

# product DESIGN

OIDD 415 / 515

MEAM 415

IPD 515

Prof. Taylor Caputo

**BFA in  
Metals/Jewelry/CAD-CA  
M** from Tyler School of  
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**Design Consulting** for  
PUMA, Away Luggage,  
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2016 Vienna Design Week  
and 2018 Milan Design  
Week.



## **Product Design:**

OIDD 415 / 515

MEAM 415

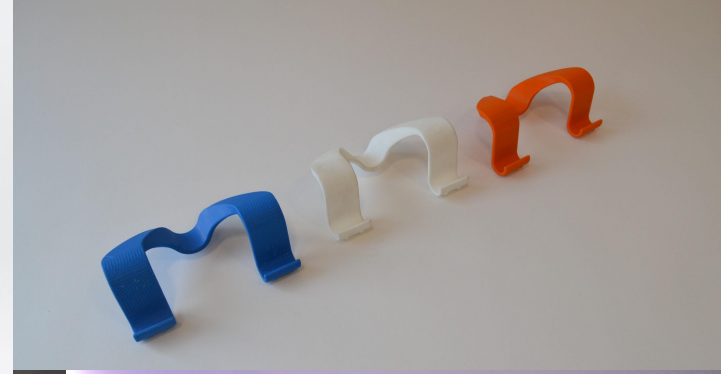
IPD 515

## **Design of Connected Objects and Experiences:**

IPD 529 (Spring)

## **Advanced Tools and Methods for Product Design:**

OIDD 659



# Important Info

- **My office hours are Tuesdays 4:30-5:30pm in JMHH 526.7**
  - Registration Issues: Ramon Jones at [ramjones@wharton.upenn.edu](mailto:ramjones@wharton.upenn.edu) (Includes any questions about switching sections)
- **Required textbook is Ulrich, Karl T. and Steven D. Eppinger, *Product Design***
- **It's helpful to have a few basic tools:**
  - Scissors, x-acto knife, metal ruler
  - Nice drawing instruments
  - Sketchbook



# Important Info

- Contact us at **productdesignwharton@gmail.com**
  - Make sure to check assignment briefs, class slides, before emailing.
- **There is zero tolerance for academic dishonesty**, resulting in failing this course. This includes copying others work, submitting work from other courses, or downloading CAD models online and submitting it as your own
- Abusing campus resources (Biomedical Library, Education Commons, FabLab) will result in an indefinite ban of these services

# Important Info

- **No laptop/device policy.** If we have to ask you more than once to put your devices away, you will forfeit your attendance credit.
- Absences are **only excused for a documented illness, or note from your advisor.** Job interviews are not excused absences.
- **You are required to attend the studio section you are enrolled in.** If you have to miss, you cannot attend another session and you cannot receive attendance credit (All sections are 100% full!).



# Keys to Success

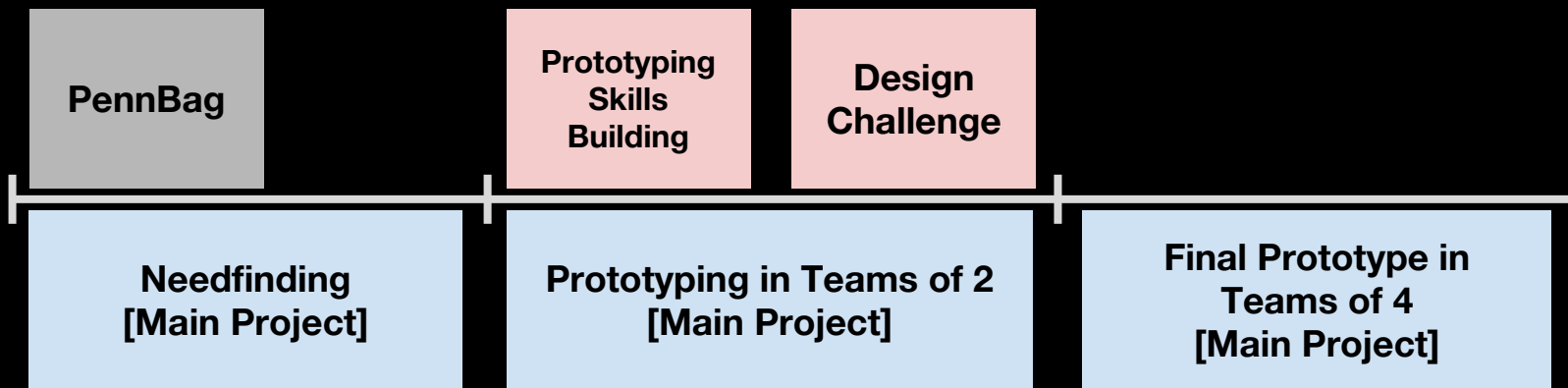
- You won't succeed in this class if assignments are done the night before.

