CEN 4722 / CEN 5728 User Experience Design

Course Syllabus, v1.0, last revised 8/20/2018

Course Logistics

Meeting Times:
- Tuesdays Period 7 (1:55 to 2:45pm, 50 minutes)
- Thursdays Period 7-8 (1:55 to 3:50pm, 115 minutes, with a 15-minute break)

Meeting Location:
- Computer Sciences & Engineering E119 (CSE E119)

Instructor Information

Instructor: Lisa Anthony, PhD
- E-mail address: lanthony@cise.ufl.edu (put 'UXD' in the subject)
- Office hours: TBD
- Office location: CSE Building, E542
- Class Web site: http://ufciseuxd.wordpress.com/   + Canvas!

Teaching Assistant(s):
- TBD

Course Information

Catalog Descriptions:
- CEN 4722 – User Experience Design – Credits: 3.
  Introduces methods and tools used in User Experience Design (UXD): the early stages of software design focused on meeting user needs. Key concepts include user research, contextual design, design thinking, ideation, iterative design, prototyping, and design documentation. Projects utilize software tools used in the industry.
- CEN 5728 – User Experience Design – Credits: 3.
  Introduces methods and tools used in User Experience Design (UXD): the early stages of software design focused on meeting user needs. Key concepts include user research, contextual design, design thinking, ideation, iterative design, prototyping, and design documentation. Software tools used in industry are used in class projects.

Course Overview:
This is a cross-listed undergraduate and graduate course that introduces students to the methods and tools used in User Experience (UX) and User Interface (UI) design. UXD

focuses on the early design stages of a product's lifecycle, and aims to ensure the product will meet user needs; some example tools and methods to be covered include personas, scenarios, storyboards, focus groups, wireframing, prototyping, InVision, Axure, Balsamiq, etc.

This class will serve as an introduction to these methods; no prior design experience is necessary. In this course, students will work on group projects covering one or more of the UXD methods for products designed for today's world of ubiquitous and mobile technology. Students will also participate in a final group project designing for a real context: a local industry client will define their needs and requirements, with the end goal that the students' design will be incorporated into the client's real product. Developers with experience in UX/UI design methods are in high demand in today's software industry, and the projects students work on in this course will strengthen their portfolio.

This course is intended to complement CEN 4721C / CAP 5100 (Human-Computer Interaction), but neither are prerequisites for each other. This course is a core course for the Human-Centered Computing PhD program, but may also be taken by other PhD, MS, and BS students.

Pre-requisites and Co-requisites:
- CEN 4722: COP 3530.
- CEN 5728: COP 3530 or equivalent.

Important Note about Class Format:
This class will be unlike most other classes you have taken, especially in computer science. This is not your usual "lecture, study, exam" class. I have designed this class to increase students' learning, skill, and knowledge building (most important), and foster excitement and understanding of user experience design in today's world and your lives, and get away from long lectures and rote knowledge memorization. We will do a hands-on project together in class over the course of the semester because I believe (and education research supports) that learning-by-doing is the best way to understand design.

This means that you will have to take responsibility for your own learning and skill building. It is up to you to plan ahead, read ahead, select readings or other learning methods (from provided choices), and keep on top of the course material and project methods we cover. Use your curiosity, dig deeper, challenge yourself, have fun, and develop and use the learning style that fits you best. I will provide tools, resources, and advice to maximize your learning, but it is up to you to shape your knowledge and skills in a way that fits your future career choice and personality the best.

Course Components:
This course involves the following components:
- Online Lectures – video lectures on core user experience design concepts.
- Readings – recent book chapters and online resources related to user experience design.
- Quizzes – online in-class quizzes on the lectures and readings.

- In-Class Activities and Homeworks – group activities to introduce and practice user experience design techniques, similar to lab-style activities. Projects – 1 individual and 2 group projects covering all phases of the user experience design project lifecycle will be completed, including (1) exploring a design space, (2) generating design concepts, and (3) refining design concepts, ultimately producing an interactive prototype for an industry client.
- Critiques – in-class group critiques of the design concepts produced for each project will be conducted, including an end-of-semester public showcase of the interactive prototypes for the final project.

Course Objectives:
By the end of this course, students will be able to:
- Define the term "*user experience design*" and identify how it fits into the software development lifecycle.
- Conduct *exploratory* user experience design activities to understand a design space when designing a new user interaction.
- Conduct *generative* user experience design activities to creatively fill user needs when designing a new user interaction.
- Conduct *refining* user experience design activities to select and iteratively improve a design concept for a new user interaction.
- Participate effectively in *design critiques*, and be able to use this experience to be a more effective design team member.
- Design and produce an *interactive prototype* of a complete design concept to present to a client for a new user interaction.

Course Materials

Material and Supply Fees:
- No fees are collected for this course.

