EPSY 5261 : Introductory Statistical Methods
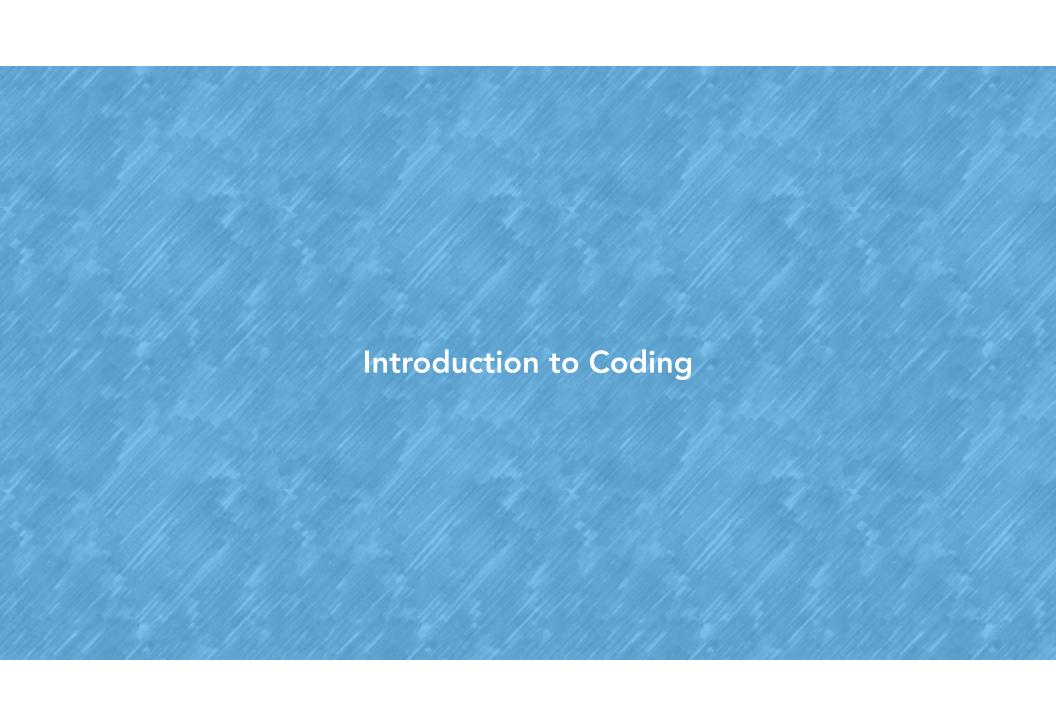
Day 2
Introduction to Coding

Learning Goals

- At the end of this lesson, you should be able to…

  - Read basic code

  - Write basic code

  - Explain the structure of a function for coding

Grilled Cheese Activity

Write instructions to make a grilled cheese….

Introduction to Coding

Coding

- Computers understand code

- To write code for the computer to "run" or "execute" we write *functions*

Functions

- Functions are like verbs

  - We use them to tell the computer what we want to do

Example Function

• For creating a grilled cheese we want to start by buttering the bread. For this we could use the following function:

```
butter_bread()
```

This function allows us to (figuratively) butter some bread.

Example Continued

- Functions require *arguments* to help specify what we want to do.

  - For example we want to tell the computer what type of bread to butter:

```
butter_bread(type = "wheat")
```

Function

Argument

Notice!

• Functions have a specific structure

• If the structure isn't correct, the computer won't give you the right output

• In the example below notice that:

  • There is an underscore in the function name

  • Notice the argument is in quotation marks to specify the type of bread

  • Notice the argument is enclosed in parenthesis

```
butter_bread(type = "wheat")
```

Function   Argument

Notice!

- Parenthesis matter

- Capitalization matters

- Quotes must be used correctly (having 2, having them only where needed)

- Order matters

Adding more functions

	`butter_bread()`	`add_cheese()`	`fry_sandwhich()`
Description	This function is used to get the sandwich started by buttering the bread	This function is used to add cheese to the sandwich	This function is used to fry the sandwich
Arguments	Types of bread: sourdough wheat white	Types of cheese: cheddar american pepperjack colby	Amount of Fry time: 1-10 minutes
Example	`butter_bread(type = "sourdough")`	`add_cheese("cheddar")`	`fry_sandwich(time = 5)`

Putting Functions Together

```
butter_bread(type = "wheat") +
add_cheese(flavor = "Colby") +
fry_sandwich(time = 6)
```

Looking Ahead

- We will write functions like this in class

- We will use R Studio for writing and analyzing code

- You will always to given functions

- You will need to be precise coding and checking for bugs

  - This is a normal part of coding