***“If you just keep your mind resting against the subject in a friendly but persistent way, sooner or later you will get a reward from your unconscious, probably in the shower later.”***

- John Cleese

# Timeline

## 3 Project Structure





???'s

# What is Product Design?

# What is Product Design?

**Product design is conceiving and giving form to artifacts that solve problems, taking into consideration the multiplicative production of an artifact to be used by many people.**

**design thinking**

**human centered design**

**iterative development**

**empathy mindset**

**design research**

design thinking

# human centered design

iterative development

The process you'll be learning  
and practicing to implement  
product design.

empathy mindset

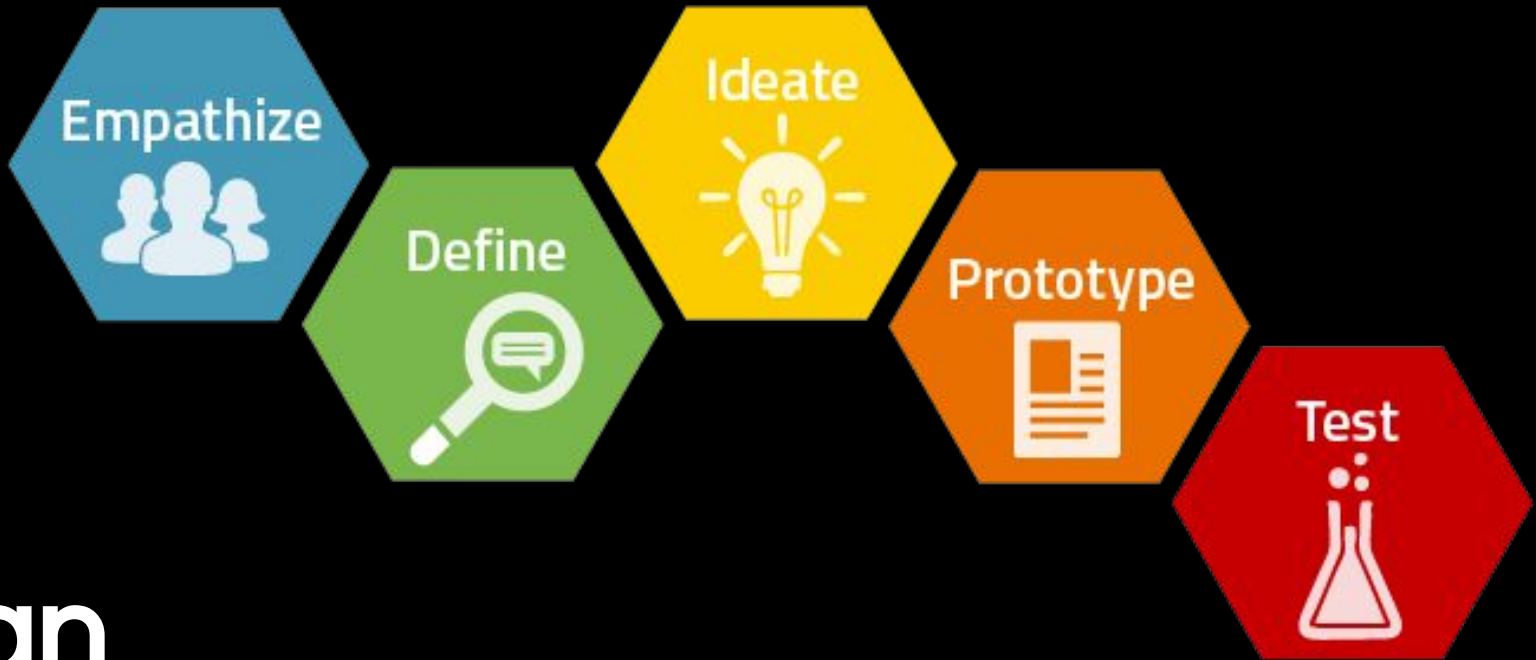
design research

**"Human-centered design is  
all about building a deep  
empathy with the people  
you're designing for."**

# empathy

**the action of understanding, being aware of,  
being sensitive to, and vicariously  
experiencing the feelings, thoughts, and  
experiences of another**





It's an  
iterative process



It's an  
iterative process

How did the IDEO  
designers develop  
**empathy?**





**Agnete Enga**  
Senior Industrial Designer  
Smart Design

“Design for the extremes and the rest  
will take care of itself.”

