

# Orientation & Program Introduction

Welcome to Data Science!

// FLATIRON SCHOOL

# Agenda

- Program overview
- Program tools
- Day-to-day expectations
- Assessment details
- Setting yourself up for success

# Program Overview



/// FLATIRON  
SCHOOL



# Your Squad



Lindsey Berlin



Mark Barbour



Matt Carr

# The Next 12 Weeks



Phases



Learn the fundamentals



Assessments



Gauge your progress  
through the phase

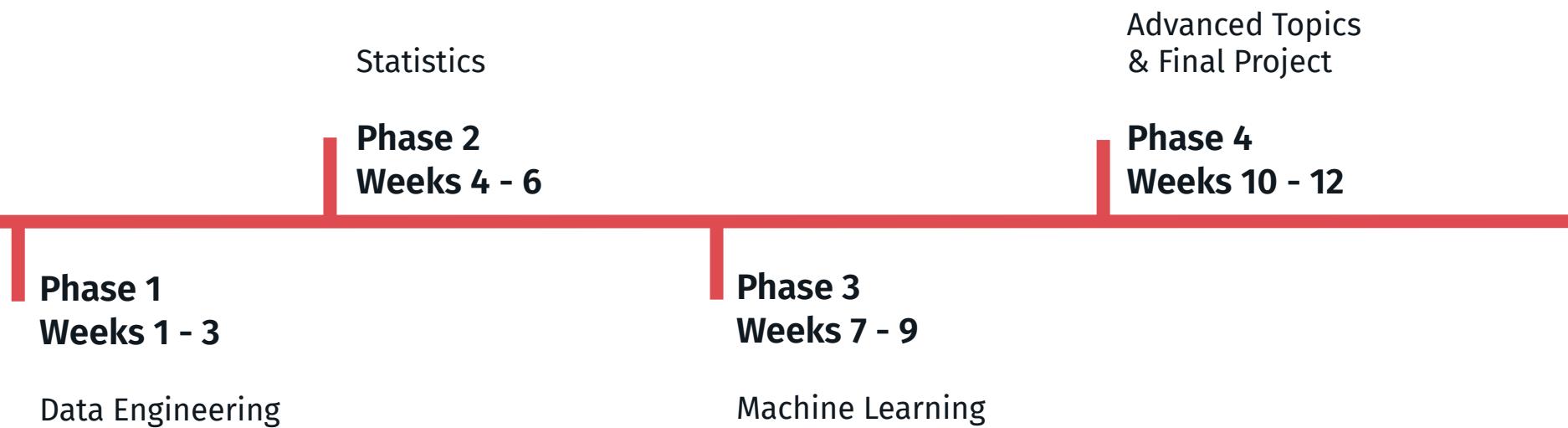


Projects



Collaborate with  
teammates and apply  
what you've practiced

# Program Timeline



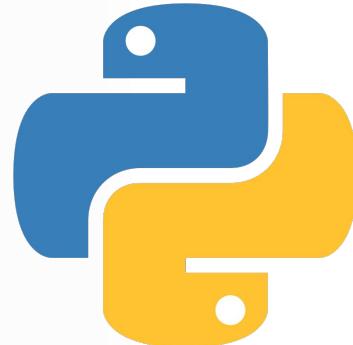
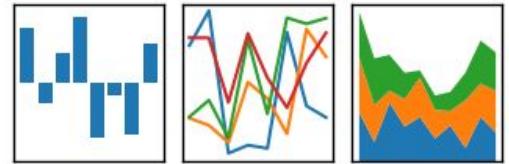
# Data Science Curriculum Overview

## Phase 1

- Coding in Python and SQL
- Data Manipulation and Analysis
- Data Gathering

pandas

$$y_{it} = \beta' x_{it} + \mu_i + \epsilon_{it}$$



# Data Science Curriculum Overview

## Phase 2

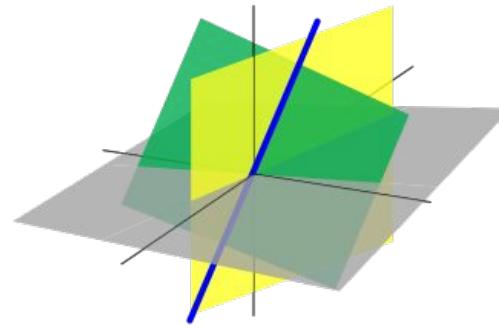
- Statistical Modeling
- Linear Regression



