



Multidisciplinary Graduate Engineering Course Syllabus

Course Information

User Experience Design and Testing

CSYE 7280

Spring 2024

Instructor Information

Peter McKeown

p.mckeown@northeastern.edu

Teaching Assistant (TA) Information

TAs will be announced in first class. TAs will be available in class, over Slack, and during office hours (timing TBD).

Course Prerequisites

This class assumes no prior experience in design principles, user experience design, product design, or usability testing but students should have an interest in, and curiosity about, all of the topics above.

Course Description

In just the last few years, customer expectations for high quality, easy-to-use products have risen sharply, and poorly designed, poorly built products simply won't be tolerated. In this course, students will learn tools and techniques that will help them understand good design, understand their customers needs and desires, and design solutions that are helpful, efficient, and delightful to use.

In modern businesses, it is understood that all disciplines will contribute to planning and building easy to use products, that solve real user pain points. Through two hands-on projects, we'll apply user centered design techniques to understand our users, use design and prototyping tools to build mockups and prototypes, then test our solutions to validate our direction. We'll also present our work in a way that will highlight the value for both customers and the business.

This is a great course for:

- Engineers who would like to learn more about how design partners work so you can partner more closely and efficiently with them to influence strategic direction.
- Those in startup environments who may wear many hats, including engineer, product manager, designer, and user researcher.
- Students considering a product design track who want to learn new techniques and build portfolio pieces to illustrate their work.

Course Objectives

By the end of the course students will:

- Understand the importance of basic design principles like layout, spacing, color, font usage, and accessibility.
- Have a clear understanding of modern product design process, tools, and techniques.
- Learn how their work, as engineers, entrepreneurs, or product designers will contribute to defining strong strategic direction for businesses.
- Learn Design Sprint, a popular technique used widely in technology companies today to solve complex problems quickly and efficiently.
- Complete two end-to-end design projects, including usability testing, that will be presented in a product design portfolio format.
- Be armed with valuable user centered, problem solving techniques that can be applied immediately in any business setting.

Reading Materials

- **Strongly suggested:** Sprint: How to Solve Big Problems and Test New Ideas in Just Five Days
By Jake Knapp, John Zeratsky
- Suggested: Lean UX: Designing Great Products with Agile Teams
By Jeff Gothelf and Josh Seiden
- Suggested: The User Experience Team of One: A Research and Design Survival Guide
By Leah Buley

Software

- **Required:** Figma: <https://www.figma.com/>
Online design and prototyping tool, free for students
Students are required to master the basics and intermediate features of Figma and students who are more proficient generally experience better course outcomes. Some training will be provided but students are encouraged to start early and build their skills. YouTube has a lot of quality training material.
- **Required:** we use Slack for most group and one on one communication. Email is also an option.

Course Format

During this course we'll complete two hands-on projects. We'll apply user centered design techniques to understand our users, use design and prototyping tools to build mockups and prototypes, then test our solutions to validate our direction.

In the first project we'll design a new app, end to end, using traditional product design techniques. In the second project we'll use the Design Sprint method to design a major new feature set into an existing app. Before starting either project we'll learn design fundamentals and spend some time developing a basic Figma

skill set that is critical for the design exercises that follow.

Grading

Grades are based primarily on two major projects and presentation of them to the class. Weekly homework makes up the third component of grades. Projects are graded on a rubric that includes Figma execution, App design, portfolio design, craft. A more detailed breakdown will be provided in class.

- **Project 1** comprises 30% of grade.
- **Project 2** comprises 50% of grade.
- **Weekly homework** comprises 20% of grade.

Project 2 is weighted more heavily because we are still learning tools and techniques when we deliver project 1. Homework is often a deciding factor in how well a student performs and failure to deliver homework on time can have a major impact on overall grade.

Grading philosophy and observations

- Most students are new to design tools and processes and that is taken into account. Illustrating an understanding of the design process and applying a strong process is most important. Having said that, Figma execution and illustrating an understanding of design skills also play a significant role in grading.
- Grades are not on a curve—although quality work and high effort will be recognized and we should expect a spread of grades.
- It is not uncommon for students to improve their grade between project 1 and project 2 as their skills and confidence build.

A note on mid course grades

Learning design philosophy and Figma basics are an important foundation so we'll spend some time during our first few weeks focused on these topics. As a result, our first project usually doesn't align neatly with the course halfway mark – Project 1 is usually complete a week or two after the course mid point and students will see their first major grade at that time.