Who were some of the  
“**extreme users**”

IDEO talked to?



# empathy

*noun* em·pa·thy \ 'em-pə-thē \

Can be developed through observation in tandem  
with an **interview**.

An **ethnographic interview** is different from an interview in a newspaper or magazine.

One way to do this is through an **interview**.

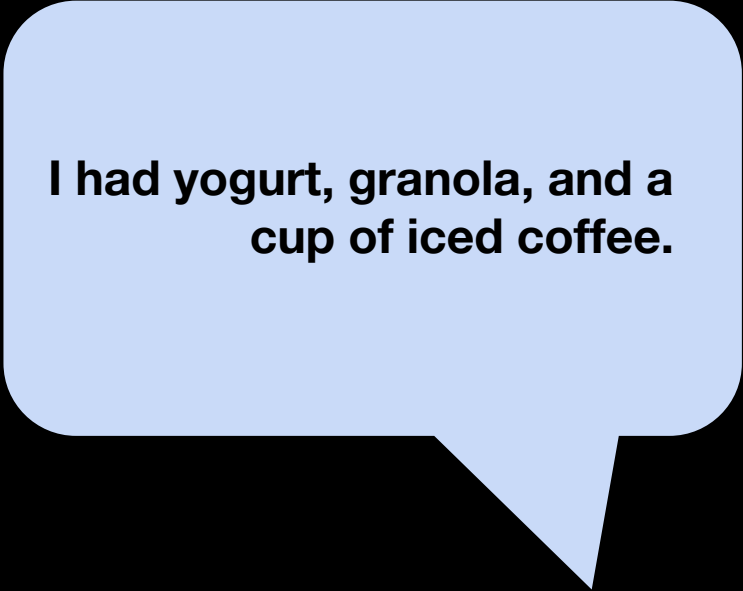
An **ethnographic interview** is different from an interview in a newspaper or magazine.

**Aim to answer a few big questions rather than a series of small short answers.**

1. Suspend your bias of what you already know or feel about the topic.
2. Draft a series of open ended questions; get your interviewee to tell stories.
3. Create flexible follow up questions.



*What did you eat for breakfast?*



**I had yogurt, granola, and a  
cup of iced coffee.**

***Tell me about how you made  
breakfast this morning.***

**First, I grab one of my designated “yogurt” bowls (they’re nice and deep), and dish out some yogurt from the tub after pouring out the excess liquid on top. Then I grab the box of granola and bring it to the table with me since I keep adding more granola as I eat! You can never have too much granola. Then on my way to work I stop and get an iced coffee from the cafe around the corner, though I’m trying to make my own cold brew at home to save money.**

**(best practices)**

Conduct **ethnographic interviews** with a variety of users, especially some **extreme users**, and observe their actions.

design

challenge



# PennBag Challenge

**Your challenge is design a better bag for Penn students.**

# What is a bag?

"A trash bag is not a trash bag unless you put trash in it. Until then it is just a bag"

- Jaden Smith





**Bags carry things;**  
**are a blend of function,**  
**aesthetics, and**  
**personal expression.**

**Bags carry things;  
are a blend of function,  
aesthetics, and  
personal expression.**

**(that's a lot to think about)**

# PennBag Challenge

**Your challenge is design a better bag for Penn students.**

# **PennBag Challenge**

**Your challenge is design a better bag for Penn students.**

**I'll be walking you through the Design process for this challenge over the next two weeks.**

# PennBag Challenge

Today you will conduct **ethnographic interviews** to develop **empathy** for others' needs for a bag.

Next class you'll work in teams to research, test, and prototype a concept for a bag.



