

SI 699: Fall 2017**Mastery User Experience (UX) Research and Design**

Lectures: Thursday, 9:00 - 12:00pm

Location: NQ 2245

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Office Hours: Tuesdays, 8:00a-10:00a

Office Location: NQ 4360

Syllabus: <http://tinyurl.com/y95gju2u>

Summary:

This course will require you to **demonstrate mastery** in application of design theories, concepts, and principles to defining valid problems, uncovering user needs, articulating service requirements, documenting UX research results, proposing, refining, and prototyping design solutions, and communicating with stakeholders effectively. You will have opportunities to integrate methods and theories about user experience design in this course by engaging in a whole process from identifying design issues to developing design solutions. You will work on a single project end-to-end during the semester. You will either work on a project individually or in pairs. For the most part, you will choose and design projects from scratch, though projects for real-world clients will be allowed as long as you meet the course requirements.

Course Prerequisites:

Prerequisites to this course include:

- 501 Contextual inquiry and consulting foundations
- 506 Programming I
- 520 Graphic design
- 539 Design of Complex Websites
- 582 Introduction to interaction design
- 588 Fundamentals of human behavior
- 622 Needs assessment and usability evaluation

Mastery Courses:

Mastery courses are **advanced** one-semester courses that require students to demonstrate command of the key theories, methods, approaches, and capabilities required for entry into a specific class of information professions. Unlike other courses with significant faculty-led structure and scaffolding, mastery courses require you to demonstrate initiative and show that you can independently **design, implement, evaluate, and complete a sizable project**, with faculty *primarily in the role of advisor and mentor*. Successful completion of a mastery course **implies a level of proficiency comparable to or exceeding a well-launched employee in a field**.

Course Learning Objectives and Demonstration of Mastery: While you are expected to have learned these skills previously, the purpose of this course is to demonstrate mastery of these skills.

I. Knowledge

- A. What is User Experience Research and Design and what is its history?
- B. Describe core research and design processes used in UX
- C. Describe alternate approaches to UX design and design processes and the pros and cons of these variations

II. Comprehension and Application

- A. Identify, follow, and defend the use of a user-centered design process:
 - 1. Understand and frame problems,
 - 2. Research/investigate problems,
 - 3. Fully explore the solution space,
 - 4. Identify acceptable solutions and identify pros/cons of each solution,
 - 5. Refine the solution,
 - 6. Evaluate the solution and present your results and process using an iterative process.
- B. Demonstrate ability to conduct user experience research
 - 1. Understand who your target users are and articulate who your target users are (primary and secondary users)
 - 2. Use models such as personas and scenarios to represent preliminary research findings
 - 3. Demonstrate ability to collect and analyze user data beyond on-campus interviews and surveys
 - 4. Organize your research findings and use affinity diagrams to create research summaries
 - 5. Formulate and communicate a theory or research-supported story that explains your results
- C. Implement prototypes using common design and prototyping tools such as Photoshop, Illustrator, HTML, CSS, Axure, Proto.io, etc.
- D. Prepare high quality, professional documentation and artifacts relating to the design process for preparation for a professional portfolio
- E. Effectively visualize and present design solutions and concepts in a clear and concise manner

III. Analysis & Synthesis

- A. Analyze an interaction design problems and propose research and design processes, that justify the process and identify trade-offs
- B. Compile user data and elaborate on findings and how these findings inform your solution
- C. Compare alternative solutions and your final research and design decisions

IV. Evaluation

- A. Justify and be able to defend your design process and implementation choices
- B. Justify and be able to defend your reasoning for selecting target users given the selected problem you
- C. Justify and be able to defend your final project solution with your research method, results, and quotes from your target audience
- D. Justify your design choices (graphic, flow, design elements, etc.) with your knowledge of design principles and effective visualization techniques
- E. Recommend next steps for an individual or group who wants to take over your project; explain the artifacts that you will leave behind

Materials

No textbook is required for this class. Another book that has been recommended to me by my Industry colleagues is [Universal Methods of Design: 100 Ways to Research Complex Problems, Develop Innovative Ideas, and Design Effective Solutions](#) by Bella Martin and Bruce Hanington. You will likely use this book throughout your UX Research and Design career.

You should maintain a notebook to document your process and to keep sketches of those concepts resulting from brainstorming sessions. You will be asked to submit these sketches for each milestone.