# Data Science Curriculum Overview

## Phase 3

- The Math behind Machine Learning
- Classification Algorithms
- Building Modeling Pipelines



# Data Science Curriculum Overview

## Phase 4

- Big Data
  - Recommendation Systems
  - Time Series Modeling
  - Natural Language Processing
  - Neural Networks
  - AWS



# Attendance



- Class and events run **9am - 6pm** every day
- Late arrivals and early departures count towards **90% attendance rate**
  - Late arrival: after 9:20am
  - Early departure: before 5:40pm
  - Missing a lecture counts as a partial absence
  - 3 partial absences = 1 absence
  - 6 total absences allowed during the program - but don't take them all at once! (trust me)
- **Communicate**

# Holidays

- **Memorial Day - 5/30/2022**
- **Juneteenth (Observed) - 6/20/2022**
- **Independence Day - 7/4/2022**

# Program Tools



# Canvas



## Homeroom

### Programmatic Content:

- Cohort Calendar
- Program resources and information
- Surveys



## Phase

### Textbook and Workbook:

- Lessons
- Labs
- Quizzes (not graded!)

Plus: Access Illumidesk

# Homeroom

## Accessing the Calendar

The screenshot shows the BSC - Homeroom dashboard. On the left, there is a vertical navigation menu with the following items:

- Account
- Dashboard
- Courses** (highlighted with a red box)
- Friends (highlighted with a red circle)
- Inbox
- History
- Help

The main content area has a header "BSC - Homeroom" and a sub-header "Homeroom". Below this, it says "BSC 2022" and "WELCOME! We're excited to get started on May 23!". There is a "Quick Links" section with two items:

- [Cohort Repository](#)
- [Recipe for Success](#)

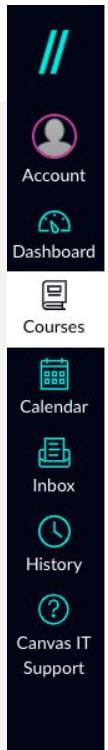
Below this is a section titled "Program Calendar" with the following text:

We recommend that you click the "+ Google Calendar" button in the lower right corner to integrate this calendar with the other calendars you use. You can also toggle to different views in the top left corner of the embedded calendar to look at each week, each month, or day-by-day in the Agenda view.

At the bottom, there is an embedded calendar for "BSC x Flatiron School - Summer 2022" showing "Friday, May 20" and "Monday, May 23" with the time "9:15am" and the event "Orientation & Program Introduction". There are buttons for "Print", "Week", "Month", and "Agenda".

# Phase Course

## Accessing IllumiDesk



- Home
- Discussions
- Grades
- IllumiDesk** 2
- Modules
- People
- Quizzes
- Assignments

▼ Topic 3: Data Analysis in Base Python      Prerequisites: Unlock Course      [Complete All Items](#)

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[Topic 3 Lesson Priorities \(Live\)](#)

[Data Analysis in Base Python - Introduction](#)  
Mark done

[Python Data Manipulation Exit Ticket](#)  
1 pts | Submit

[Data Visualization Exit Ticket](#)  
1 pts | Submit

[File Input and Output in Python](#) 1  
0 pts | Mark done

[CSV](#)  
0 pts | Mark done

[Quiz: Data Analysis with Base Python](#)  
5 pts | Score at least 3.0

[Data Analysis with CSVs Exit Ticket](#)  
1 pts | Submit

# Navigating IllumiDesk

The screenshot shows the IllumiDesk web application. At the top, there is a navigation bar with links: Files (highlighted with a green border), Running, Clusters, Assignments (highlighted with a red border), Courses, and Nbextensions. On the right side of the header are Logout and Control Panel buttons. Below the header, there is a message: "Select items to perform actions on them." To the right of this message are buttons for Upload, New, and a clipboard icon. A file list table follows, containing a single entry: "dsc-running-jupyter-locally-lab". The table includes columns for Name (sorted by name), Last Modified, and File size. The timestamp "a minute ago" is shown under the Last Modified column. The table has sorting arrows for Name and Last Modified.

## Files

Every Jupyter Notebook opened through an assignment link from Canvas lives in your **Files tab**, and will save your work

## Assignments

All of our Checkpoints and Code Challenges will be conducted in IllumiDesk, and you'll be able to access both the assessment and feedback through the **Assignments tab**.

# Accessing Labs

Every lesson and lab is stored on GitHub - it's also where you can find lab solutions!