# Agenda

- **“extreme users” reflection (3 Minutes)**
- **Formulate open ended questions (5 minutes)**
- **User Research “speed dating” (35 minutes)**

# What are you an “**extreme user**” of ?



- This can be a singular object/product (ex. an Instant Pot), or a domain or hobby (ex. running)
- Write a few problem statements (something you hate about the existing products)
- Keep these open ended, not too specific or focused on a bag

# What are you an “extreme user” of ?

- I teach a lot of classes!
- I ride the subway & trolley most days to work.
- Often I’m carrying a laptop, iPad, extra pair of shoes.
- Everything I wear to work has to look cool + professional

# What are you an “**extreme user**” of ?



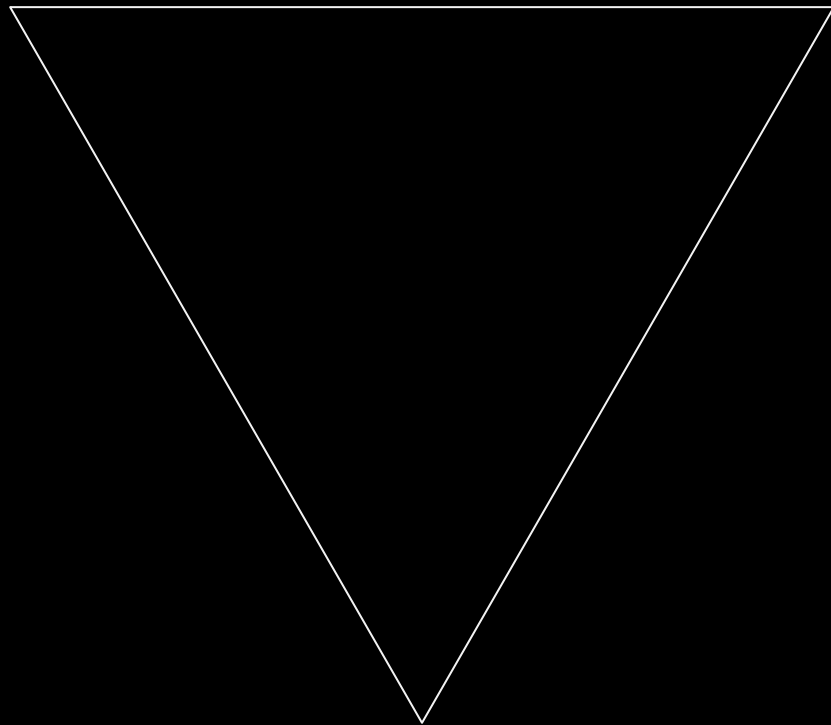
- This can be a singular object/product (ex. an Instant Pot), or a domain or hobby (ex. running)
- Write a few problem statements (something you hate about the existing products)
- Keep these open ended, not too specific or focused on a bag

# 5 minutes for question generation

1. **Draft a series of 5-7 open ended questions; get your interviewee to tell stories.**
  2. **Don't focus too much on the bag, but more on their daily habits.**
- (Yes you don't know what the other person is an "extreme user" of yet, but think of some general questions)
    - What's your "extreme usage" of?
    - "Show me the bag you're carrying today"
    - "What's your typical school day schedule like?"



*“What are you studying?” “What’s your typical day like?”*



*“Can you show me what you’re carrying in your bag today?”*

# 5 minutes for question generation

1. **Draft a series of 5-7 open ended questions; get your interviewee to tell stories.**
  2. **Don't focus too much on the bag, but more on their daily habits.**
- (Yes you don't know what the other person is an "extreme user" of yet, but think of some general questions)
    - What's your "extreme usage" of?
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# User Research

## *Things to keep in mind:*

- Again, ask open ended questions. **Don't focus too much on the bag.**
- Make sure to write down exactly what the person says, not what you think they might mean. This process is all about hearing exactly what people are saying.
- Try to develop **empathy** of what your interviewee is an **extreme user** of.



# 8 minutes total per “date”

## 4 minutes per interview



# 08:00

- Start by interviewing the person sitting across from you.
- After 8 minutes is up, listen carefully to directions for switching seats.



Roll over or click image to zoom in

# Looking Ahead

- If you found someone interesting during “speed dating”, consider getting their contact info for the **PennBag Camera Journal** assignment (though you don’t need to use someone from the class)
  - Observe and document through a series of pictures a potential user trying to capture “a day in the life”
  - Include short captions for each picture
  - You don’t have to be the one taking the pictures
- **Visualization I:** drawing assignment

# Looking Ahead

- **Opportunity Camera Journal:** same guidelines as PennBag Camera Journal, but should be focused on one of the 10 “**In What Way Might We...**” statements you submitted.
  - (Or you can choose a new statement as long as it satisfies the project requirements).
  - For Main Semester Project.

# Looking Ahead

- Bring your interview notes & PennBag Camera Journal to class next Studio
- Bring scissors, post-it notes, sharpies, to class next Studio