Cornell University

DEA 3308/6408 Positive Design Studio

Semester	2019—20 Spring
Credit	4 units
Time	Mondays and Wednesdays between 08:00 and 11:00
Course website	Cornell Canvas

Instructor	Jay Yoon, PhD
Instructor email	jy846@cornell.edu
Office	3427 Martha Van Rensselaer Hall
Office hour	Thursdays 21:00 – 22:00 pm (EDT) / Fridays 09:00 - 11:00 am by appointment

Teaching Assistant (TA)	Yixiao Wang
TA email	yw697@cornell.edu
Office hour	Friday 09:00 - 11:00 by appointment

COURSE DESCRIPTION[i]

This 4-credit studio-based course focuses on the practice of 'Positive Design'—design that aims to proactively promote or support the well-being of individuals or communities by evoking valuable experiences[ii]. The studio takes a project-oriented approach, through which students will deepen (1) their understanding of the state-of-the-art design knowledge and methodology, and (2) practical design skills for systematically developing design solutions that contribute to the users' subjective well-being. The project will address current societal challenges such as social responsibility, education, and healthcare. The students will envision and formulate explicit design intentions that include experiential effects on the well-being of users and conceptualize products[iii] that fit with these intentions, e.g., positive emotions, self-awareness, intrinsic motivation, virtues, and empathy.

Expected prior experience for enrollment

This course is suitable for a broad audience interested in the intersection of design, technology, and well-being. Although specific technical skills (e.g., programming and digital fabrication) are not required, experience in human-centered design is essential. Enrollment priority will be given to students who have completed DEA 2730 Human-Centered Design Methods or DEA4700/6700 Applied Ergonomics Methods.

LEARNING OBJECTIVES AND OUTCOMES

- To develop practical skills for integrating psychological well-being into planning, ideation, analysis, and evaluation of new design solutions
- To demonstrate scenarios and case studies that provide examples of the ways design impacts users' emotion, behavior, and well-being
- To understand and argue the role of the design and the designer in a socially responsible manner

COURSE DELIVERY AND LEARNING MODES

This studio-based course will run two days every week for a semester, following an active learning approach, in which a balanced combination of mini-lectures, design projects (both individual and group), critiques, and self-study is applied.

---

i The current version of the syllabus is subject to revision (last updated: September 19, 2019). Revisions will be announced and distributed via Cornell Canvas

ii Unlike traditional problem-driven approaches to design (i.e., removing problems), Positive Design takes a possibility-driven approach to make the transition from neutral to positive experiences (i.e., adding new values). For details, see Desmet, P. M. A., & Pohlmeyer, A. E. (2013). Positive design: An introduction to design for subjective well-being. *International Journal of Design*, 7(3), 1–15.

iii 'Product' represents a continuum of different design solutions that encompass multiple manifestations and scales, e.g., user interface, interior, service, product, training program, and facility planning.

Lectures will provide psychological principles and determinants of user behavior and well-being as well as examples of design cases. Active participation of the students is crucial because the course is based on two design projects in which research and design activities are intertwined in the learning activities.

The course is divided into two phases: (1) developing design and technology foundations through an individual design project, and (2) group design project. In the first phase, students will acquire a basic understanding of Positive Design, including design for emotion, behavior change, and well-being. Some basic prototyping skills (e.g., Arduino programming) will be gained through a small-scale individual design project. The students will familiarize themselves with the process of developing Behavior Intervention Technologies (BITs). In the second phase, students will create a concept and design blueprint of BITs, which will be documented through persona, use cases, storyboards, user interface sketches, and full-scale experiential prototypes.

Reading materials will be offered that are crucial for students to get familiar with the course's foci. The chosen reading materials are a curated compilation of topic-specific journal articles, book chapters, conference proceedings, web articles, and booklets, which will be distributed in a digital format via the course website.

The course requires a highly iterative design process that puts prototyping at the core of its activities. Each iteration generates concrete manifestations of a design proposal that is experiential and testable, and is expected to rapidly feed new insights back into the design process. To facilitate this process, the Principles of the Interaction Designer proposed by Jaskiewicz will be applied throughout the course activities:

1. *My design process is iterative.*
2. *I think and prototype fast.*
3. *I will not wait for a great idea to start designing.*
4. *I generate knowledge through all design activities.*
5. *I understand the role of technology in society.*
6. *I use technology as a design material.*
7. *I think in networks (data, people, things, organizations).*
8. *I merge human and technology perspectives.*
9. *I understand that solving a problem is foremost a matter of framing.*
10. *I don't believe design ends with the release of a product.*

COURSE CONTENTS AND SCHEDULE[iv]

#		Lecture and student seminar	Course activities
1-1	Wed, Jan 22	• Course overview	
2-1	Mon, Jan 27	• Introduction to Positive Design • Introduction to project 1 (individual design project)	• Focus setting and literature review • Framing a design challenge
2-2	Wed, Jan 29	• Character strengths and virtues	• Reviewing design cases / discussing underlying design strategies • Generating and discussing ideas
3-1	Mon, Feb 3	• Hedonism and eudaimonia • Basic fabrication techniques	• Generating and discussing ideas • Rapid prototyping and concept refinement
3-2	Wed, Feb 5	• Hedonic treadmill • Design language—Defining form factors and embodiment	• Defining design language
4-1	Mon, Feb 10	• Human psychological needs	• Prototyping and idea refinement
4-2	Wed, Feb, 12		
5-1	Mon, Feb 17		
5-2	Wed, Feb 19		
6-1		**February break**	
6-2	Web, Feb 26		

iv The course contents are subject to alterations in the event of unforeseen circumstances. The up-to-date syllabus is available at Canvas.

7-1	Mon, Mar 2	• Prototyping and idea refinement	
7-2	Wed, Mar 4		
8-1	Mon, Mar 9	• Final presentation—Project 1	
8-2	Wed, Mar 11	• Reflection on Project 1 • Student seminar 1: Experience design versus interface design / sketching interaction [1]	
9-1	Mon, Mar 16	• Suspended	
9-2	Wed, Mar 18		
10-1	Mon, Mar 23		
10-2	Wed, Mar 25		
11		• Spring break	
12-1	Mon, Apr 6	• Course overview	

12-2	Wed, Apr 8	• Introduction to project 2 (group design project)
		• Design for positive emotion regulation
			• Project setting
			  o Planning the project / schedule
			  o Formulating a team of three designers
			  o Allocating tasks and roles

13-1	Mon, Apr 13	• From thinking on to acting on / experience prototyping [2]	• Desktop study
			  o Studying the phenomenon
			  o Literature review on design considerations (users and contexts)

13-2	Wed, Apr 15	• Design critique [3]
		• Assessing impact [4]
			• User research design
			  o Determining design opportunities
			  o Envisioning expectations as to the product's experiential qualities
			  o Establish design goals and specification

14-1	Mon, Apr 20		• Design iteration
			  o Exploring and testing design ideas
			  o Defining design language
			  o Advancing to a concrete design concept (drawings, descriptions and argumentations)

14-2	Wed, Apr 22		• Preparing the design evaluation
			  o Formulating a draft of aims and research questions of user study
			  o Refining the research methods through a pilot study

15-1	Mon, Apr 27		• Carrying out the evaluation study
			  o Collecting and analyzing the data
			  o Reporting results and drawing conclusions
			  o Proposing recommendations for further improvement of the design solution
			  o Reflecting on the research method and data analysis process

15-2	Wed, Apr 29		

16-1	Mon, May 4	• Final presentation	• Packaging the deliverables
			  o Creating a demonstration video
			  o Finalizing a paper and a poster

17-1	Mon, May 11	• Submission of project deliverables	

■ Project 1 (from week 1 to 6), ■ Project 2 (from week 12 to 17)

[1] Experience design versus interface design / sketching interaction
    1) Buxton, B. (2010). Sketching user experiences: Getting the design right and the right design. (pp. 127-141). San Francisco, CA: Morgan Kaufmann.
[2] From thinking on to acting on / experience prototyping
    1) Buchenau, M., & Suri, J. F. (2000). Experience prototyping (pp. 424–433). Presented at the 3rd conference on Designing interactive systems: processes, practices, methods, and techniques, New York, New York, USA: ACM.
    2) Buxton, B. (2010). Sketching user experiences: Getting the design right and the right design. (pp. 229-244). San Francisco, CA: Morgan Kaufmann.
       Tomitsch, M., & Wrigley, C. (2018). Design. Think. Make. Break. Repeat. (pp. 58-59). Bis Publishers.
[3] Design critique
    1) Kolko, J. (2011). Endless nights - Learning from design studio critique. Interactions, 18(2), 80–81.
    2) Tomitsch, M., & Wrigley, C. (2018). Design. Think. Make. Break. Repeat. (pp. 52-53). Bis Publishers.
[4] Assessing impact
    1) Tromp, N., & Hekkert, P. (2016). Assessing methods for effect-driven design: Evaluation of a social design method. *Design Studies*, *43*, 24–47.

ASSESSMENT AND GRADING SCALE

The course grade is composed of the four key elements: (1) individual design project, and (2) group design project. The total points will be converted into a percentage and rounded off. Students will receive letter grades with pluses and minuses.

	Individual project	Group project	Total
Points	50 pts	50 pts	100 pts

MARKING CRITERIA OF DESIGN PROJECT

The assessment and marking criteria of the design projects (both individual and group) are as follows.

Criterion	Weighting	Criterion description
Design and development process	50%	• How the design intentions were specified and expressed to support users' well-being • How the iterative prototyping process substantiated the design strategy, changes to prototypes, and forms of staging the experiences (i.e., reflection on action). • How the process and schedule of the project were managed

Design communication	50%	• Succinct and effective communication of
		  ○ What your solution is and what specific area of user needs it addresses
		  ○ How you arrived at the design decisions
		  ○ How your design solution benefits the target users (or community))
		• Fidelity, used technology, and construction of prototypes increased within and across project iterations
		• Quality of visual and audio communication across the whole presentation

DELIVERABLES OF DESIGN PROJECT

Deliverable	Description	Individual project	Group project
A prototype	An experiential interactive prototype that serves intended functions in detail	Required	Required
A written paper	A 4~8-page written paper communicates the problem, design process and methodology, idea generation and screening, and prototypes of the design solution as well as an argument of its effectiveness and usefulness.	N/A	Required
A demo video	A 2~3-minute video succinctly demonstrates the design solution, conveying the problem, process (an overview of the methods used to design and evaluate the design solution), and its advantages along with usage scenarios.	Required	Required
An oral presentation	A 10~15-minute oral presentation conveys the project's aim and vision, progression through the entire design process, and communication of key aspects of the final design solution.	Required	Required

- The format of a written paper will follow the guideline of case studies submission of the ACM CHI Conference on Human Factors in Computing Systems (hereafter called "CHI")— http://chi2019.acm.org/authors/case-studies. The submission format and document template file are available on the website.
- The format of a demo video will stick to the guideline of video showcase of CHI— http://chi2019.acm.org/authors/video-showcase. It is recommended that students review the guide to a successful video production and submission— http://chi2019.acm.org/guide-to-a-successful-video-submission.
- There is no specific guideline for an oral presentation to follow. Good and bad examples of an oral presentation and associated considerations are available at https://chi2018.acm.org/guide-to-a-successful-presentation.

Late submission of any item will result in a 10% deduction from the grade of the related project.

LEARNING RESOURCES

READINGS

All reading materials, including papers and book chapters, will be distributed in a digital format via Cornell Canvas. Recommended readings:

Niedderer, K., Clune, S., & Ludden, G. (Eds.). (2017). *Design for Behaviour Change: Theories and practices of designing for change.* Routledge.

Dolan, P. (2014). *Happiness by design: Change what you do, not how you think*. Penguin.

Calvo, R. A., & Peters, D. (2014). *Positive computing: technology for wellbeing and human potential*. MIT Press.

Buxton, B. (2010). *Sketching user experiences: getting the design right and the right design.* Morgan Kaufmann.

PROTOTYPING MATERIALS

Both individual and group design projects take iterative prototyping. Prototyping devices and facilities will be available to use at the digital design and fabrication studio located at HEB 2L31. There are areas specifically planned as a wood shop, metal shop, assembly studio, paint room, laser studio, and 3D print studio. For safety, all students are required to receive safety training before using the studio. The general information about the facility use is accessible at https://www.human.cornell.edu/about/administration/facilities/d2fs.

COURSE POLICY

ATTENDANCE

Attendance is mandatory, i.e., students are expected to attend all classes. Absence will be accepted only in exceptional circumstances and is to be requested in advance and in writing (email to jy846@cornell.edu). Repeated absence not previously agreed—exceeding three sessions—will result in a grade penalty at the end of the semester.

DISSEMINATION OF COURSE OUTCOMES

Upon completion of the course, some of the course outcomes, including papers, posters, and demo-movies of the projects will be made available on the course website under the approval of the students. The students who produced the work will be credited. This is to inform and inspire future students. Perhaps, some students want to embargo their project outcomes for certain reasons. In this case, consult the instructor or the teaching assistant and let them know the decision in advance. Non-participation will not affect the student's end grade.

DIVERSITY AND INCLUSION STATEMENT

Cornell University and the course instructor committed to full inclusion in education for all persons. Services and reasonable accommodations are available to persons with temporary and permanent disabilities, to students with Deferred Action for Childhood Arrivals (DACA) or undocumented status, to students facing mental health or other personal challenges, and to students with other kinds of learning challenges. Please feel free to let the instructor know if there are circumstances affecting your ability to participate in class. Some resources that might be of use include:

- Office of Student Disability Services: https://sds.cornell.edu/
- Cornell Health CAPS (Counseling & Psychological Services): https://health.cornell.edu/services/counseling-psychiatry
- Undocumented/DACA Student support: In the Dean of Students office, contact Kevin Graham (Kevin.Graham@cornell.edu) and see the list of campus resources at https://dos.cornell.edu/undocumented-daca-support/undergraduate-admissions- financial-aid

This course follows the accommodations procedure of Cornell University policy. The request can be made through the student service services. To facilitate all necessary aids and services in a timely manner, it is recommended that students

send an early notification to the instructor—within the first two weeks of classes, or at least two weeks before accommodations are expected to begin. For more details, check the procedure at https://sds.cornell.edu.

ACADEMIC INTEGRITY

Absolute integrity is expected of every Cornell student in all academic undertakings. Integrity entails a firm adherence to a set of values, and the values most essential to an academic community are grounded on the concept of honesty with respect to the intellectual efforts of oneself and others. Academic integrity is expected not only in formal coursework situations, but in all University relationships and interactions connected to the educational process, including the use of University resources. While both students and faculty of Cornell assume the responsibility of maintaining and furthering these values, this document is concerned specifically with the conduct of students. A Cornell student's submission of work for academic credit indicates that the work is the student's own. All outside assistance should be acknowledged, and the student's academic position truthfully reported at all times. In addition, Cornell students have a right to expect academic integrity from each of their peers. The Cornell code of academic integrity is available at https://cuinfo.cornell.edu/aic.cfm.