We'll teach you how to easily download GitHub repositories soon - so, should you do labs locally or in IllumiDesk?

Short answer: **both!**  
Each method has their pros and cons.

## Advantages of Working Locally



- Practice using Git / GitHub → in-demand skills!
- Forking labs on GitHub contributes to a robust, 'green' commit history
- Content is more accessible after the program
- More 'real world'

## Advantages of Working on IllumiDesk



- Ease of use
- No environment issues
- Fully integrated into Canvas

# Day-to-Day Expectations



# How to Show Up: **We Before Me**



BE PROFESSIONAL, CONSIDERATE AND  
RESPECTFUL - ALWAYS

REFRAIN FROM DEMEANING,  
DISCRIMINATORY, OR HARASSING  
BEHAVIOR AND SPEECH

CREATE A POSITIVE IMPACT & LASTING  
IMPRESSION ON EVERYONE AROUND

PARTICIPATE IN AN AUTHENTIC AND  
ACTIVE WAY

TREAT THIS EXPERIENCE LIKE IT'S A JOB

This applies to all Flatiron School spaces: in-person and online

# Weeks 1 & 2

“The  
Normal  
Weeks”

MON	TUE	WED	THU	FRI
23	24	25	26	27
Blog Post 1 Due				
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# Weeks 1 & 2

## Stand Ups and Stand Downs

MON  
23

TUE  
24

WED  
25

THU  
26

FRI  
27

Blog Post 1 Due

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# Stand Ups and Stand Downs



We will check in and check out every day.

**We take attendance!**

Stand ups/downs might include:

- Answering icebreaker questions
- Sharing struggles and successes
- Communicating events and deadlines
- Solving Python or SQL problems

# Weeks 1 & 2

## Lectures

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# Lectures



**We take attendance!** (refer to attendance policy)

There **WILL** be code exercises and they **WILL** be interactive!

Plan to:

- Have lecture content open and ready on your computer (we'll show you how)
- Ask questions! Participate!

# Cohort Repository

AKA where to find all lecture content!

We will go over how to access materials from this repository in Week 1.

The screenshot shows a GitHub repository page for the organization `flatiron-school` and the repository `BSC-DS-2022`. The page is public. The navigation bar includes links for Pull requests, Issues, Marketplace, and Explore. Below the navigation bar, there are tabs for Code, Issues, Pull requests, Actions, Projects, Wiki, Security, Insights, and Settings. The Code tab is selected, indicated by a red underline. The main content area shows the `main` branch with 1 branch and 0 tags. A commit by `lindseyberlin` is listed, adding `DS_Store` to `.gitignore`. The commit message is "Add DS\_Store to gitignore". The commit was made 2 days ago with the SHA `54b12a3`. Below the commit, there are three files listed: `.gitignore`, `LICENSE`, and `README.md`. The `README.md` file has a note: "Initial commit". The `README.md` file is expanded, showing its content: "BSC-DS-2022". There are also "Go to file" and "Add file" buttons at the top right of the code area.

# Weeks 1 & 2

## Pair Programming

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# Pair Programming



Pair programming helps you practice verbalizing what you want to accomplish prior to writing code. It also allows you to view a peer's coding style and approach to problems.

## **Driver:**

- Loads up the lab and shares screen
- Responds to instructions provided by Navigator and enters code into cells

## **Navigator:**

- Instructs the Driver on the approach to take to solve the problem / complete the lab
- Suggests code implementation

# Weeks 1 & 2

## Canvas Time

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<p><b>Blog Post 1 Due</b></p>				

# Canvas Time

Also known as **Personal Working Time**.

Focus on Priority Lessons - and **do not** try to do every single lesson and lab!

Quizzes on Canvas are there as checks for understanding - they **DO NOT** count as official assessments, but are a reference for you to make sure you're getting what you need from the written materials.

# Lesson Priorities



- ▼ Topic 1: Getting Started with Data Science
  - [Topic 1 Lesson Priorities \(Live\)](#)
  - [Getting Started with Data Science - Introduction](#)  
Mark done
  - [The Data Science Process](#)  
View
  - [Problems Data Science Can Solve](#)  
View
  - [PEP8](#)  
0 pts | Mark done
  - [Data Privacy and Data Ethics](#)  
View
  - [Quiz: Data Science Basics](#)  
5 pts | Score at least 3.0

## Topic 1 Lesson Priorities (Live)

If you have not completed all of the content from Pre-Work, you should do so as soon as possible. Proficiency with the content from the Pre-Work is required to follow along with the lectures and other activities. If you have any questions about Pre-Work material, please reach out to your instructor for support.