Materials Required:
This course makes heavy use of industry methods for designing software. Students are expected to purchase supplies as needed for these methods, including:
- Sharpies or other permanent markers
- Post-it notes or other sticky notes
- Scratch paper of various sizes for sketching (unlined)
- Pencils, pens
- Ruler or straight edge
- Scissors (optional)
- Self-standing easel pads (optional)

When such supplies will be needed in class, announcements will be made at least one week in advance. Lack of preparation will harm students' class participation grade. Poster printing is required for the Industry Client Project (hand-sketched posters are also acceptable). Posters can be printed for a fee in the Marston Science Library, but there is

often a wait on project due dates so students are advised to plan ahead. Target Copy offers faster printing for a higher fee. Posters do not have to be mounted on foam board.

Textbooks Required:
No textbook is required for this course. Weekly readings in the form of textbook chapters and online resources will be posted to the course website up to four weeks prior to the due date. Students will be responsible for accessing the readings and downloading any relevant links provided.

Textbooks Recommended:
Many readings for the course will be taken from the following books. Students may choose to purchase their own copy of one or more of these textbooks to read beyond the scope of the course. This may be especially useful for students considering UX/UI careers, which make heavy use of UXD methods and concepts.

- *Interaction Design: Beyond Human-Computer Interaction*, by Rogers, Sharp, and Preece, ISBN-10 # 0470665769
- *The Design of Everyday Things*, by Norman, ISBN-10 # 0465050654
- *Sketching User Experiences: Getting the Design Right and the Right Design*, by Buxton, ISBN-10 # 0123740371
- *Sketching User Experiences: The Workbook*, by Greenberg, Carpendale, Marquardt, and Buxton, ISBN-10 # 0123819598
- *Designing for Small Screens: Mobile Phones, Smart Phones, PDAs, Pocket PCs, Navigation Systems, MP3 Players, Game Consoles*, by Studio 7.5, Zwick, and Schmitz, ISBN-10 # 2940373078
- Others TBD

Software Required:
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. The following free or trial software packages may be necessary to be installed by students on their laptops or used via online services over the course of the semester:

- Balsamiq, by Balsamiq Studios (http://balsamiq.com/)
- Axure RP Pro, by Axure Software Solutions (http://www.axure.com/)
- InVision App, by InVision (http://www.invisionapp.com/)

Most of this software will be made available to students for free as part of the course.

Additional Recommended Resources:
- TBD

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[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 Outline

Course Topics:
- User Experience Design as a field and how it relates to Computer Science, Human-Centered Computing, and Human-Computer Interaction.
- Graphic Design for computer interfaces.
- User Experience Design techniques such as scenarios, personas, storyboards, wireframing, and information architecture.
- User Experience Design methods such as focus groups, design probes, affinity diagramming, and speed dating for UI concepts.
- Prototyping tools, both low-fidelity and high-fidelity.
- Design for small screens, responsive design.
- Non-GUI design (e.g., auditory interfaces, gesture interfaces).

Tentative Schedule: subject to change

Week	Day	Dates	Topics	Class Prep	Quiz?	Hand In	Projects & Milestones
1	R	08/23	Syllabus, Course Introduction [break] Industry Approaches to UXD: IDEO Deep Dive Video				
2	T	08/28	Anatomy of a Deep Dive & Introduction to Design Thinking *(in-class hands-on project begins!)*	video	yes		* **Add/Drop Ends 08/28**
	R	08/30	Brainstorming Techniques & Affinity Diagrams	video	yes	HW1	* **Individual Project out**
3	T	09/04	*Individual Project Q&A* Design Rationale & Documentation	video	yes	HW2	
	R	09/06	Preparing for User Research: Focus Groups, Interviews, Design Probes	video	yes	HW3	
4	T	09/11	How to Critique **Individual Project: Mid-Point Critique**			HW4	* **Individual Project mid-point due**
	R	09/13	***In-Class Activity: Simulated Focus Group*** ***In-Class Activity: Data Analysis (start)***				
5	T	09/18	***In-Class Activity: Data Analysis (finish)***			HW5	
	R	09/20	User Needs & Personas	video	yes	HW6	
6	T	09/25	**Individual Project: Final Critique**			HW7	* **Individual Project final due**
	R	09/27	Scenarios & Storyboards	video	yes		
7	T	10/02	***In-Class Activity: Design Scavenger Hunt***			HW8	
	R	10/04	Designing for Interaction: Affordances, Controls, Constraints	video	yes	HW9	* **Industry Client Project out**
8	T	10/09	*Industry Client Project Q&A (& design licensing)* *In-Class Working Session (Industry Client Project)*			HW10	
	R	10/11	*In-Class Activity: Industry Client Project: Client Kick-off Meetings*				
9	T	10/16	*In-Class Working Session (Industry Client Project)*				

