

# HCD590 Human-Centered AI Product Design | Spring 2024 Syllabus

## Instructors

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## Course Information

HCD 590 Section 901

Class times: Wednesdays 5:45 PM - 9:00 PM

Office Hours: 5:00 PM-5:45 PM By Appointment ONLINE

ZOOM LINK:

<https://depaul.zoom.us/j/93630623123?pwd=YXBrSGpEOFVlRjY1TEl4Z3VYeWpCdz09>

*Last day to drop the course with no penalty: April 14, 2024. If dropped on or after April 15, 2024, grade of "W" will be assigned.*

## Prerequisites

Please fill out this pre-class survey:

<https://forms.gle/mKM3JU7iWFCZGQuT9>

## Learning Objectives

Students will be able to:

1. Build a systemic view of responsible AI design in order to analyze examples of and deconstruct assumptions about the impact of AI design on people and communities.
2. Critically assess goals, approaches, and challenges of designing human-centered AI experiences.
3. Describe their own point of view as a responsible designer to shape a conceptual framework for responsible AI design.
4. Describe a human centered problem statement and identify and execute next steps to research and design against this problem statement.

## Additional Objectives

5. Become familiar with the work of practitioners.
6. Connect personal interests to course topics.
7. Develop confidence as researchers and designers.
8. Consider equity and the role of design in underrepresented communities.

## Suggested Texts (Excerpts will be used)

O'Neil, C. *Weapons of Math Destruction: How Big Data Increases Inequality and Threatens Democracy*. Broadway Books, 2016.

Eubanks, V. *Automating Inequality: How High-Tech Tools Profile, Police, and Punish the Poor*. St. Martin's Press, 2018.

Benjamin, Ruha. *Race After Technology: Abolitionist Tools for the New Jim Code*. Polity Press, Medford MA.

Gray, Mary L., Suri, Siddharth, *Ghost Work: How to Stop Silicon Valley from Building a New Global Underclass*. Harper Collins, New York, NY

Additional readings will be provided

## Class Format

Class will be conducted in a seminar format in which the instructor will facilitate reflection and provide guidance to engage disciplinary research and design practices. Students are expected to spend 8 to 10 hours per week on reading,

research/design, and writing activities outside of class.

## Computers & Software

The D2L system will be used to organize course materials, assignments, and grading (<https://d2l.depaul.edu/>).

## Course Summary

The ubiquity of AI in product design makes it essential for human-centered designers to understand, influence and decide how AI products are developed. This course offers designers the tools needed to confidently integrate human-centered design methods including ethnography, prototyping and testing into artificial intelligence for responsible product development. This course also offers principles for designing with GenAI as well as traditional machine learning methods.

With a combination of lecture, readings, case study examples and guest lectures from AI design professionals, students will learn how to integrate data into research planning to identify and reduce bias as well as gain a better understanding of how to augment user research practices to create more responsible and human-centered AI design outcomes.

Students will apply their knowledge by using the design-thinking process to conceptualize a new AI product. Students will also use what they observe and hear to develop their own responsible framework for designing AI products and services as well as pursue a passion project to bring new skills into fruition. These skills include problem framing, articulating project goals, designing and conducting interviews, and thematic analysis.

Students are allowed to use generative AI tools, such as ChatGPT or Dall-E 2, on specific assignments in this course. Each assignment sheet will indicate if AI use is permitted. When permitted, students must document and credit the AI tool. For example, paraphrased text generated using ChatGPT should include a citation according to APA, MLA, or Chicago Style generative AI citation guidelines. Material generated using other AI tools should follow a similar citation convention. For more examples of AI statements, see *Artificial Intelligence (AI) in Higher Education*.

## Evaluation & Grading

Coursework includes the following components:

Grade Proportion	Course Requirement
25%	Class participation
20%	Presentation Milestones
35%	Weekly writing/activity assignments
20%	Final Project /Presentation/ Design Statement
<b>100 %</b>	<b>TOTAL</b>

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## Grading Scale

Letter grades are based on the percent of points earned.

Grade	%	Points	
A	93	186	<i>Excellent</i>
A-	90	180	<i>Very Good</i>
B+	88	176	
B	83	166	<i>Good</i>
B-	80	160	
C+	78	156	
C	73	146	<i>Satisfactory</i>
C-	70	140	
D+	68	136	
D	60	120	
F	0	0	

## Acknowledgements

This syllabus was based upon the professor's work and is inspired by other classes in the field.