For a reminder of how to use these lesson priorities, see [How to Use Lesson Priorities \(Live\)](#)

Priorities to Complete Before Data Science Environments Lecture

Lesson

[Getting Started with Data Science - Introduction](#)

[The Data Science Process](#)

[Problems Data Science Can Solve](#)

[PEP8](#)

[Data Privacy and Data Ethics](#)

[Quiz: Data Science Basics](#)

Priorities to Complete After Data Science Environments Lecture

Lesson

Priority

1st

2nd

2nd

1st

2nd

1st

# Assessment Details



# Calculating Your Phase Grade

## - Phase 1

**Blog Post** → 5%

**Checkpoints** → 40%

(10% each, lowest checkpoint dropped)

**Code Challenge** → 30%

**Project** → 25%

# Evaluating Student Progress

In order to advance through the program, we need to know that you have **mastered the essentials.**

If you are in danger of not passing the phase before the project week, you will have the opportunity to demonstrate your readiness to move on through the completion of a **graded, solo project.**

The final pass/not pass assessment happens at the end of each phase.



# Graded Assignment Protocol

For Checkpoints and Code Challenges

- Assessments are **open book**  
(ok to reference labs, lectures, and Google)
- **No copy and pasting** code
- **No chatting, screen sharing or messaging**  
with peers during assignments

# Weeks 1 & 2

## Blog Posts

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23	24	25	26	27
				Blog Post 1 Due
<b>Orientation &amp; Program Introduction</b> 9:15 – 10:45am  <b>Break, 10:45am</b>  <b>Icebreaker</b> 11am – 12pm	<b>Warm Up &amp; Stand Up, 9am</b>  <b>Canvas Time</b> 9:30 – 10:15am <b>Office Hours</b> 9:30 – 10:15am  <b>Break, 10:15am</b>  <b>[Lecture] Introducing The Terminal</b> 10:30am – 12pm	<b>Warm Up &amp; Stand Up, 9am</b>  <b>[Checkpoint] Practice Daily Checkpo</b> 9:30 – 10:15am  <b>Break, 10:15am</b>  <b>[Lecture] Creating Repositories and Collaborating with Git</b> 10:30am – 12pm	<b>Warm Up &amp; Stand Up, 9am</b>  <b>Canvas Time</b> 9:30 – 10:15am <b>Office Hours: Con</b> 9:30 – 10:15am  <b>Break, 10:15am</b>  <b>[Lecture] Data Analysis with CSVs</b> 10:30am – 12pm	<b>Warm Up &amp; Stand Up, 9am</b>  <b>[Checkpoint] Data Serialization Form</b> 9:30 – 10:15am  <b>Break, 10:15am</b>  <b>[Lecture] Pandas DataFrames</b> 10:30am – 12pm
<b>Lunch</b> 12 – 1pm	<b>Lunch</b> 12 – 1pm	<b>Lunch</b> 12 – 1pm	<b>Lunch</b> 12 – 1pm	<b>Lunch</b> 12 – 1pm
<b>[Lecture] Data Science &amp; DS Tools</b> 1 – 2:30pm	<b>[Lecture] Introducing Git and GitHub</b> 1 – 2:30pm	<b>[Lecture] Python Data Manipulation</b> 1 – 2:30pm	<b>[Lecture] Data Analysis with JSONs</b> 1 – 2:30pm	<b>[Lecture] Data Visualization with Matplotlib (Plotting with Pandas)</b> 1 – 2:30pm
<b>Canvas Time</b> 2:30 – 4pm	<b>Break, 2:30pm</b>  <b>Canvas Time</b> 2:45 – 5:30pm <b>Office Hours</b> 2:45 – 4pm	<b>Break, 2:30pm</b>  <b>[Pair Programming] Prework Review</b> 2:45 – 4pm	<b>Break, 2:30pm</b>  <b>[Pair Programming] Data</b> Serialization Cumulative Lab 2:45 – 4pm	<b>Break, 2:30pm</b>  <b>Feelings Friday</b> 2:45 – 3:45pm
<b>Phase 1 Office Hours: Environment Set Up</b> 4 – 5:30pm		<b>Canvas Time</b> 4 – 5:30pm	<b>Canvas Time</b> 4 – 5:30pm	<b>[Optional] Checkpoint</b> Canvas Time, 3:45pm  <b>[Pair Programming] EDA with Pandas Cumulative Lab</b> 4:15 – 5:30pm
<b>Stand Down &amp; Cool Down, 5:30pm</b>	<b>Stand Down &amp; Cool Down, 5:30pm</b>	<b>Stand Down &amp; Cool Down, 5:30pm</b>	<b>Stand Down &amp; Cool Down, 5:30pm</b>	<b>Canvas Time, 5:30pm</b>

# Blog Posts



Being able to explain technical concepts non-technically is **essential** as a data scientist.