Note: The syllabus is tentative and is subject to change and updates. Students will be updated throughout the semester (last updated: Sept. 1, 2017)

Topics	Class Date	Assignments
Week 1: Introduction and Course Overview (Project Brainstorming)	9/7	Milestone 1: Brief Proposal and Survey Due 9/12 by 11:59pm
Week 2: UX Strategy and User Research	9/14	UX Research and Project Scoping
Week 3: Information Architecture	9/21	Teams formed (based on individual proposals and skills); Project Proposal Review
Week 4: Agile Development and Project Management	9/28	Milestone 2: Concept Proposal

Week 5: Understanding and Working with Customers / Managing Conflict	10/5	Milestone 3: Formative Study Results & Design Process (Due 10/5 by 1:00pm)
No class	10/12	
Week 7: UX Design and Specification	10/19	
Week 8: Entrepreneurship and Innovation	10/26	Milestone 4: Refinement of User Research and Design; Prototype and Implementation Plans
Week 9: Critical Thinking and Ethics	11/2	Peer Walkthrough + Working Session
Week 10: Communicating your Design and Research Process	11/9	Peer Walkthrough + Working Session
Week 11: Design issues and Trends	11/16	Milestone 5: Final Prototype and Demo
No class (Thanksgiving)	11/23	
Week 12: Class Wrap-up & Check-in Session	11/30	
Week 13: Demos and Final Presentations	12/7	
Week 14: Final Written Project	12/14	Milestone 6: Final Poster, Video and Project Brief

NOTE: To be successful, we recommend that you have a standing meeting and/or work session of AT LEAST 3 hours per week with your partner (if applicable). If you are working individually, you may wish to find an accountability partner and schedule working sessions.

Assignment and Grading Details

The final project will be worth 80% of your final grade. There will be six (6) milestones associated with the project, namely:

1. **Brief Concept Proposal & Survey (5%):** Based on your interests or results of your observations write a brief proposal about your concept (i.e., initial thoughts about your target area, who your target audience may be, and related products and/or research)

2. **Concept Proposal (5%)**: Based on initial ideation, each individual or group will produce three high level concepts, along with a sketch of a plan describing how each would be researched using formative methods and what the key design questions would be.
3. **Formative Study Results & Design Proposal (15%)**: Based on the findings from a formative study to understand users' needs, and to develop empathy for the context of use, a more detailed design proposal for one of the initial concepts will be presented, along with a justification for the proposed direction and a detailed plan for carrying out the project.
4. **Experience Prototyping Results & Design Refinement (Prototype and Implementation Plans)(10%)**: As an early step in the development of the selected design concept, user feedback will be sought using low-fidelity experience prototyping methods. Based on the findings from these studies, refinements to the initial design proposal will be presented.
5. **Final Prototype and Demo (20%)**: The final design will be presented as a live experiential demo, which will seek to document and "sell" the design to an imagined set of stakeholders. Students will demonstrate knowledge of web-based technologies required for their demo to function correctly and prototype their demo accordingly (e.g., demonstrated knowledge of MVC architecture, CSS, HTML)
6. **Final Poster, Video and Project Brief (25%)**: The final milestone will be a proposal for a "real" system based on your prototype and demo. To make your proposal persuasive, you must synthesize the insights obtained from each phase of the project, including ideation, design refinements, needs finding results, evaluations, and final concept. The proposal will be accompanied by a short video showing the imagined interaction with the designed system.

You will also be graded on:

- Other assignments and activities: 10 points
- Participation (and peer evaluation if applicable): 10 points

Project Concepts

Your final project will unfold across several milestones, beginning with an exploration of initial design concepts and ending with a demo and final video prototype. While there is no overarching theme for the project, I have provided potential domains to consider as starting points:

- Health, Activity & Fitness Tracking
- Smart Homes
- On-Demand Economy (sharing economy, gig economy, etc.)
- Education
- Machine Learning / Artificial Intelligence
- Social Media
- Workplace Environments
- ...more

If you are still unsure of a topic, try observing: people, a specific area of interest (high-traffic areas, low-traffic areas, physical spaces, etc.), or a place you've never been. Take notes for about one hour and then, identify any issues you noticed or interesting aspects of your observation. Consider developing concepts to address an issue or issues that you identified.

This is an intentionally broad mandate and you are encouraged to consider multiple potential audiences, perspectives, scales, technologies, and forms of memory before selecting a single concept to develop in depth.

High Level Design Criteria

All design takes place within a set of constraints. It will be part of your task to discover the particular constraints and success criteria for your particular design, however there are some basic dimensions that can provide a starting point for your thinking about what issues your design will ultimately have to address.

