Final test 15%
- **In-class discussion participation [10%]**
- **Paper presentation and critique [25%]**
  - Paper presentation 10%
  - Discussion 15%
- **Semester project [37%]**
  [Of 40%:]
  - Progress presentations 25%
  - Final presentations 40%
  - Report 23%
  - Video 12%
- **Extra credit [1%]**
  - CISE. HCC Experiment pool (see above)

This course will use the Canvas e-Learning course management system to post grades and to communicate with class members. Details about all assignments and deliverables will be made available through Canvas. Students are responsible for checking Canvas regularly to keep track of assignments and due dates.

Grading Scale

Scale for overall course grade:

- 100 – 97.5: A
- 97.4 – 93.5: A
- 93.4 – 90.5: A-
- 90.4 – 87.5: B+
- 87.4 – 83.5: B
- 83.4 – 80.5: B-
- 80.4 – 77.5 : C+
- 77.4 – 73.5 : C
- 73.4 – 70.5 : C-
- 70.4 – 67.5 : D+
- 67.4 – 63.5 : D
- 63.4 – 60.5 : D-
- 60.4 – 0 : E

All final course grades will be rounded to the nearest decimal number. Canvas estimates of final course grades are not to be considered accurate until they are officially announced by the instructor. The Canvas system has a "What If" tool if you want to do your own math to verify final grades.

A C- will not be a qualifying grade for critical tracking courses. In order to graduate, students must have an overall GPA and an upper-division GPA of 2.0 or better (C or better). Note: a C- average is equivalent to a GPA of 1.67, and therefore, it does not satisfy this graduation requirement. For more information on grades and grading policies, please visit: https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx

Course Policies

Class Attendance

Students are expected to attend all classes. While attendance is not directly graded, submissions based on in-class activities (e.g., in-class discussions) will be graded and may suffer if students fail to attend classes. If a student misses a session and is unable to provide the valid documentation required for an excused absence, the student will need to consult with other members of the class to determine what was missed. There is no provision for

making up missed class participation credit for an unexcused absence. *It is the responsibility of the student to be aware of all deadlines and submissions of the course*. Deadlines will be posted in the syllabus and announced in class.

Late Assignments
All assignments will be assessed a late penalty of -10% for each day late. After 3 days, students will receive a 0. The only exception to this rule is if students contact the instructor **in writing before the assignment due date** to make arrangements for lateness.

Group Project and Peer Evaluation
Students will be required to complete one semester-long group-based project in this course. For the project, students in the team will each be asked to choose to be the lead for one aspect of the project. However, **all** team members are expected to contribute to **every** aspect of the project. The lead for a project aspect should not be doing all the work required for that aspect. The responsibility of the lead for an aspect is simply to organize that aspect of the project and ensure that progress is being made on that aspect.

Peer evaluation will be conducted by having each team member fill in a questionnaire. Each team member will have the opportunity to indicate the amount of contribution and a description of the contribution of each member of the team to the project. Based on the description of the contribution, the instructor will assign a weight to individual team members' project score. The weight can either provide a penalty or boost to the student's project score, if so warranted.

Honor Code
The following are not allowed in this course:
- **plagiarism** (misrepresenting others' ideas as your own, can be fixed with simple citation),
- copying code,
- **social loafing** (e.g., for group work), and
- work offensive to others.

University Policies
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.

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.

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/.

Americans with Disabilities Act (ADA) Policy

Students requesting classroom accommodation must first register with the Dean of Students Office. That office will provide the student with documentation that he/she must provide to the course instructor when requesting accommodation.

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
- Robin Bielling, Director of Human Resources, 352-392-0903, rbielling@eng.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.

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

Mandatory Reporting

As an employee of the University of Florida and the State of Florida, your instructor is a ***mandatory reporter*** for all suspected or alleged violations of sexual harassment, discrimination, threats of harm to one's self or others, and UF honor code violations.

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:

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

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.

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

CAP 5100 Human-Computer Interaction
WEEKLY SCHEDULE (Subject to Change)

KEY:

Text	Lectures
Text	No class
Text	HCI application areas
Text	HCI concepts
Text	Project presentations
Text	Quizzes/Tests

Mondays	Wednesdays	Fridays
Jan. 6	Jan. 8	Jan. 10
Course overview	What is HCI	Presenting and critiquing an HCI research paper
Jan. 13	Jan. 15	Jan. 17
History of interaction	User-centered design	Paradigms of HCI
Quiz	**Quiz**	**Quiz**
Jan. 20	Jan. 22	Jan. 24
Holiday – no class	HCI methodology	Formal models
	Quiz	
Jan. 27	Jan. 29	Jan. 31
Project pitches	Usability testing	Affordances and Mental models
	Quiz	
Feb. 3	Feb. 5	Feb. 7
Interface evaluation	Embodiment theory	Embodied and tangible interaction
Feb. 10	Feb. 12	Feb. 14
Ethics, user studies, IRB	Naturalness and fidelity	Virtual and Augmented reality
Feb. 17	Feb. 19	Feb. 21
Project lit review presentations	Context-awareness	Pervasive and ubiquitous computing
Feb. 24	Feb. 26	Feb. 28
Project interface design presentations	Affective computing	**Midterm Test**
Mar. 2	Mar. 4	Mar. 6
Spring break – no class	Spring break – no class	Spring break – no class
Mar. 9	Mar. 11	Mar. 13
Paper prototype testing	Sensemaking	Information Visualization and Visual analytics
Mar. 16	Mar. 18	Mar. 20
Data collection methods	Assistive technologies	No class - Project day
Quiz		
Mar. 23	Mar. 25	Mar. 27
No class - Project day	No class - Project day	Project consultation

Mar.30 Data analysis	Apr. 1 Common ground theory	Apr. 3 Computer-supported collaborative work
Apr. 6 System pilot testing	Apr. 8 Situated and distributed cognition	Apr. 10 Immersive learning technologies
Apr. 13 Reporting data	Apr. 15 **Final Test**	Apr. 17 **Project:** Project presentations
Apr. 20 **Project:** Project presentations	Apr. 22 **Project:** Project presentations	Apr. 24 Reading day – no class