Grading scale

A: 94-100%	B+: 87-89%	C+: 77-79%	F: 69 or below
	B: 84-86%	C: 74-76%	
A-: 90-93%	B-: 80-83%	C-: 70-73%	

Attendance/Late Work Policy

Attendance Policy

Students are expected to attend class in accordance with NE guidance. Attendance is taken in class and unexcused absences can result in grade deductions. We'll discuss this in more detail in our first class.

Students are expected to complete homework, participate in class discussions or other learning activities during the unit, and complete weekly design assignments. It is understood that there might

be one week when active participation in ongoing class conversations and learning activities might be delayed. Beyond one week's time, if there is an absence or lateness in participation (1) faculty must be notified in advance; (2) grades will be adjusted accordingly.

Late Work Policy

Students must submit assignments by the deadline in the time zone noted in the syllabus. Students must communicate with the teacher and/or TAs prior to the deadline if they anticipate work will be submitted late. Work submitted late without prior communication with faculty will not be graded and will impact final grade.

End-of-Course Evaluation Surveys

Your feedback regarding your educational experience in this class is particularly important to the College of Professional Studies. Your comments will make a difference in the future planning and presentation of our curriculum.

At the end of this course, please take the time to complete the evaluation survey at <https://neu.evaluationkit.com>. Your survey responses are **completely anonymous and confidential**. For courses 6 weeks in length or shorter, surveys will be open one week prior to the end of the courses; for courses greater than 6 weeks in length, surveys will be open for two weeks. An email will be sent to your Husky Mail account notifying you when surveys are available.

Academic Integrity

A commitment to the principles of academic integrity is essential to the mission of Northeastern University. The promotion of independent and original scholarship ensures that students derive the most from their educational experience and their pursuit of knowledge. Academic dishonesty violates the most fundamental values of an intellectual community and undermines the achievements of the entire University.

As members of the academic community, students must become familiar with their rights and responsibilities. In each course, they are responsible for knowing the requirements and restrictions regarding research and writing, examinations of whatever kind, collaborative work, the use of study aids, the appropriateness of assistance, and other issues. Students are responsible for learning the conventions of documentation and acknowledgment of sources in their fields. Northeastern University expects students to complete all examinations, tests, papers, creative projects, and assignments of any kind according to the highest ethical standards, as set forth either explicitly or implicitly in this Code or by the direction of instructors.

Go to <http://www.northeastern.edu/osccr/academic-integrity-policy/> to access the full academic integrity policy.

University Health and Counseling Services

As a student enrolled in this course, you are fully responsible for assignments, work, and course materials as outlined in this syllabus and in the classroom. Over the course of the semester if you experience any health issues, please contact UHCS.

For more information, visit <https://www.northeastern.edu/uahcs>.

Student Accommodations

Northeastern University and the Disability Resource Center (DRC) are committed to providing disability services that enable students who qualify under Section 504 of the Rehabilitation Act and the Americans with Disabilities Act Amendments Act (ADAAA) to participate fully in the activities of the university. To receive accommodations through the DRC, students must provide appropriate documentation that demonstrates a current substantially limiting disability.

For more information, visit <https://drc.sites.northeastern.edu>.

Library Services

The Northeastern University Library is at the hub of campus intellectual life. Resources include over 900,000 print volumes, 206,500 e-books, and 70,225 electronic journals.

For more information and for education specific resources, visit <https://library.northeastern.edu>.

24/7 Canvas Technical Help

For immediate technical support for Canvas, call 617-373-4357 or email help@northeastern.edu

Canvas Faculty Resources: <https://canvas.northeastern.edu/faculty-resources/>

Canvas Student Resources: <https://canvas.northeastern.edu/student-resources/>

For assistance with my Northeastern e-mail, and basic technical support:

Visit ITS at <https://its.northeastern.edu>

Email: help@northeastern.edu

ITS Customer Service Desk: 617-373-4357

Diversity and Inclusion

Northeastern University is committed to equal opportunity, affirmative action, diversity, and social justice while building a climate of inclusion on and beyond campus. In the classroom, members of the University community work to cultivate an inclusive environment that denounces discrimination through innovation, collaboration, and an awareness of global perspectives on social justice.

Please visit <http://www.northeastern.edu/oidi/> for complete information on Diversity and Inclusion

Title IX

Title IX of the Education Amendments of 1972 protects individuals from sex or gender-based discrimination, including discrimination based on gender-identity, in educational programs and activities that receive federal financial assistance.

Northeastern's Title IX Policy prohibits Prohibited Offenses, which are defined as sexual harassment, sexual assault, relationship or domestic violence, and stalking. The Title IX Policy applies to the entire community, including male, female, transgender students, faculty, and staff.

In case of an emergency, please call 911.

Please visit <https://www.northeastern.edu/ouec> for a complete list of reporting options and resources both on- and off-campus.