- **Acceptability:** What arguments can you provide that your design will be acceptable to its intended audience? Of particular interest with many pervasive systems is the question of privacy--what level of privacy will those who participate in the system expect, what are the tradeoffs, and how does your system navigate the potential concerns?
- **Appropriateness:** How does your design fit in with audience members' current and imagined practices, norms, values, goals, and desires? Key to this concern is the question of empathy. To what extent does your design exhibit a deep understanding of your audience and what will work for them?
- **Usefulness:** What need does your system fulfill and/or what benefit does it provide, and to whom? Does it provide a new capability or a new way of doing something that your audience already does? What arguments can you provide for the value of your system? Does the value proposition differ for different members of your audience?
- **Pleasurability:** Does the system provide a pleasurable, meaningful, and/or aesthetically satisfying experience for its audience? Keep in mind that compelling and pleasurable experiences need not be calm or "pleasant," but can be also be produced through provocation and engagement.
- **Legibility:** Does the system make sense to its audience? Is it usable, comprehensible, and meaningful?
- **Plausibility:** Can you construct a believable argument about how the conditions (technological, social) for your system's success will prevail in some designated future timeframe? What changes will need to happen, whether through "organic" change or targeted investment by some invested institution in order for your system to achieve ultimate success? How successful would your system be under less ideal conditions, and how does the performance of the system degrade gracefully?
- **Demonstrability:** Given that your system is designed to achieve its full glory under projected future conditions, how can you convey the intended experience using today's technologies? What tools and components are available for you to mash-up and prototype the intended system experience in order to get feedback from audience members and create buy-in with potential stakeholders?

Assessment:

Final Grades will be assigned according to the following scale:

A+	98-100%
A	94-97%
A-	90-93%
B+	88-89%
B	84-87%
B-	80-83%
C+	77-79%
C	73-77%

How to Succeed

User experience research and design is a risky business. Not all projects succeed. Sometimes they go down blind alleys, struggle to find a compelling problem definition, underestimate the difficulty of a particular problem, or discover that a simple, best solution for a chosen problem already exists. Because there are circumstances beyond your control and understandable miscalculations, I will be looking at a number of criteria to assess your performance on the project. While specific milestones may name more specific, narrow criteria, in general I will be looking for evidence of the following throughout all your efforts:

- Mastery of the methods covered during your time at UMSI
- Your ability to derive insight from the methods
- Your ability to derive insight and inspiration from existing research and your research findings
- Creativity of your proposed solution(s)
- Thoroughness and thoughtfulness of your solutions (especially with regard to the “High Level Design Criteria” outlined above)
- Persuasiveness of your communicative materials (presentations, web content, demos)
- Integration of insights, inspiration, empathy, and creativity
- Effective planning and prioritization
- Your ability to identify, learn from, and correct your mistakes
- Do your best, trust in you and your partner (if applicable), and have fun!

Late assignments

Many of our classroom activities will involve getting feedback from your peers and the instructor on assignments and on your projects. For this reason, it is important that you finish your assignments on time and come to class prepared to discuss it. Late assignments will be penalized 2 points after the official deadline and an additional 1 point per 24-hour period. Unexcused presentations or assigned homework will not be accepted. Unexcused late assignments will only exist under very special circumstances and with prior arrangement with the instructor.

Attendance

This class does not have a formal attendance policy but your group activities and class participation grade both rely on you being in class. You are responsible for finding out what you missed in class by referring to the syllabus and to your classmates.

Communication

All course material (e.g., syllabus, schedule, lecture slides, any assignment descriptions, additional resources) will be made available via Canvas. You are responsible for keeping up-to-date with the materials on Canvas, as dates, assignment details, and lecture topics may change as the semester progresses. The instructors will broadcast announcements via Canvas announcements whenever significant changes are made to the materials.

Classroom Etiquette

To create and preserve a classroom atmosphere that optimizes teaching and learning, we all share a responsibility in creating a civil and non-disruptive forum. Students are expected to conduct themselves at all times in this classroom in a manner that does not disrupt teaching or learning. Classroom participation is a part of your grade in this course. Our in-class discussions should be respectful and courteous to everyone, and relevant to the topic we are discussing. Our discussions are meant to allow us to hear a variety of viewpoints and this will happen if we respect each other and our differences. Our time is valuable and behavior which disrupts our learning process may lead to point reductions and/or removal from class.

This course works best when:

- We are all respectful of each other and each other's time and ideas,
- When we are active participants in class discussions and activities,
- When we share our past experiences as it relates to the class.

Be on time to class. Since this course is a mastery course, your expectation is to attend class on time as you would for a job. Class will begin promptly at 9:10pm.

*The classroom etiquette clause is an updated and modified version of East Carolina University's Office of Student Affairs' disruptive behavior clause here:

https://www.ecu.edu/cs-studentaffairs/dos/customcf/classroom_disruption.pdf

Academic Integrity

All assignments in this course are clearly designated as "peer" or "individual" assignments. For the individual assignments, all submitted work must be your own, original work. For peer assignments, all submitted work must be the original work of the group. Any excerpts from the

work of others (e.g., books, articles, web pages) must be clearly identified as a quotation, and a proper citation provided. **You are expected to understand what plagiarism is and how to avoid it. If you are uncertain about what the boundaries are, you must educate yourself. Plagiarism.org and Purdue's Online Writing Lab provide excellent materials that can help you avoid trouble in 699 and elsewhere.** Any violation of the School's policy on Academic and Professional Integrity (stated in the Master's and Doctoral Student Handbooks) will result in severe penalties, which might range from failing an assignment, to failing a course, to being expelled from the program, at the discretion of the instructor and the Associate Dean for Academic Affairs.

