

CS 571 Building User Interfaces

# Course Introduction

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adapted from Prof. Bilge Mutlu's slides

# Instructor: Yuhang Zhao

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# Instructional Team

## TAs

Brandon Cegelski, Sujitha Perumal,  
Salman Munaf



## Peer Mentors

Yuren Sun, Ilkyu Ju



# Live Q&A

The screenshot shows a Microsoft Teams interface. On the left is a navigation pane with icons for Activity, Chat, Teams, Assignments, Calendar, Calls, Files, and Help. The main area displays the 'In-class Questions' channel for the team 'CS 571: Building User I...'. The channel header includes 'Posts', 'Files', and 'Notes' tabs. Below the header, there is an illustration of two people talking, with a text box containing an @ symbol. A welcome message reads: 'Welcome to the class! Try @mentioning the class name or student names to start a conversation.' Below this, a notification states: 'YUREN SUN set this channel to be automatically shown in the channels list.' At the bottom, there is a blue button labeled 'New conversation'.



What is this course about?

# UX Development

But, what is *UX development*?



# FRONTEND DEVELOPMENT (in 2 min)

The realm of the UX developer exists somewhere between that of the *traditional developer* and the *designer*. We're not really designers, yet to be a good UX developer you certainly need to have an eye for design. In the same vein, we're not traditional developers but we certainly need to have development experience and expertise. Often this experience spans multiple technologies, languages, and platforms.

— [Tim R. Todish](#)

It falls on the UX developer to bridge the gap between design and technology. We need to be able to think and speak the language of designers. It's our job to help translate their vision to the development team in a way that they can understand and accept. This can be a critical piece of the puzzle in a project, especially if the design and the interactions behind it are complex.


— [Tim R. Todish](#)

Similarly, we need to speak on behalf the developers to help reign in the designers, at times. If they are coming up with concepts that will be extremely difficult or time consuming to implement, we can explain the limitations of the technology and the complexity involved in implementing their designs, and try to come up with an acceptable alternative.

— [Tim R. Todish](#)

UX Development →  
software engineering + UX design

What does a **software engineer** do?

A man with short brown hair and glasses is shown in profile, drinking from a large, clear plastic bottle with a red label. He is wearing a dark blue t-shirt. The background is a bright, indoor setting, possibly a gym or a large room, with a window and some equipment visible. The text "which is devoured in a large quantity." is overlaid on the bottom part of the image.

which is devoured in a  
large quantity.



**Definition:** A software engineer is a person who applies the principles of software engineering to the design, development, maintenance, testing, and evaluation of computer software.

What are the *principles* of software engineering?

[Wikipedia: Software engineer](#)

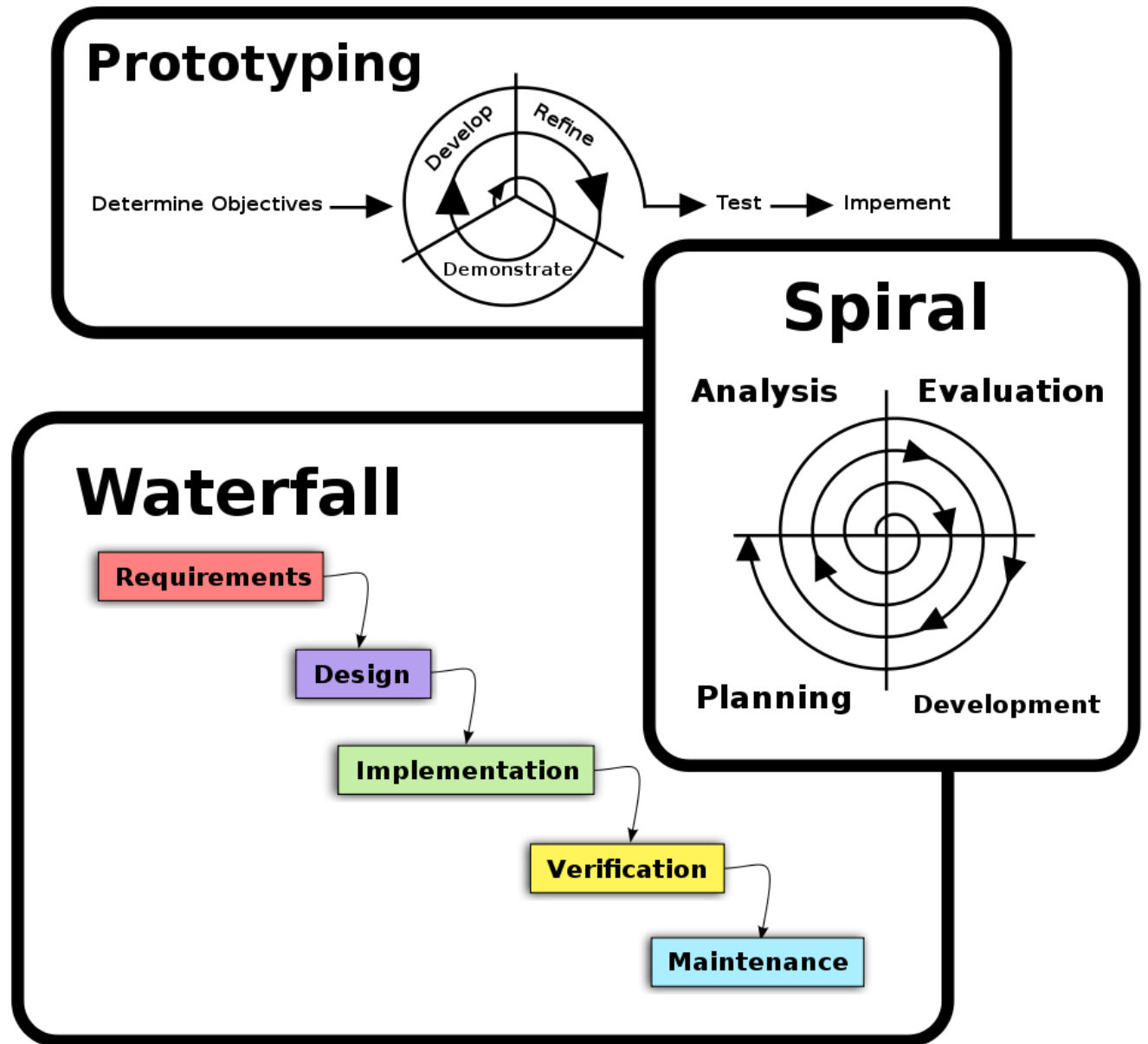
*Pro Tip:* Principles of software engineering include:

1. Separation of concerns
2. Modularity
3. Abstraction
4. Anticipation of change
5. Generality
6. Incremental development
7. Consistency

What *process* do software engineers follow? Can you name a step?

[Principles of software engineering](#)

# Software development process



[Wikipedia: Software development process](#)

What does a **UX designer** do?



**Definition:** User experience (UX) design is the process that design teams use to create products that provide meaningful and relevant experiences to users.

A *UX designer* is concerned with the entire process of acquiring and integrating a product, including aspects of branding, design, usability, and function.

What does this *process* involve? Can anyone name a step?

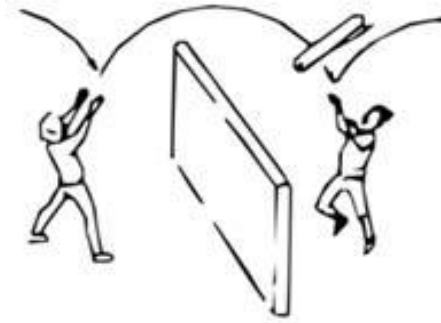
*Pro Tip:* UX design usually involves the steps:

1. Empathize
2. Define
3. Ideate
4. Prototype
5. Test
6. Implement

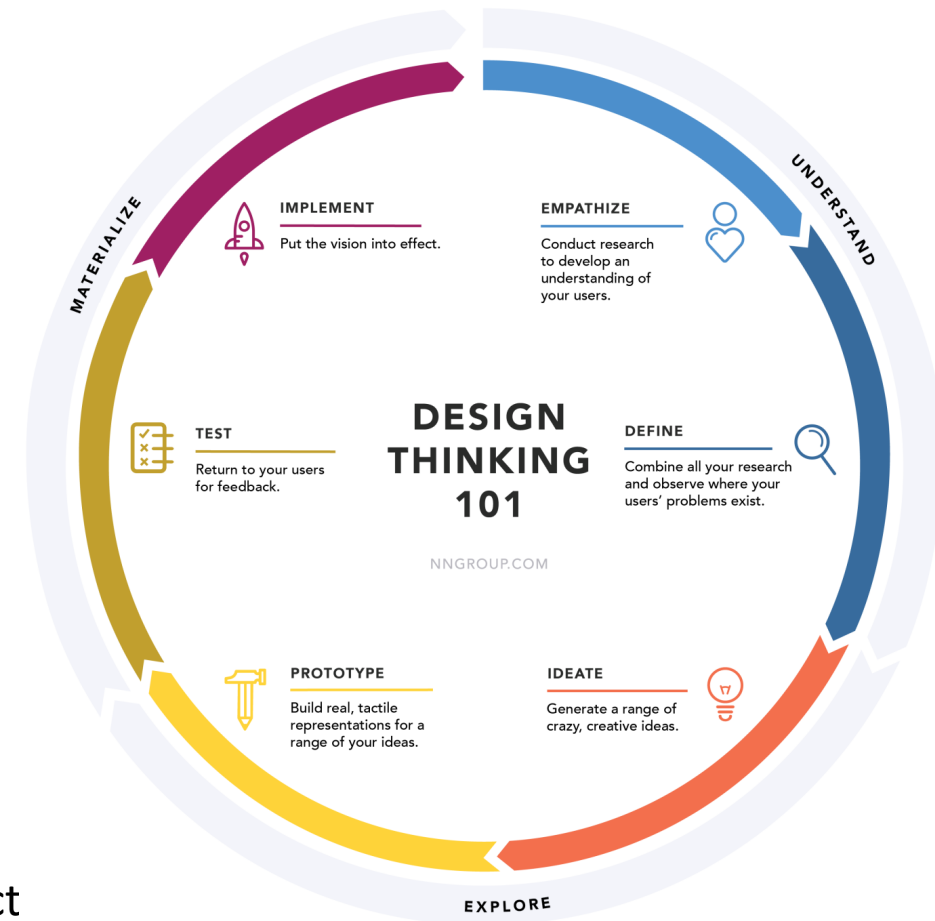
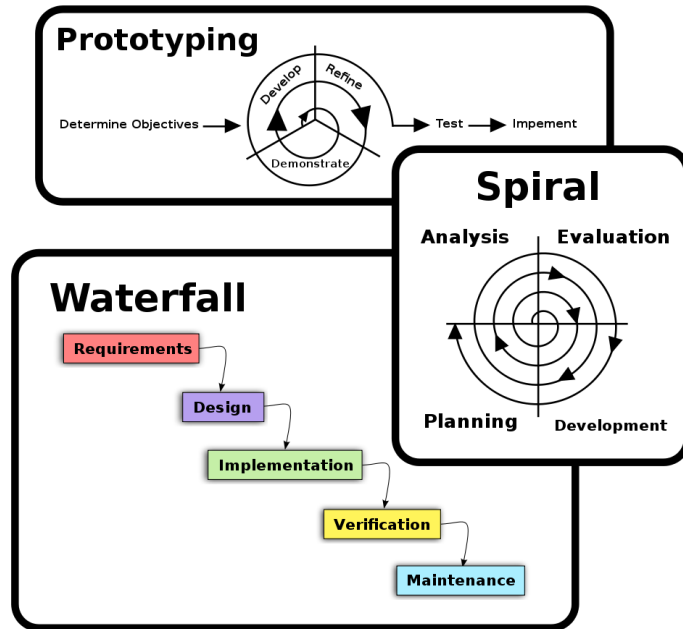
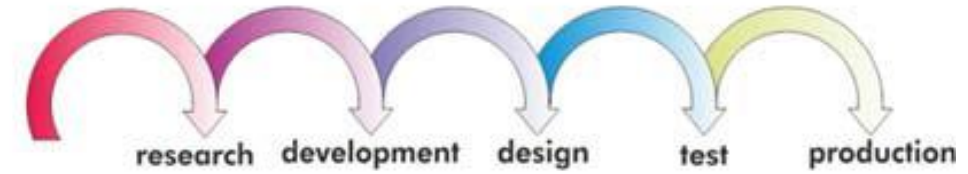
Wait a minute! Some of these steps sound familiar!

[NN/g Design Thinking](#)

# Design process sources



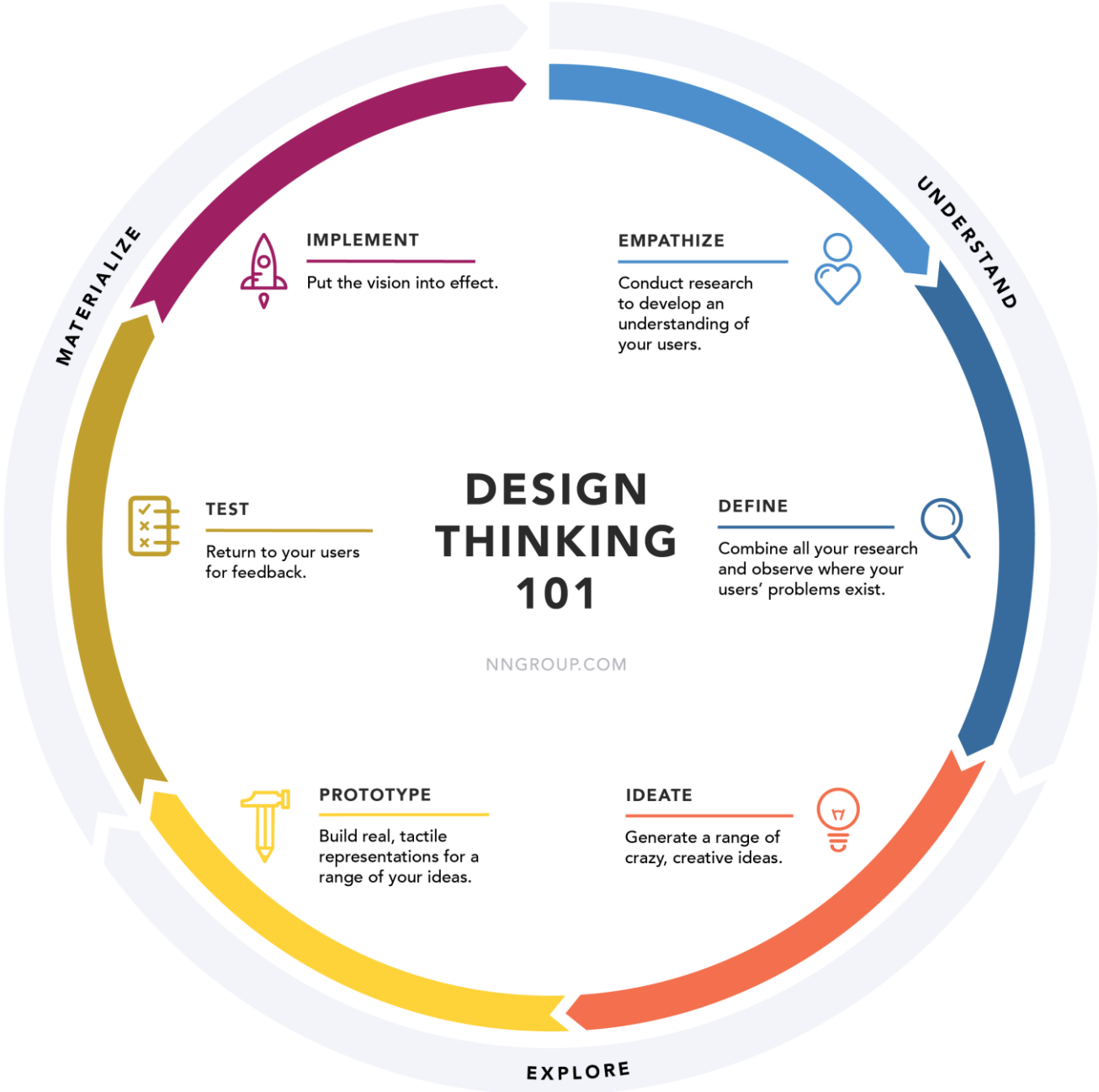
Typical Design Process



[Reed & Bohemia, 2011, NN/g Design Thinking](#)



# A Process for UX Development



# UX Development Trajectories

- One-person development team to build full-stack applications
- A developer who speaks the language of the designers
- A designer who can also build native prototypes
- A bridge/translator between designers and developers in large/complex organizations



Videos: [1](#), [2](#), [3](#), [4](#)

Ok, , but what can I do as a UX developer?

# Example 1: Clocks

- [Binary clock](#)
- [World clock](#)

SAN MATEO

Friday 10:13



Mist 19.21°C

TORONTO

Friday 13:13



Clouds 23.01°C

PARIS

Friday 19:13



Clear 26.59°C

SYDNEY

Saturday 03:13



Rain 11.47°C

[React Examples](#)

# Example 2: Musical Instruments

- [Xylophone](#)
- [Electric guitar](#)

[CSS Tricks: Introduction to Web Audio API](#)



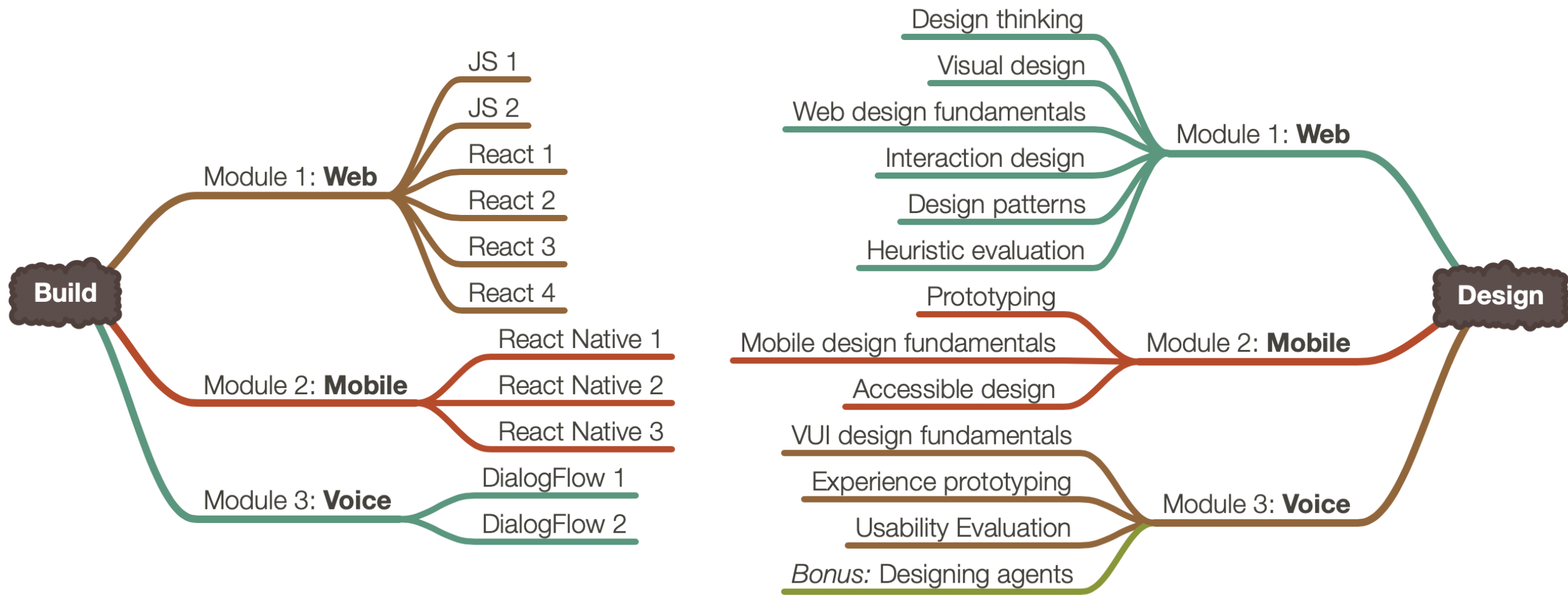
Questions about the **Course Topic**?

# Course Mechanics and Logistics





Image sources: [left](#), [right](#)



# Build

- We will learn the most popular implementation frameworks/libraries for each platform:
  1. *Web—JavaScript, React*
  2. *Mobile—React Native*
  3. *Voice—DialogFlow*

Mostly introductory, but these will get you started.

# Design

- We will learn design methods and techniques that will give you the best bang for the buck. Examples:
  1. **Week 3:** How to empathize with your users using think-aloud
  2. **Week 7:** How to use existing design patterns to improve UX
  3. **Week 10:** How to improve the accessibility of your designs

# How they are put together

- Across three modules—web, mobile, voice—we will work on individual projects where you will incrementally and iteratively design and build user interfaces.

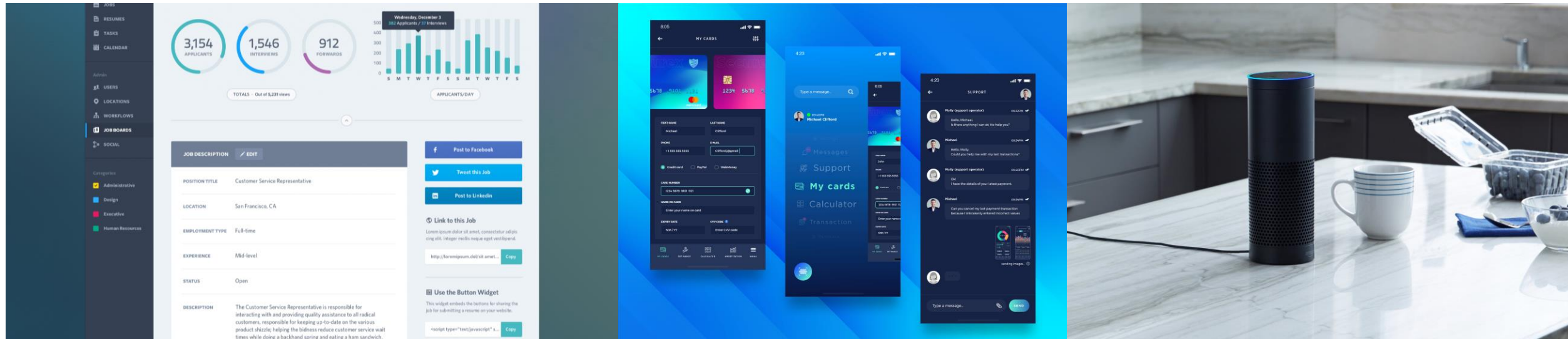
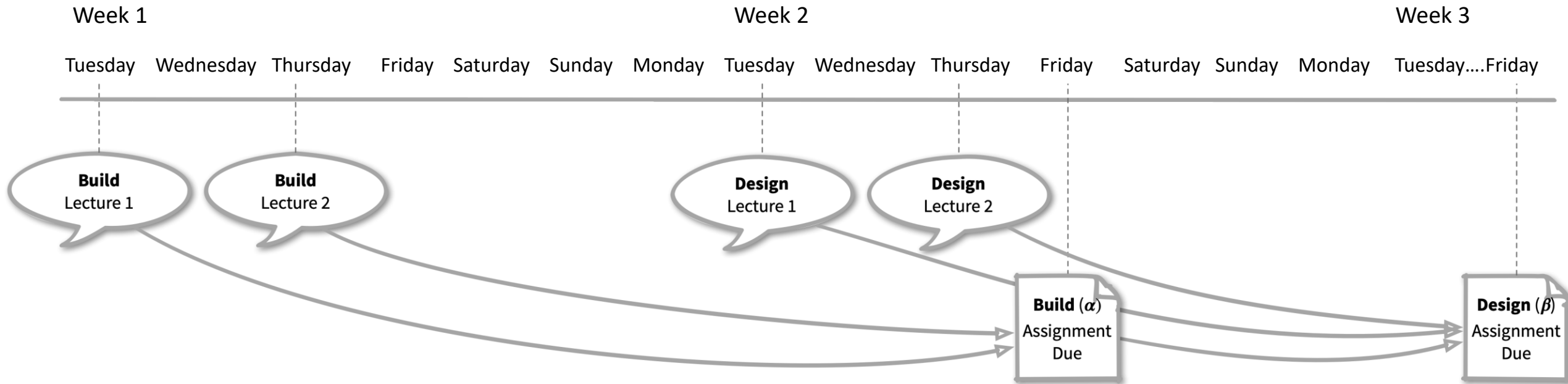


Image sources: [left](#), [center](#), [right](#)

# The Anatomy of a Module



# Participation

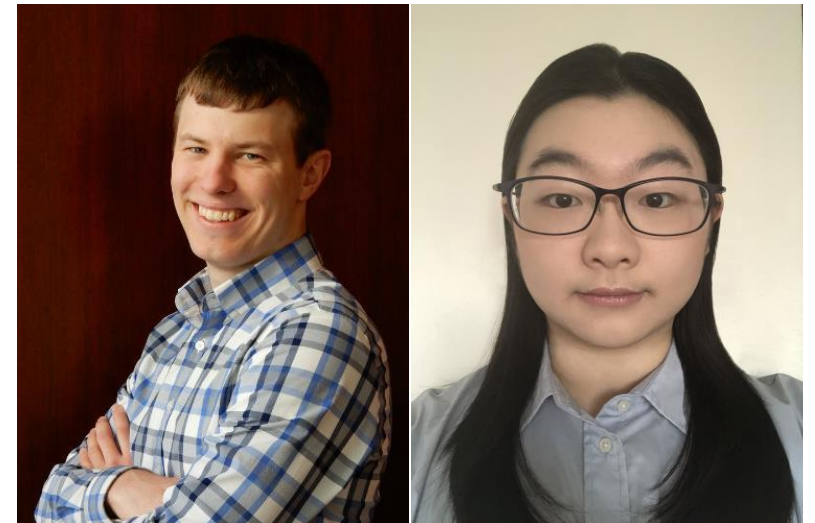
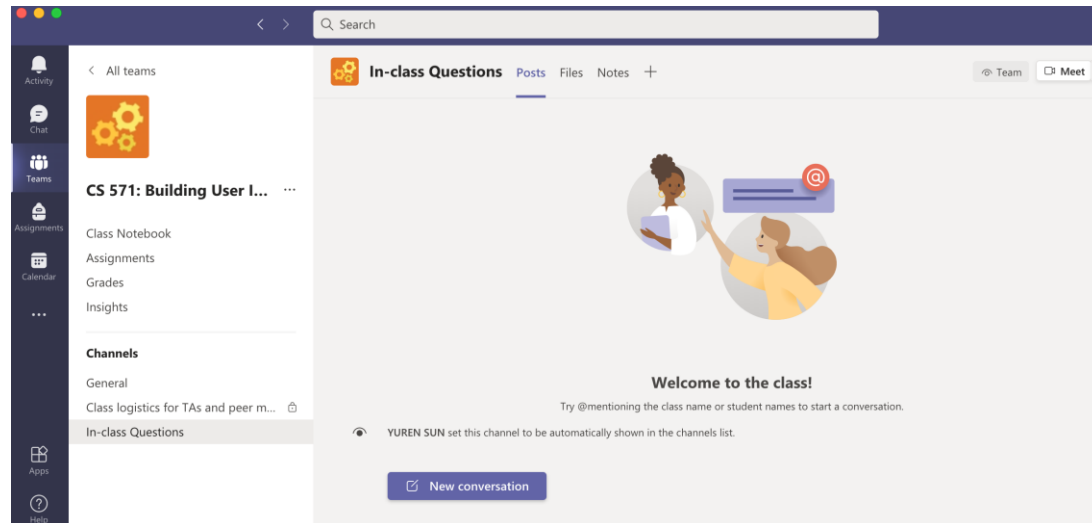
In classroom: TR 11:00-12:15 pm, Science Hall 180 – **Encouraged!**