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Class	Topics and Activities	Articles, Videos and Materials to read and view for class	Assignments	Project Milestones and Due Dates
<b>April 3</b> Class 1 Ovetta Lecture	<b>April 3: : The Future is Now</b> - How did we get here? Understanding the historical, cultural, technological, social and economic circumstances that led to an AI Arms Race	<ol style="list-style-type: none"> <li>1. <a href="#">Everyday Ethics in Design</a> (video)</li> <li>2. <a href="#">This 5-minute thought exercise will help you define your purpose</a>, Joe Brown</li> <li>3. <a href="#">Ethics of Artificial Intelligence</a></li> </ol>	<ul style="list-style-type: none"> <li>• <a href="#">Complete Pre-Class Literacy Survey</a> (Due April 3)</li> <li>• <b>Read 3-2-1 Assignment #1: <a href="#">Man-Computer Symbiosis</a> (Response Due Sunday before Class by 9 p.m.)</b></li> </ul>	Assigning project teams, give Project Plan Overview and go over first project assignment - <a href="#">Developing Problem Statement</a>
<b>Apr. 10</b> Class 2 Ovetta Lecture	<b>AI and People:</b> Understand people's relationship to machines	<ul style="list-style-type: none"> <li>• <a href="#">A model for types and levels of human interaction with automation</a>. (IEE)</li> <li>• <a href="#">Systems Thinking and Design Thinking</a> (IDEO U)</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Write your own data story</b> (due next class)</li> <li>• Play around with Google's <a href="#">Teachable Machine</a></li> <li>• <b>3-2-1 Assignment #2: Video: "<a href="#">Algorithmic Cruelty: Hidden Costs of Ghost Work</a>."</b> (Response Due Sunday before class by 9 p.m.)</li> </ul>	<b>Team Design Project Check-In:</b> Developing Research Plan for Project Intelligent Personal Assistant Project ( Create Draft in Class) <a href="#">Writing Research Plan</a>
<b>April 17</b> Class 3  Ovetta and Guest Lecture ( <a href="#">Joe Moran, Ph.dLead</a> Researcher at Google)	<b>Data is the Love Language of Machines:</b> Understanding Data has to be engineered to be read by machines and this is where human bias, unfairness, sin of omission, data misuse can occur.	<ul style="list-style-type: none"> <li>• <a href="#">View Data Science Explained with Cooking</a> (by Ken Jee)</li> <li>• Read <a href="#">Bomb Parts by Cathy O'Neil</a></li> <li>• In-Class Discussion <b>Share Data Stories (3-5) 30 min</b></li> <li>• <b>In-Class Presentation Group 1 3-2-1 Assignment #2 (Ghost Work)</b></li> </ul>	<ul style="list-style-type: none"> <li>• <b>Read 3-2-1 Assignment #3 "Civilian Casualties: Justice in the Age of Big Data" by Cathy O'Neil ( <a href="#">Weapons-of-Math...</a> )</b> (Response due Sunday before class by 9 p.m.)</li> </ul>	<b>Project Milestone #1: Turn in Problem Statement (Graded)</b> and Draft of Research Plan (Round Robin Review) <b>Review: <a href="#">Critical User Journeys</a></b>  Review <a href="#">Product Excellence</a>
<b>April 24</b> Class 4 Ovetta and Guest Lecture	<b>Humans in the Loop:</b> Understanding how humans help machines learn. and how machines and humans interact.	<ul style="list-style-type: none"> <li>• <a href="#">How AI Will Impact Your Routine as a Designer"</a></li> <li>• <a href="#">"How to protect your rights in the Age of AI."</a> Joy Buolamwini.</li> <li>• <b>In Class Presentation Group 2 : 3-2-1 Group Presentation "Civilian Casualties"</b></li> </ul>	Read 3-2-1 Assignment #4   Video: <a href="#">"Is Technology our Savior or Slayer?"</a> Ruha Benjamin ) and <a href="#">"Three Principles for Safer AI."</a> by <a href="#">Stuart Russell</a> ! (compare and contrast these two visions of the future.  <b>(Response due Sunday before class by 9 p.m.)</b>  Individual Homework: Create three models with <a href="#">Teachable Machine</a> (image, audio and wild card)	<b>Project Milestone 2: Turn in Final Research Plan (Graded)</b>  <i>Conduct Research (2 weeks)</i>  <i>Write draft of Personal Ethics Statement</i>
<b>May 1</b> Class 5 Ovetta Guest Lecture: Donald Martin, RAI Expert, Google	<b>Designing Machine Learning Models:</b> Learn how models are selected, built including the different types of models and what	<ul style="list-style-type: none"> <li>• <i>In-Class Round Robin - Groups to review research plan</i></li> <li>• <a href="#">Review the Process of Making Models</a></li> <li>• <a href="#">A Visual Introduction to Machine Learning Models</a></li> <li>• <b>In-Class Presentation Group 3: "Is Technology Our</b></li> </ul>	<b>3-2-1 Assignment #5:</b> (Due Sunday at 9pm) <a href="#">AI Detects Race in X-Rays</a> (Response due Sunday before class by 9 p.m.)	<b>Group Project Check-In:</b>  <i>Turn in Draft CUJs (of your analog experience)</i>  <i>Conduct Research</i>