	R	10/18	Information Architecture & Wireframing: Techniques & Tools	video	yes		
10	T	10/23	Graphic Design for User Interfaces (Grids & UIs)	video	yes	HW11	
	R	10/25	Low-Fidelity Prototyping, Techniques & Tools	video	yes	HW12	
11	T	10/30	*In-Class Working Session (Industry Client Project)*			HW13	
	R	11/01	**Industry Client Project: Mid-Point Client Showcase**				*** Industry Client Project mid-point poster due**
12	T	11/06	Lecture & Q&A: Designing for Small Screens & Responsive Design				
	R	11/08	Interactive Prototyping, Techniques & Tools	video	yes		
13	T	11/13	Lecture & Q&A: Video Sketches			HW14	
	R	11/15	User Testing & Think-Alouds	video	yes		
14	T	11/20	*In-Class Working Session (Industry Client Project)*			HW15	*** UF Course Evaluations open 11/20**
	R	11/22	**NO CLASS – THANKSGIVING**				
15	T	11/27	*In-Class Working Session (Industry Client Project)*				
	R	11/29	**Industry Client Project: Final Public Showcase**				*** Industry Client Project final poster and prototype due**
16	T	12/04	Class Wrap-Up				*** Industry Client Project final design document and video sketch due**
	R	12/06	**READING DAY – NO CLASS**				*** UF Course Evaluations close 12/07**
17	R	12/11	**7:30 AM to 9:30 AM Final Exam Period – NO EXAM**				
18	W	12/19	**Final grades available on ISIS – not before. Please do not email the instructor/TA asking for grades.**				

Grading

The following items will contribute to students' grades in this course:

- Individual Project   15%
- Industry Client Project   40%
    - *i.* *Mid-Point*   *15%*
    - *ii.* *Final*   *25%*
- Video/Reading Quizzes   10% [lowest 2 out of 12 dropped]
- In-Class Small Group Homeworks   10% [lowest 5 out of 15 dropped]
- Peer Evaluation for In-Class Work   10% [lowest 5 out of 15 dropped]
- Online Discussion Posts[1]   15%
- Extra Credit opportunities:
    - i. CISE HCC Experiment Pool[2]   2%
- *No mid-term or final exams*

[1] Note: this semester we will be using Yellowdig (through Canvas) for class discussions. Yellowdig is a social-media-like news feed to enable online class engagement. You will be able to pin new discussions and comment on and like each other's discussions. **All pins should be your own words with minimal quoting from the source.** Points will be automatically assigned by the Yellowdig system as per the points rubric (see "how points work" on the Yellowdig sidebar). Word counts apply to receive credit for discussions or comments posted. Earning 1500 points over the course of the semester will result in full credit. A weekly maximum of 150 points is enforced by Yellowdig, which resets at **11:00pm on Sunday evening**.

[2] The human-centered computing (HCC) research faculty in the CISE department may recruit periodically throughout the semester for participants in their 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 the studies is optional, but strongly encouraged. A replacement extra credit activity of a 500-word essay on a real-world example of very good or very bad user experience design (with justification as to why it's good or bad based on concepts from the class) 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.

Please note: no partial credit will be awarded for extra credit submissions.

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

All final course grades will be rounded to the nearest whole number. Canvas estimates of final course grades are not to be considered accurate until I announce it. I recommend you do your own math to verify final grades. The Canvas system has a "What If" tool.

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.

Expectations for Graduates vs. Undergraduates in this Course:
Graduate-level sections of this course involve more advanced material and more in-depth study than the undergraduate sections. Graduate students enrolled in this course must:
- Develop a *pixel-perfect* interactive prototype for the industry client project (whereas undergraduates must only develop a wireframe-fidelity interactive prototype).
- Conduct one additional user-centered design iteration on the industry client project, involving working with 12 to 16 users (as opposed to 6 to 8 users for undergraduates).
- Lead 1 Yellowdig thread on the course readings and material by posting something based on the readings or lectures.

Undergraduate students who are interested may do the additional work as extra credit. See the instructor beforehand to arrange this. Your entire group must agree if opting for increased complexity on the Industry Client Project.

Undergraduate Grading Scale Note:
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

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

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. Excuses are not accepted.

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. **Attendance and participation is required for all project critiques and showcase days.** If a student cannot attend, make-up work may be required at the instructor's discretion.

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 (no Facebook, YouTube, Twitter, etc.).

Guest Lectures:
In this course, guest lecturers may be invited to present material related to their research or work, and how it relates to the course material. These are experts in their fields and are taking time out of their busy schedules to share their knowledge with you. Please respect their time and attend the guest lectures as you would any other meeting of the course.

University Policies and Resources

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 (http://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.

Note that failure to comply with this commitment will result in disciplinary action compliant with the UF Student Honor Code Procedures.
See http://www.dso.ufl.edu/sccr/procedures/honorcode.php

Accommodation for Students with Disabilities
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.
UF Counseling Services
Resources are available on-campus for students having personal problems or lacking clear career and academic goals. The resources include:
- · UF Counseling & Wellness Center, 3190 Radio Rd, 392-1575, http://www.counseling.ufl.edu/cwc/Default.aspx, counseling services and mental health services.
- · Career Resource Center, Reitz Union, 392-1601, career and job search services.
- · University Police Department 392-1111

Software Use
All faculty, staff and student 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 Evaluations
Students are expected to provide feedback on the quality of instruction in this course based on 10 criteria. These evaluations are conducted online at https://evaluations.ufl.edu. 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.

Undergraduate ABET

ABET Outcomes
This course is related to (but does not assess) the following ABET outcomes:
(b) an ability to design and conduct experiments, as well as to analyze and interpret data
(c) an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
(g) an ability to communicate effectively
(j) a knowledge of contemporary issues
(k) an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice