Course Syllabus

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HCDD 113: Foundations of Human-Centered Design and Development

Semester: Spring 2024

Section: Merged Sections

Instructional Mode: Asynchronous

Please note that the specifics of this Course Syllabus are subject to change. Instructors will notify students of any changes and students will be responsible for abiding by them. Even if you print this syllabus, please check the online version often.

Description

This course will focus on foundational theories, models, and methods needed to be effective human-centered design and development (HCDD) practitioners. Throughout the semester the course emphasizes what it means for application design and development to be context-aware, interaction-focused, and human-centered. The course will balance project work with quizzes, short essays, and discussions. Students will learn about key HCDD concepts from psychology, social science, and philosophy domains. Students will apply these concepts to real-world problems in addition to discussing and writing about them. Assignments will reflect the diverse career opportunities that students might anticipate (e.g. interaction design, learning solutions architecture, UX research). In addition, students will be introduced to a repertoire of human-centered methods and techniques that they will re-encounter and practice in future courses. This is an intensive, hands-on course designed for undergraduate students who have expressed an interest in the HCDD major.

Prerequisites

- None

Objectives

Upon completion of this course, students will be able to:

- Describe a condensed history of human-centered design & development, human-computer interaction, and user experience design
- Explain the Design Thinking paradigm and its different activities & phases
- Apply knowledge of physical abilities to real-world design projects
- Explain and apply key cognitive models to real-world design projects
- Explain and apply key social models to real-world design projects

- Explain how philosophical considerations apply to human-centered design & development
- Present design work in concise, aesthetically pleasing formats (e.g. live presentation, online portfolio, poster)

Instructor

- Dan Richert, **dkr5542@psu.edu (mailto:dkr5542@psu.edu)**
- Office hours: **Office Hours link (https://bit.ly/3sz1YKs)** or email for an appointment

Learning Assistant

- Neha Pravinkumar, **npp5429@psu.edu (mailto:npp5429@psu.edu)**
- Office hours: Monday, Tuesday 1:30 pm - 2:30 pm
  - **Office hour link (https://psu.zoom.us/j/2068483203)**
  - or email for an appointment

All course-related email, including messages to your instructor(s) and fellow students should be sent within Canvas, using the Inbox. Every attempt will be made for the instructor (or a substitute) to respond to email questions within 24 hours.

Additional instructor information can be found by selecting People and then the Teacher name.

Required Materials

- Norman, D. (2013). *The design of everyday things: Revised and expanded edition*. Basic books. ISBN: 9780465050659.
  - Purchase via BNC.
- Johnson, J. (2014). *Designing with the mind in mind: simple guide to understanding user interface design guidelines*, *Third Edition*. Elsevier. ISBN: 9780128182024.
  - Purchase via BNC.
- Other materials in Canvas and online, posted as assigned.

Assignments & Grading

The course will follow an active, problem-based approach to learning. Quizzes, essays and other homework assignments, group activities, and the final exam will provide the opportunity to gain practice with new concepts and skills, and develop and demonstrate a solid understanding of the course material.

Quizzes

About four (4) quizzes will be given over the course of the semester to encourage your ongoing attention to course material. Covered topics will be drawn largely from assigned readings, but all other lecture content and supplementary readings are also fair game.

Activities

Homework activities are assigned and reviewed regularly. Some of these will be short, reflective writing assignments, and others will involve applying the HCDD methods you will learn as part of the course. The purpose of many homework assignments is to encourage you to explore material *before* it is discussed in class. Homework assignments are marked with an emphasis on effort, quality, and completeness. Though some assignments are for group work (see course project below), note that this will be specified for each assignment and you should assume assignments are to be completed on your own, individually, unless explicit in the assignment.

Course Project

The course project will consist of analysis and design of an interactive application concept. You will work on the project exercises in groups of three-four. The instructor will assign group membership during the first few weeks of class. The purpose of this project is to give you hands-on, in-depth experience with a wide range of methods in human-centered design & development.

Final Exam

The final exam will be comprehensive, covering all aspects of the course. The final week of class will include an in-depth review session to explain what to expect on the exam.

In general, assignments will be graded based on the following general criteria:

- Correctness (e.g. concepts, techniques, and tools are used appropriately)
- Completeness (e.g. written work address all aspects of the problem as described in the assignment specification.)
- Clarity (e.g. written work and diagrams are free of typographical and grammatical errors, and are formatted neatly)

Course Grading Breakdown

Writing assignments & other individual work	25%
Project design & other group work	25%
Quizzes	30%
Final Exam	20%
TOTAL	100%

Course Grading Scale

The following are minimum cutoffs for each grade:

- 93.00% = A
- 90.00% = A-

- 87.00% = B+
- 83.00% = B
- 80.00% = B-
- 77.00% = C+
- 70.00% = C
- 60.00% = D
- less than 60.00% = F

Final grades WILL NOT be rounded up.

Course Policies and Expectations

Late Policy

- **Late Submissions:** All work must be completed and turned in before the due date and time.
  - Assignments submitted late are deducted 25% for each 24 hours period after the due date and time i.e max 75% within 24 hours of the due date and time, max 50% within the next 24 hours, and so on.
  - There are no exceptions to the late submission policy.
- Logging into Canvas - Students are expected to login regularly to check for course updates, announcements, emails, discussions, etc.
  - Updates will occur regularly so please make sure to keep up with announcements and updates to the course site.
- Emailing through Canvas - Students are expected to use Canvas for all course email communication.
- Attending virtual meetings - Students are expected to use specified virtual meeting tool(s) for collaboration, meetings, presentations, etc., as needed.

Group Work

Grading will be based on the rubric of the assignment for the work submitted. Individuals can have their grade adjusted lower from the team grade based upon the performance of the members in the group. Submitted work should include the names of the members who contributed to the submission. If the member did not contribute, then please leave their name off the work submitted. If the member did not fully complete the work they said they would do or missed a team deadline, the team can submit a % (percentage) of what the person did for their grade to be adjusted.

Resources

Find extensive information and links to many resources, including the Penn State library, web conferencing, course tools, writing help, and much more on the **Resources (https://docs.google.com/document/d/1Zsu5Lgaic3kLLiM3co5mxWU5B7lOfu15sppAQvsym6E/pub)** page.

Academic Integrity

Penn State and the College of Information Sciences and Technology are committed to maintaining **Penn State's policy on Academic Integrity (http://senate.psu.edu/policies-and-rules-for-undergraduate-students/47-00-48-00-and-49-00-grades/#49-20)** in this and all other courses. We take academic integrity matters seriously and expect you to become a partner to the University/College standards of academic excellence.

For more information, please review these policies and procedures:

- **Penn State World Campus Academic Integrity Resources (https://student.worldcampus.psu.edu/a-z-index/academic-integrity)**
- **College of IST Academic Integrity Resources (https://ist.psu.edu/current/undergraduate/advising/integrity)**

While utilizing additional sources outside of this class is encouraged for gaining a better understanding of course concepts, seeking explicit answers for graded assignments from outside sources (e.g. Course Hero, Chegg, tutoring services like tutor.com, etc.) is considered CHEATING and will not be tolerated. Sanctions range from failure of the assignment or course to dismissal from the University. Additionally, sharing course content without permission is a violation of copyright and may result in university sanctions and/or legal ramifications. Contact your instructor with questions related to this topic.

University Policies

Review current information regarding various Penn State policies (such as copyright, counseling, psychological services, disability and military accommodations, discrimination, harassment, emergencies, trade names, etc.) on the **University Policies (https://docs.google.com/document/d/1FIQdII2qw3SJOIgQWTWRByCxSbsnY6DcZA0JHzL4yBk/pub)** page.

Penn State takes great pride to foster a diverse and inclusive environment for students, faculty, and staff. Acts of intolerance, discrimination, or harassment due to age, ancestry, color, disability, gender, gender identity, national origin, race, religious belief, sexual orientation, or veteran status are not tolerated and can be reported through Educational Equity via the **Report Bias webpage (http://equity.psu.edu/reportbias/)** (http://equity.psu.edu/reportbias/).

Resources

Find extensive information and links to many Penn State and IST resources (including the Penn State libraries, video conferencing tools, technology and software, writing and research help, and much more) on the **Resources (https://docs.google.com/document/d/1Zsu5Lgaic3kLLiM3co5mxWU5B7lOfu15sppAQvsym6E/pub)** page.

Technical Requirements

Standard World Campus computer technical specifications are assumed for this course. **Please test your computer (https://courses.worldcampus.psu.edu/public/diagnostics/canvas.shtml)** for requirements. In addition, a webcam and a headset with a microphone are REQUIRED for the course. These may be used for virtual meetings, virtual office hours, interactions with classmates and your instructor, and group presentations - which are all conducted with virtual meeting tools. No special software is required.

Schedule

The following schedule outlines the topics covered in this course, along with the associated time frames, readings, activities, and assignments. All due dates reflect Eastern Time (ET). Specifying the time zone ensures that all students have the same deadlines, regardless of where they live.

Course Summary:

Date	Details	Due
Sun Oct 8, 2023	HCDD 113 Quiz #2 (https://psu.instructure.com/courses/2313030/assignments/15938311)	due by 11:59pm
Sun Oct 22, 2023	HCDD 113 Quiz #3 (https://psu.instructure.com/courses/2313030/assignments/15938310)	due by 11:59pm
Sun Nov 12, 2023	HCDD 113 Quiz #4 (https://psu.instructure.com/courses/2313030/assignments/15938308)	due by 11:59pm
Sun Jan 14, 2024	Course Overview (reading) (https://psu.instructure.com/courses/2313030/assignments/15681619)	due by 11:59pm
	Design Thinking (activity) (https://psu.instructure.com/courses/2313030/assignments/15681618)	due by 11:59pm
	Design Thinking (reading) (https://psu.instructure.com/courses/2313030/assignments/15681625)	due by 11:59pm
	HCDD History (video) (https://psu.instructure.com/courses/2313030/assignments/15681642)	due by 11:59pm
	Introduce Yourself! (activity) (https://psu.instructure.com/courses/2313030/assignments/15681613)	due by 11:59pm

Date	Details	Due
	Course Overview (reading)	to do: 11:59pm
	Design Thinking (reading)	to do: 11:59pm
	Why HCDD ? + Design Thinking (video)	to do: 11:59pm
	Academic Integrity Acknowledgment for Students (https://psu.instructure.com/courses/2313030/assignments/15681608)	due by 11:59pm
Mon Jan 15, 2024	HCDD History (video)	to do: 11:59pm
Tue Jan 16, 2024	Why HCDD ? + Design Thinking (video) (https://psu.instructure.com/courses/2313030/assignments/15681694)	due by 11:59pm
Sun Jan 21, 2024	Ethnography & Observation (reading)	to do: 11:59pm
	Norman Ch.6 - Design Thinking (video)	to do: 11:59pm
	Norman, The Design of Everyday Things, Chapter 6 (reading)	to do: 11:59pm
	Applying Norman Ch.6 (activity) (https://psu.instructure.com/courses/2313030/assignments/15681616)	due by 11:59pm
	Course Project Selection (activity) (https://psu.instructure.com/courses/2313030/assignments/15681621)	due by 11:59pm
	Norman Ch.6 - Design Thinking (video) (https://psu.instructure.com/courses/2313030/assignments/15681664)	due by 11:59pm
	Norman, The Design of Everyday Things, Chapter 6	due by 11:59pm

Date	Details	Due
	(reading) (https://psu.instructure.com/courses/2313030/assignments/15681670)	
Tue Jan 23, 2024	Norman, The Design of Everyday Things, Chapter 1 (reading)	to do: 11:59pm
	Ethnography & Observation (reading) (https://psu.instructure.com/courses/2313030/assignments/15681629)	due by 11:59pm
	Norman Ch.1, The Psychopathology of Everyday Things (video) (https://psu.instructure.com/courses/2313030/assignments/15681659)	due by 11:59pm
	Norman, The Design of Everyday Things, Chapter 1 (reading) (https://psu.instructure.com/courses/2313030/assignments/15681665)	due by 11:59pm
	Video Ethnography (activity) (https://psu.instructure.com/courses/2313030/assignments/15681691)	due by 11:59pm
Thu Jan 25, 2024	Johnson, Designing with the Mind in Mind, Intro & Ch.1, Perception (reading) (https://psu.instructure.com/courses/2313030/assignments/15681654)	due by 11:59pm
Fri Jan 26, 2024	M02-A01: Norman Ch.7 - The Business of Design (video) (https://psu.instructure.com/courses/2313030/assignments/15681614)	due by 11:59pm
Sun Jan 28, 2024	HCDD 113 Quiz #1 (https://psu.instructure.com/courses/2313030/assignments/15938309)	due by 11:59pm
	Personas (readings) (https://psu.instructure.com/courses/2313030/assignments/15681671)	due by 11:59pm
	Personas (video) (https://psu.instructure.com/courses/2313030/assignments/15681672)	due by 11:59pm
Mon Jan 29, 2024	Applying Norman Ch.1 - Affordances, Signifiers, etc.	due by 11:59pm

Date	Details	Due
	(activity) (https://psu.instructure.com/courses/2313030/assignments/15681615)	
	Course Project Personas (activity) (https://psu.instructure.com/courses/2313030/assignments/15681620)	due by 11:59pm
	Johnson Chs. 7&8, Memory & Attention (activity) (https://psu.instructure.com/courses/2313030/assignments/15681647)	due by 11:59pm
	Johnson, Designing with the Mind in Mind, Chs. 7 & 8, Attention (reading) (https://psu.instructure.com/courses/2313030/assignments/15681652)	due by 11:59pm
	Norman, The Design of Everyday Things, Chapter 2 (reading) (https://psu.instructure.com/courses/2313030/assignments/15681666)	due by 11:59pm
	The Diverge-and-Converge Technique for UX Workshops (reading) (https://psu.instructure.com/courses/2313030/assignments/15681686)	due by 11:59pm
Sun Feb 4, 2024	Norman Ch.2, The Psychology of Everyday Actions (video) (https://psu.instructure.com/courses/2313030/assignments/15681660)	due by 11:59pm
Tue Feb 6, 2024	Diverge-Converge Affinity Diagram (activity) (https://psu.instructure.com/courses/2313030/assignments/15681627)	due by 11:59pm
	Johnson, Designing with the Mind in Mind, Ch.9, Recognition/Recall (reading) (https://psu.instructure.com/courses/2313030/assignments/15681649)	due by 11:59pm
Sun Feb 11, 2024	Norman, The Design of Everyday Things, Chapter 3 (reading) (https://psu.instructure.com/courses/2313030/assignments/15681667)	due by 11:59pm

Date	Details	Due
Tue Feb 13, 2024	Norman Ch.3, Knowledge in the Head and in the World (video) (https://psu.instructure.com/courses/2313030/assignments/15681661)	due by 11:59pm
	Norman, The Design of Everyday Things, Chapter 4 (reading) (https://psu.instructure.com/courses/2313030/assignments/15681668)	due by 11:59pm
Thu Feb 15, 2024	Scenario-based Design (video) (https://psu.instructure.com/courses/2313030/assignments/15681680)	due by 11:59pm
	Scenarios (reading) (https://psu.instructure.com/courses/2313030/assignments/15681681)	due by 11:59pm
	Task Analysis (reading) (https://psu.instructure.com/courses/2313030/assignments/15681684)	due by 11:59pm
	Task Analysis (video) (https://psu.instructure.com/courses/2313030/assignments/15681685)	due by 11:59pm
Sun Feb 18, 2024	Group Project Cognitive Demands Table (activity) (https://psu.instructure.com/courses/2313030/assignments/15681633)	due by 11:59pm
	Group Project Task Analysis (activity) (https://psu.instructure.com/courses/2313030/assignments/15681638)	due by 11:59pm
Sun Feb 25, 2024	Johnson, Designing with the Mind in Mind, Chs.10 & 11, Learning (reading) (https://psu.instructure.com/courses/2313030/assignments/15681653)	due by 11:59pm
Thu Feb 29, 2024	Norman Ch.4, Knowing What to Do... (video) (https://psu.instructure.com/courses/2313030/assignments/15681662)	due by 11:59pm
	Norman Ch.5 - Human Error? (video) (https://psu.instructure.com/courses/2313030/assignments/15681663)	due by 11:59pm

Date	Details	Due
	Use Cases (video) (https://psu.instructure.com/courses/2313030/assignments/15681687)	due by 11:59pm
Sun Mar 3, 2024	Group Project Scenarios (activity) (https://psu.instructure.com/courses/2313030/assignments/15681637)	due by 11:59pm
	Johnson, Designing with the Mind in Mind, Chs. 2-5, Perception/Vision (reading) (https://psu.instructure.com/courses/2313030/assignments/15681650)	due by 11:59pm
	Norman, The Design of Everyday Things, Chapter 5 (reading) (https://psu.instructure.com/courses/2313030/assignments/15681669)	due by 11:59pm
Mon Mar 4, 2024	Spring Break Begins (https://psu.instructure.com/calendar?event_id=4408608&include_contexts=course_2313030)	12am
Sun Mar 10, 2024	Spring Break Ends (https://psu.instructure.com/calendar?event_id=4408609&include_contexts=course_2313030)	12am
Thu Mar 14, 2024	Design Rationale (reading) (https://psu.instructure.com/courses/2313030/assignments/15681622)	due by 11:59pm
	Design Rationale (video) (https://psu.instructure.com/courses/2313030/assignments/15681624)	due by 11:59pm
Fri Mar 15, 2024	M04-A04: Johnson, Ch.13 (online reading) (https://psu.instructure.com/courses/2313030/assignments/15681656)	due by 11:59pm
	QOC for Next Generation Degree Audit (activity) (https://psu.instructure.com/courses/2313030/assignments/15681679)	due by 11:59pm
Sun Mar 17, 2024	Group Project Use Case Diagram (activity) (https://psu.instructure.com/courses/2313030/assignments/15681639)	due by 11:59pm

Date	Details	Due
	Group Project Use Case Specifications (activity) (https://psu.instructure.com/courses/2313030/assignments/15681640)	due by 11:59pm
	Johnson, Designing with the Mind in Mind, Ch.12, Human Decision Making (reading) (https://psu.instructure.com/courses/2313030/assignments/15681648)	due by 11:59pm
	Johnson, Designing with the Mind in Mind, Chs. 6, 13, 14, Reading, Time, & Fitt's Law (reading) (https://psu.instructure.com/courses/2313030/assignments/15681651)	due by 11:59pm
	M04-A05: Model Human Processor & Fitt's Law (video) (https://psu.instructure.com/courses/2313030/assignments/15681657)	due by 11:59pm
Thu Mar 21, 2024	Prototyping (reading) (https://psu.instructure.com/courses/2313030/assignments/15681676)	due by 11:59pm
	Prototyping - Intro (video) (https://psu.instructure.com/courses/2313030/assignments/15681677)	due by 11:59pm
Fri Mar 22, 2024	Project Prototype SKETCH (activity) (https://psu.instructure.com/courses/2313030/assignments/15681674)	due by 11:59pm
Tue Mar 26, 2024	Value-sensitive Design (reading) (https://psu.instructure.com/courses/2313030/assignments/15681690)	due by 11:59pm
	Value-Sensitive Design (video) (https://psu.instructure.com/courses/2313030/assignments/15681688)	due by 11:59pm
	Value-Sensitive Design v2 (video) (https://psu.instructure.com/courses/2313030/assignments/15681689)	due by 11:59pm
Thu Mar 28, 2024	Prototyping with Powerpoint (video) (https://psu.instructure.com/courses/2313030/assignments/15681678)	due by 11:59pm

Date	Details	Due
Fri Mar 29, 2024	Evaluation General Concepts & Heuristic Evaluation (video) (https://psu.instructure.com/courses/2313030/assignments/15681630)	due by 11:59pm
	Group Project Prototoype v.0.1 (activity) (https://psu.instructure.com/courses/2313030/assignments/15681635)	due by 11:59pm
	Heuristic Evaluation & Expert Reviews (reading) (https://psu.instructure.com/courses/2313030/assignments/15681643)	due by 11:59pm
	Introducing Evaluation (reading) (https://psu.instructure.com/courses/2313030/assignments/15681646)	due by 11:59pm
Sun Mar 31, 2024	Beyond the Desktop (reading) (https://psu.instructure.com/courses/2313030/assignments/15681617)	due by 11:59pm
	Heuristic Evaluation for Project Prototype (activity) (https://psu.instructure.com/courses/2313030/assignments/15681644)	due by 11:59pm
	Social Computing (reading) (https://psu.instructure.com/courses/2313030/assignments/15681683)	due by 11:59pm
Thu Apr 4, 2024	Group Project Prototype v.0.2 - Integrated group version (activity) (https://psu.instructure.com/courses/2313030/assignments/15681636)	due by 11:59pm
	Social Computing (activity) (https://psu.instructure.com/courses/2313030/assignments/15681682)	due by 11:59pm
	Walkthrough Evaluations (reading) (https://psu.instructure.com/courses/2313030/assignments/15681692)	due by 11:59pm
	Walkthrough Evaluations (video) (https://psu.instructure.com/courses/2313030/assignments/15681693)	due by 11:59pm
Sun Apr 7, 2024	Formative - Summative Evaluation	due by 11:59pm

Date	Details	Due
	(https://psu.instructure.com/courses/2313030/assignments/15681632)	
	Group Project Demos (activity) (https://psu.instructure.com/courses/2313030/assignments/15681634)	due by 11:59pm
	Group Project Investments Game (activity) (https://psu.instructure.com/courses/2313030/assignments/15681612)	due by 11:59pm
	Group Project Walkthrough Evaluation (activity) (https://psu.instructure.com/courses/2313030/assignments/15681641)	due by 11:59pm
	How to Demo (reading) (https://psu.instructure.com/courses/2313030/assignments/15681645)	due by 11:59pm
Tue Apr 9, 2024	Design Thinking as Methodology (activity) (https://psu.instructure.com/courses/2313030/assignments/15681626)	due by 11:59pm
Fri Apr 26, 2024	Final Exam Review (reading/video) PRODUCED BY EACH INSTRUCTOR (https://psu.instructure.com/courses/2313030/assignments/15681631)	due by 11:59pm
Tue Apr 30, 2024	HCDD 113 Final Exam (https://psu.instructure.com/courses/2313030/assignments/15938312)	due by 11:59pm
	Design Rationale (reading) ????? (https://psu.instructure.com/courses/2313030/assignments/15681623)	
	Diverge-Converge Affinity Diagram (activity) ????? (https://psu.instructure.com/courses/2313030/assignments/15681628)	
	M00-A03: Course Intro (video) (https://psu.instructure.com/courses/2313030/assignments/15681655)	
	M06-A02: Value-sensitive Design (In-class Activity) (https://psu.instructure.com/courses/2313030/assignments/15681658)	

Date	Details	Due
	Project Proposal (https://psu.instructure.com/courses/2313030/assignments/15681673)	
	Prototype Revision (activity) ????? (https://psu.instructure.com/courses/2313030/assignments/15681675)	