

Department of Mathematics and Applied Computer Science CAC 430: Human Computer Interaction and Software Engineering Fall 2020

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Course	Inctri	ictor.

Name: Office: Email:

Office Hours:

A little about me...I have been a dancer for most of my life, and I still dance. As a high school student, I assisted and taught numerous dance classes, which is where I found my love for teaching. I started teaching computer science to grades 7 through 12 at the Alabama School of Fine Arts (ASFA) in 2004. I spent three incredible years at ASFA where I had the privilege of teaching fantastic individuals who taught me as much, if not more, than I taught them. I have also used my computer science degree as a project manager and software developer for Kennesaw State University where I was recently an assistant professor. I earned my PhD in Computer Science from the University of Alabama under the advisement of Dr. Jeff Gray.

Course Description:

The purpose of this course is to challenge students to improve the user experience. Students will examine existing interfaces writing their analyses as well as design their own interfaces requiring the use of design documents utilized within Software Engineering.

Major Course Activities:

- Interface Analysis: An individual assignment to undertake analysis of an existing interface. This is presented as a 1,500-2,000 word report. This report includes a user observation to be conducted on multiple users in order to provide data for analysis.
- Project Proposal: This can be an individual or group assignment. Each student/group will assemble a project proposal as well as design documents for a future project to be developed. This project incorporates multiple stages:

Stage One: Proposal draft

Stage Two: Critique

Stage Three: Final Proposal

Required Course Materials:

Norman, Don. The Design of Everyday Things. Basic Books, 2013. New York, NY. (DET)

Student Learning Outcomes (SLOs):

At the conclusion of this course, students will be able to:

- SLO-1 Propose design approaches that are suitable to different classes of user and application
- SLO-2 Identify appropriate techniques for analysis and critique of user interfaces
- SLO-3 Be able to design and undertake quantitative and qualitative studies in order to improve the design of interactive systems
- SLO-4 Understand the history and purpose of the features of contemporary user interfaces
- SLO-5 Create a UML design document

Instructional Method and Learning Strategies:

The course will consist of lectures followed by hands-on activities to practice what was discussed in the lecture. There will be readings, quizzes on the readings, and discussions about the readings. The primary teaching style utilized will be active learning. There will be group work, independent research, problem-solving activities, and analytical writings throughout the course.

Course Outline/Schedule:

The final course outline/schedule will be posted in Moodle, but the below is a tentative schedule. The readings will consist of articles or other online material.

Date/Week	Topics	Important Dates/Activities	Instructor Notes*
8/24-8/28	Intro to course/Expectations	DET Ch. 1	DET Ch. 1
Week 1	What is design?	Final project assigned	AA Ch. 6
	Discoverability		Discoverability Worksheet
8/31-9/4	Theoretical Foundations of HCI:	DET Ch. 2	DET Ch. 2
Week 2	theories, models, principles, standards, guidelines	User observation assigned	SP Ch. 2
			SP Ch. 4
	Conducting User Observations		HCI Foundations Worksheet
9/7-9/11	Memory and mapping	DET Ch. 3	DET Ch. 3
Week 3	Using metaphors in coding	Interface Analysis assigned	SP Ch. 7
			CC Ch. 2
			Interface Design Worksheet
9/14-9/18	Discoverability	DET Ch. 4	DET Ch. 4
Week 4	Interaction Design	9/18 - User observation due	DI Ch. 1
			SP Ch. 9

Interaction Design Worksheet	Date/Week Topics		e/Week Topics Important Dates/Activities	
Week 5 Balancing Form and Function Wobbrock, et al. paper (Ability-based Design) SP Ch. 12, 14 9/28-10/2 Design Thinking DET Ch. 6 Prerequisites, Construction Decisions Decisi				_
Ability-based Design SP Ch. 12, 14	9/21-9/25	Human Error or Bad Design	DET Ch. 5	DET Ch. 5
9/28-10/2 Design Thinking Week 6 Prerequisites, Construction Decisions Decis	Week 5	Balancing Form and Function		AA Ch. 7
Week 6 Prerequisites, Construction Decisions 10/2 – Interface Analysis draft due SP Ch. 3 CC Ch. 3,4 10/5-10/9 Adopting Technology DET Ch. 7 DET Ch. 7 Week 7 Project Management Styles cont'd Worksheet Interface analysis draft due DI Ch. 4 10/12-10/16 Project Management Styles cont'd Worksheet Reading: UML document 10/19-10/23 Proposal and Requirements Documents Documents 10/23 - Reference Assignment due UML Assignment 10/26-10/30 Software Design Defensive Programming 10/30 - Final Interface Analysis due UML Assignment CC Ch. 5 CC Ch. 8 11/2-11/6 Variables and Data Types UML Assignment CC Ch. 10, 11, 12, 13 Week 11 Statements Project Due 11/13 - Draft of Final Project Due CC Section IV Statements 11/16-11/20 Week 13 Code Improvements Introduced Improvements Introduced Final Project Due CC Section V Code Improvements 11/23-11/27 Thanksgiving Break				SP Ch. 12, 14
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	11/23-11/27	Thanksgiving Break		
Week 14	Week 14			

Date/Week	Topics	Important Dates/Activities	Instructor Notes*
11/30-12/4 Week 15	Final Exam Week	12/2 – Final Project Due	

^{*}Materials taken from a variety of textbooks:

- DET: Design of Everyday Things, Don Norman
- AA: Accessible America: A History of Disability and Design, Bess Williamson
- SP: Designing the User Interface, Ben Shneiderman and Catherine Plaisant
- CC: Code Complete, Steve McConnell
- DI: Designing Interactions, Bill Moggridge

Course Activities, Assessments, & Interactions:

This course consists of a sequence of activities, assessments, and interactions to support you in achieving the Student Learning Outcomes (SLO) for this course. You will engage in weekly activities, discussions, research, readings, quizzes, an analysis paper, and a final project. The primary course artifacts required to achieve the Student Learning Outcomes (SLO) are described below:

Discussions

Active participation is required for this course. There will be regular discussions regarding the readings, which will come from Don Norman's *The Design of Everyday Things* or posted research papers/articles. There may also be reading guizzes or reflections posted on Moodle.

Participation

Throughout the course, there will be worksheets distributed during class for students to solidify their understanding of lectures or expand upon what was covered in the lecture. If students are not in class (either physically or remotely), they are unable to participate.

Interface Analysis

This is a major research paper with a user observation incorporated. Please take this assignment seriously.

UML Assignments

There will be 3-4 UML/Software Engineering assignments throughout the course.

Project Design

The final project is an individual or group project that requires a draft, a critique, and a final version. This project includes various components, which will be defined throughout the course.

Grading:

ACTIVITY	Weight
Discussion/Quizzes	10%
UML Assignments	10%
Interface Analysis	25%
Stage 1 Project Design (draft)	20%
Stage 2 Project Design (critique)	10%
Stage 3 Project Design (final)	25%

Grading Scale

A	93-100%	B-	80-82%	D+	68-69%
A-	90-92%	C+	78-79%	D	60-67%
B+	88-89%	С	73-77%	F	0-59%
В	83-87%	C-	70-72%		