Additional resources:

1. Online, sync: through Zoom ([link on Canvas](#))
2. Online, async: through recorded lectures (posted by 9pm on day of lecture)

# Communication

- Q&A during in class: Live Q&A on Microsoft Teams
- Office hours: Microsoft Teams video
- Assignment questions: Piazza
- Personal questions: Microsoft Teams chat





# Grading

<b>Assignment</b>	<b>Points</b>
Weekly assignments	50
Midterm	20
Final	20
Quizzes	10
<b>Total</b>	<b>100</b>

# Assessment

- Incremental module deliverables –  $\alpha$ ,  $\beta$  builds,  $\gamma$  for dialogflow
- Midterm & Final
  - Alternative exam dates for midterm
  - Contact TA to schedule alternative exam time for accommodation or other special cases
- In-class quizzes
  - Has to be completed in class

# Systems we will use

- [Course website](#) for content (syllabus, lectures)
- [GitHub Classrooms](#) + [Canvas](#) to share/submit assignment
- [Microsoft Teams](#) for Live Q&A in class, office hours, personal questions
  - Join Code: **7f9u75v**. Click *Create and join teams* below your teams list and look for the *Join a team with a code card*.
- [Piazza](#) for Q&A
- [Canvas](#) for quizzes

CS-571

Q Search CS-571

Home

Schedule

Syllabus

Instructional Team

Office Hours

Course Policies

Technology Requirements

Packages

## Welcome to CS-571 Building User Interfaces

### What is this class about?

This class aims to introduce CS undergraduates to the wonderful world of **User Experience (UX) development**.

But what is UX development? Sometimes called front-end development, UX development is between traditional software development and UX design. Let's hear about it from an [actual UX developer](#):

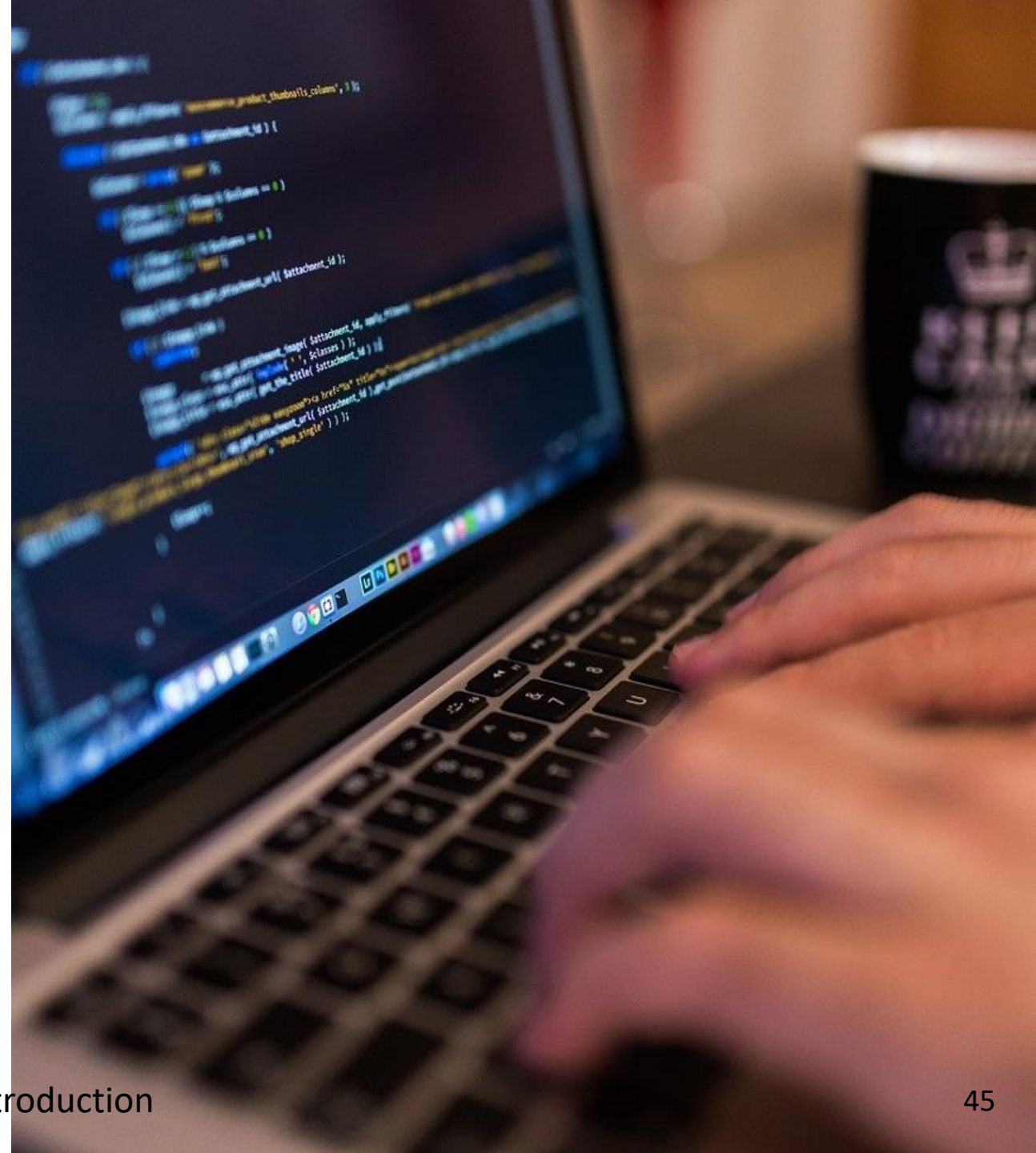
The realm of the UX developer exists somewhere between that of the traditional developer

This site uses [Just the Docs](#), a documentation theme for Jekyll.

# Office hours

You will have a lot of help  
through clinics offered through  
Microsoft Teams

[Image source](#)



	Monday	Tuesday	Wednesday	Thursday	Friday
10 am					
11 am			Sujitha 10:00 – 12:00 pm		Sujitha 10:00 – 12:00 pm
Noon		Class		Class	
1 pm	Brandon 1:00 -3:00 pm				
2 pm		Ilkyu 1:30 – 3:30 pm	Brandon 2:00 – 4:00 pm		
3 pm				Salman 2:30 – 4:30 pm	
4 pm		Salman 3:30 – 5:30 pm			Yuren 3:00 – 5:00 pm
5 pm	Yuren 4:30 – 6:30 pm			Professor Zhao <del>4:30 – 5:30 pm</del> 5:00 – 6:00 pm	
6 pm			Ilkyu 5:30 – 7:30 pm		
7 pm					
8 pm					

# Office hour links

- Brandon
  - [Monday \(1:00 – 3:00 pm\)](#)
  - [Wednesday \(2:00 – 4:00 pm\)](#)
- Salman
  - [Tuesday \(3:30 – 5:30 pm\)](#)
  - [Thursday \(2:30 – 4:30pm\)](#)
- Sujitha
  - [Wednesday \(10:00 am – 12:00 pm\)](#)
  - [Friday \(10:00 am – 12:00 pm\)](#)
- Yuren
  - [Monday \(4:30 – 6:30 pm\)](#)
  - [Friday \(3:00 – 5:00 pm\)](#)
- Ilkyu
  - [Tuesday \(1:30 – 3:30 pm\)](#)
  - [Wednesday \(5:30 – 7:30pm\)](#)

# Who to talk to about what?

- Grading questions → Brandon, Salman
- Assignment submission, technical questions → Brandon, Sujitha, Salman
- Programming questions → Brandon, Sujitha, Salman, Yuren, Ilkyu
- Design questions → Sujitha, Yuren, Ilkyu
- Personal questions; exceptions & emergencies, career, grad school, portfolio advice → Professor Zhao

# Questions about Course Mechanics?



# What's next?

- We'll hit the ground running next Tuesday with the first build lecture: Javascript 1: An Introduction
- Review the course website and meet [technology requirements](#)
- Brush up on some basics: [HTML](#) + [CSS](#) + [Git/GitHub](#)