ACCOMMODATION FOR STUDENTS WITH DISABILITIES

If you think you need an accommodation for a disability, please let me know at your earliest convenience. Some aspects of this course, the assignments, the in-class activities, and the way we teach may be modified to facilitate your participation and progress. As soon as you make me aware of your needs, we can work with the Office of Services for Students with Disabilities (SSD) to help us determine appropriate accommodations. SSD (734-763-3000; ssd.umich.edu/) typically recommends accommodations through a Verified Individualized Services and Accommodations (VISA) form. I will treat any information that you provide in as confidential a manner as possible.

Student Mental Health and Wellbeing

The University of Michigan is committed to advancing the mental health and wellbeing of its students, while acknowledging that a variety of issues, such as strained relationships, increased anxiety, alcohol/drug problems, and depression, directly impacts students' academic performance.

If you or someone you know is feeling overwhelmed, depressed, and/or in need of support, services are available. For help, contact Counseling and Psychological Services (CAPS) at (734) 764-8312 and <https://caps.umich.edu/> during and after hours, on weekends and holidays or through its counselors physically located in schools on both North and Central Campus. You may also consult University Health Service (UHS) at (732) 764-8320 and <https://www.uhs.umich.edu/mentalhealthsvcs>, or for alcohol or drug concerns, see www.uhs.umich.edu/aodresources.

For a more comprehensive listing of the broad range of mental health services available on campus, please visit: <http://umich.edu/~mhealth/>

ACADEMIC INTEGRITY

Abridged version: Unless otherwise specified in an assignment, all submitted work must be the work of each individual student's own, original work. If students are referencing others' work, put it in quotes! If students are directly quoting, or building on others' writing, provide a citation. See [the Rackham Graduate policy on Academic and Professional Integrity](#) for the definition of plagiarism, and associated consequences.

Collaboration: UMSI strongly encourages collaboration while working on some assignments, such as homework problems and interpreting reading assignments as a general practice. Active learning is effective. Collaboration with other students in the course will be especially valuable in summarizing the reading materials and picking out the key concepts. Students must, however, write their own homework submission on their own, in the individual student's own words, before turning it in. Students who work with others on the homework must list any and all collaborators on the written submission. Each course and each instructor may place restrictions on collaboration for any or all assignments. Read the instructions carefully and request clarification about collaboration when in doubt.

Plagiarism: All written submissions must be the student's own, original work. Original work for narrative questions is not mere paraphrasing of someone else's completed answer: students must not share written answers with each other at all. At most, students should be working from notes taken while participating in a study session. Largely duplicate copies of the same assignment will receive an equal division of the total point score from the one piece of work and are subject to receiving negative credit. Students may incorporate selected excerpts, statements or phrases from publications by other authors, but they must be clearly marked as quotations and must be attributed. Cite any work that may come from or be inspired by the ideas of prior authors. Students may obtain copy- editing assistance, and may discuss ideas with others; however, all substantive writing and ideas must be the ideas of the individual student's own, or be explicitly attributed to another. See the student handbook available on the UMSI intranet for the definition of plagiarism, resources to help you avoid it, and the consequences for plagiarism, whether intentional or unintentional.

Reading Assignments

Reading assignments will be updated as we progress through the class. Because this is a new course, some readings will be added later in the semester based on topics that need further discussion.

Week 1: Overview

None

Week 2: UX Strategy and User Research

<http://ux.today/>

[Why CEOs don't care about UX and how to change their minds](#)

<https://uxdesign.cc/ux-trends-2017-46a63399e3d2>

Week 3: Information Architecture

Week 4: Agile Development and Project Management

Week 5: Understanding and Working with Customers

Week 6: Managing Team Conflict

Week 7: UX Design and Specification

Week 8: Entrepreneurship and Innovation

Week 9: Critical Thinking and Ethics

Week 10: Communicating your Design and Research Process

Week 11: Design Issues and Trends

Graham Dove, Kim Halskov, Jodi Forlizzi, and John Zimmerman. 2017. UX Design Innovation: Challenges for Working with Machine Learning as a Design Material. In Proceedings of the

2017 CHI Conference on Human Factors in Computing Systems (CHI '17). ACM, New York, NY, USA, 278-288. DOI: <https://doi.org/10.1145/3025453.3025739>