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	they're best used for. Introduce model development process and design integration into that process. Show finished experience and dissect how it was built.	<b>"Savior or Slayer?" Ruha Benjamin and "Three Principles for Creating Safer AI," Tim Russell</b>		Review: <a href="#">Your Own Trip Tech Method</a>
<b>May 8</b> Week 6 Ovetta Lecture	<b>Design in an Automated Age:</b> Understanding the capabilities and limitations of humans and machines when they interact and engage. Objective: Begin to see the opportunities for when to design with ML/AI and when not to.	<ul style="list-style-type: none"> <li>• <a href="#">Experience Design in the AI Era</a></li> <li>• <a href="#">Design Principles in An AI World</a> (by Ovetta Sampson in UX Magazine)</li> <li>• <a href="#">Inside Facebook's AI Workshop</a></li> <li>• <a href="#">3-2-1 Presentation Group 4 AI Detects Race in X-Rays</a></li> </ul>	<ul style="list-style-type: none"> <li>• <b>3-2-1 Assignment #6:</b> : <a href="#">Legal Issues under Japanese Law with GenAI</a></li> </ul>	<b>Project Milestone 3: Critical User Journey (Graded)</b>  <b>Review: <a href="#">What the Hell is Synthesis?</a></b>  <i>Draft of Research Theme Analysis and Synthesis</i>
<b>May 15</b> Week 7	<b>Generative AI:</b> Understanding GenAI and its implications for business, society and design	<ul style="list-style-type: none"> <li>• 3-2-1 Presentation (Group E)</li> <li>• Play around with ChatGPT, Gemini, Imagen</li> <li>• <a href="#">AI Needs Ethical Compass</a></li> <li>• <a href="#">Ethical and Legal Framework for GenAI (IDEO)</a></li> </ul>	<ul style="list-style-type: none"> <li>• <b>Review:</b> Product Requirements Document <a href="#">PRD</a></li> <li>• <b>Review:</b> <a href="#">Scalable extraction of Training Data from Language Models</a></li> </ul>	<b>Project Milestone 4:</b> Theme Analysis and Synthesis of research due <b>(Graded)</b>
<b>May. 22</b> Week 8 Ovetta Lecture	Showcasing Human-Centered AI Design: Understanding	<ul style="list-style-type: none"> <li>• <a href="#">Guidelines for Human-Centered AI Design</a> By Eric Horvitz</li> <li>• <a href="#">Microsoft's Guidelines for AI-HCI</a></li> <li>• <a href="#">Harms Modeling</a> (Microsoft)</li> <li>• <a href="#">Explore PAIR</a> (Google)</li> </ul>	<a href="#">Machine Learning Product Design</a>	<i>Draft of Product Requirements Document (PRD) due and Mid-Fidelity Concept Workflow drafts due</i> <i>Hint: You should show these to users again</i>
<b>May 29</b> Week 9	Designing Ethical AI: Pitfalls of AI and the opportunities for design.	<ul style="list-style-type: none"> <li>• <a href="#">Human-Centered Design Cheatsheet</a> (Josh Lovejoy)</li> <li>• <a href="#">Design Principles for a Pluralist Automated World</a> (Ovetta Sampson Talk The Conference) Video</li> </ul>		<b>Project Milestone 5:</b> Mid-Fidelity Concept Workflow due and Final Design Ethics Statement Due <b>(Graded)</b>
<b>June 5</b> Week 10 FINAL		Group Presentations		<b>Project Milestone 6:</b> <i>Group Presentation and Final Product Requirement Document as well as Individual Group Project Reflection Due (PRD) due: (Graded)_</i>



## Policies & Expectations Attendance

Students are expected to attend each class and to remain for the duration. Attendance will be taken and is reflected in the Class Participation and Attendance portion of the course grade. Your active participation and engagement in the class is expected and is required to get credit for this portion of the course grade.

### Absence

- Attend every class.
- Three absences for any reason, whether excused or not, may constitute failure for the course.
- **Communicate with us if you must miss class for any reason – a quick email will do.**
- Students are individually responsible for material they may have missed due to absence or tardiness.
- Please notify instructors in advance if there are any special needs.

### Late Policy

- Being present and arriving on time to every class is my expectation for everyone. Communicate with us if you must be late to class for any reason.
- If there is a reason why you cannot consistently arrive on time to class, please let me know.
- Tardiness exceeding 30 minutes is counted as an absence.

### Excused Absence

In order to petition for an excused absence, students who miss class due to illness or significant personal circumstances should complete the Absence Notification process through the Dean of Students office. The form can be accessed at <http://studentaffairs.depaul.edu/dos/academicprocesses.html>. Students must submit supporting documentation alongside the form. The professor reserves the sole right whether to offer an excused absence and/or academic accommodations for an excused absence.

## Late Assignments

Completing assignments on time and having them ready for discussion and critique in class is essential for this class. Thus, to encourage accountability, late assignments will not receive credit **unless acceptable reasons are documented** (sickness, family emergency) **and communicated to me within 24 hours of the due date.**

## Email Policy

Mon-Thu, you can expect us to return emails within 36 hours. Expect a delayed response Fri-Sun. In the spirit of practicing professional communication, make an effort to write email messages in a formal, professional tone (e.g., proper greeting, correct spelling, etc.).

## Class Behavior

- Food and drink during class is ok.
- **Internet surfing and checking email, etc. during class when your attention is expected is disrespectful and unprofessional.** I ask for your cooperation and attention during class time.
- **Be a respectful participant by keeping phones in silent mode and do not text in class.** If you have a need to be available by phone (sick relative, etc.), please let me know.
- **Be engaged in class discussions and workshop activities.**

- Participate with enthusiasm
- Show genuine effort to cooperate with others
- Show leadership and take initiative in group efforts
- Frequently and eagerly offer your thoughts, perspectives, and responses to instructor and classmates
- Make contributions that reflect excellent preparation (i.e., complete required reading)
- Practice professionalism
  - Communicate (face-to-face, emails, etc.) with the professor and fellow students in a professional and appropriate manner
  - Use body language (ex., eyes, posture) that shows active listening during instructor/student presentations
  - Be respectful towards others

## Attitude

A professional attitude is expected throughout this course. Measurable examples of non-academic or unprofessional attitude include but are not limited to: talking to others when an instructor is speaking, mocking another's opinion, cell phones ringing, emailing, texting or using the internet whether on a phone or computer. If any issues arise a student may be asked to leave the classroom. The professor will work with the Dean of Students Office to navigate such student issues.

## Civil Discourse

DePaul University is a community that thrives on open discourse that challenges students, both intellectually and personally, to be Socially Responsible Leaders. It is the expectation that all dialogue in this course is civil and respectful of the dignity of each student. Any instances of disrespect or hostility can jeopardize a student's ability to be successful in the course. The professor will partner with the Dean of Students Office to assist in managing such issues.

## Coursework Grade Review Requests

Every effort is made to grade in a fair and consistent manner. Should a disagreement arise about a course grade, the student may submit a grade review request in writing to the instructor. The request must be submitted within 48 hours after the assignment grade has been posted. The request must include the student's argument for a different grade evaluation, based on verifiable evidence presented by the student. The instructors handle grade review requests and respond to the student with a review decision as soon as possible.

## Incomplete Grades

An incomplete grade is a special, temporary grade that may be assigned by an instructor when unforeseeable circumstances prevent a student from completing course requirements by the end of the term and when otherwise the student had a record of satisfactory progress in the course. CDM policy requires the student to initiate the request for incomplete grade before the end of the term in which the course is taken. Prior to submitting the incomplete request, the student must discuss the circumstances with the instructor. Students may initiate the incomplete request process in MyCDM.

- All incomplete requests must be approved by the instructor of the course and a CDM Associate

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Dean. Only exceptions cases will receive such approval.

- If approved, students are required to complete all remaining course requirements independently in consultation with the instructor by the deadline on the incomplete request form.
- By default, an incomplete grade will automatically change to a grade of F after two quarters have elapsed (excluding summer) unless another grade is recorded by the instructor.
- An incomplete grade does NOT grant the student permission to attend the same course in a future quarter.

## Withdrawal

Students who withdraw from the course do so by using the Campus Connection system. Withdrawals processed via this system are effective the day on which they are made. Simply ceasing to attend, or notifying the instructor, or nonpayment of tuition, does not constitute an official withdrawal from class and will result in academic as well as financial penalty.

## Retroactive Withdrawal

This policy exists to assist students for whom extenuating circumstances prevented them from meeting the withdrawal deadline. During their college career students may be allowed one medical/personal administrative withdrawal and one college office administrative withdrawal, each for one or more courses in a single term. Repeated requests will not be considered. Submitting an appeal for retroactive withdrawal does not guarantee approval.

College office appeals for CDM students must be submitted online via MyCDM. The deadlines are as follows:

- AQ: Last day of the last final exam of the subsequent winter quarter
- WQ: Last day of the last final exam of the subsequent spring quarter
- SQ: Last day of the last final exam of the subsequent autumn quarter
- Sum: Last day of the last final exam of the subsequent autumn quarter

## Academic Integrity & Plagiarism

This course will be subject to the academic integrity policy passed by faculty. More information can be found at <http://academicintegrity.depaul.edu/>.

## Academic Policies

All students are required to manage their class schedules each term in accordance with the deadlines for enrolling and withdrawing as indicated in the University Academic Calendar. Information can be found at: <http://www.cdm.depaul.edu/Current%20Students/Pages/PoliciesandProcedures.aspx>

## Resources for Students with Disabilities

Students who feel they may need accommodation based on the impact of a disability should contact the instructor privately to discuss their specific needs. All discussions will remain confidential. To ensure that you receive the most appropriate accommodation based on your needs, contact the instructor as early as possible in the quarter (preferably within the first week of class), and make sure that you have contacted the Center for Students with Disabilities (CSD) at:

Lewis Center 1420, 25 East Jackson Blvd.

Phone number: (312) 362-8002

Fax: (312) 362-6544

TTY: (773) 325-7296

Email: [csd@depaul.edu](mailto:csd@depaul.edu)

## Online Course Evaluations

Evaluations are a way for students to provide feedback regarding their instructors and the course. Detailed feedback will enable the instructors to tailor teaching methods and course content to meet the learning goals and the academic needs of the students. They are a requirement of the course and are key to continue to provide you with the highest quality of teaching. The evaluations are anonymous; the instructor and administration do not track who entered what responses. A program is used to check if the student completed the evaluations, but the evaluation is completely separate from the student's identity. Since 100% participation is our goal, students are sent periodic reminders over three weeks. Students do not receive reminders once they complete the evaluation. Students complete the evaluation online in CampusConnect.

## Visit the Writing Center

Consider visiting the Writing Center to discuss your written assignments for this course. Writing Center Tutors are specially trained undergraduate and graduate students who can help you at any stage of your writing project. They can help you focus and develop your ideas, review your drafts, and polish your writing, as well as answer questions about grammar, mechanics, style, and citation. You may schedule appointments on an as-needed or weekly basis. In addition to Face-to-Face appointments, the Writing Center also provides Written Feedback by Email and Online Appointments. Be sure to schedule your appointment with enough time to think about and incorporate the feedback you'll receive. Bring/upload your assignment handout and/or any other relevant materials to your appointment. To schedule a Face-to-Face, Written Feedback by Email, or Online Appointment, visit [www.depaul.edu/writing](http://www.depaul.edu/writing). You can also call one of our offices: (312) 362-6726 (Loop Office, 1600 Lewis Center) or (773) 325-4272 (LPC Office, 250 McGaw Hall). When possible, the Writing Center accepts walk-in requests, but it's always a good idea to schedule your appointment ahead of time. You may schedule tutorials on an as-needed basis or as weekly standing appointments up to 3 hours per week. All Writing Center services are free to the DePaul community.