To help you practice this skill, you will be required to write **4 blog posts**: 1 for each phase.

Blog posts will be due on **first Friday** of the phase.

We will **present** our blogs to each other during stand downs after the blog post due dates.

# That's right - first blog post is **due this week!**

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Suggested first blog post topic:  
**Why did you decide to learn data science?**

Potential elements to include:

- Your past educational or career experience
- How you learned about data science
- Any particular data science-related projects that you find especially exciting
- What you're hoping to do with data science in the future

# Weeks 1 & 2

## Checkpoints

MON	TUE	WED	THU	FRI
23	24	25	26	27
<p><b>Orientation &amp; Program Introduction</b> 9:15 – 10:45am</p> <p><b>Break, 10:45am</b></p> <p><b>Icebreaker</b> 11am – 12pm</p> <p><b>Lunch</b> 12 – 1pm</p> <p><b>[Lecture] Data Science &amp; DS Tools</b> 1 – 2:30pm</p> <p><b>Canvas Time</b> 2:30 – 4pm</p> <p><b>Phase 1 Office Hours: Environment Set Up</b> 4 – 5:30pm</p> <p><b>Stand Down &amp; Cool Down, 5:30pm</b></p>	<p><b>Warm Up &amp; Stand Up, 9am</b></p> <p><b>Canvas Time</b> 9:30 – 10:15am</p> <p><b>Office Hours</b> 9:30 – 10:15am</p> <p><b>Break, 10:15am</b></p> <p><b>[Lecture] Introducing The Terminal</b> 10:30am – 12pm</p> <p><b>Lunch</b> 12 – 1pm</p> <p><b>[Lecture] Introducing Git and GitHub</b> 1 – 2:30pm</p> <p><b>Break, 2:30pm</b></p> <p><b>Canvas Time</b> 2:45 – 5:30pm</p> <p><b>Stand Down &amp; Cool Down, 5:30pm</b></p>	<p><b>Warm Up &amp; Stand Up, 9am</b></p> <p><b>[Checkpoint] Practice Daily Checkpoint</b> 9:30 – 10:15am</p> <p><b>Break, 10:15am</b></p> <p><b>[Lecture] Creating Repositories and Collaborating with Git</b> 10:30am – 12pm</p> <p><b>Lunch</b> 12 – 1pm</p> <p><b>[Lecture] Python Data Manipulation</b> 1 – 2:30pm</p> <p><b>Break, 2:30pm</b></p> <p><b>[Pair Programming] Prework Review</b> 2:45 – 4pm</p> <p><b>Canvas Time</b> 4 – 5:30pm</p> <p><b>Stand Down &amp; Cool Down, 5:30pm</b></p>	<p><b>Warm Up &amp; Stand Up, 9am</b></p> <p><b>Canvas Time</b> 9:30 – 10:15am</p> <p><b>Office Hours: Content Review</b> 9:30 – 10:15am</p> <p><b>Break, 10:15am</b></p> <p><b>[Lecture] Data Analysis with CSVs</b> 10:30am – 12pm</p> <p><b>Lunch</b> 12 – 1pm</p> <p><b>[Lecture] Data Analysis with JSONs</b> 1 – 2:30pm</p> <p><b>Break, 2:30pm</b></p> <p><b>[Pair Programming] Data Serialization Cumulative Lab</b> 2:45 – 4pm</p> <p><b>Canvas Time</b> 4 – 5:30pm</p> <p><b>Stand Down &amp; Cool Down, 5:30pm</b></p>	<p><b>Blog Post 1 Due</b></p> <p><b>[Checkpoint] Data Serialization Form</b> 9:30 – 10:15am</p> <p><b>[Lecture] Pandas DataFrames</b> 10:30am – 12pm</p> <p><b>Lunch</b> 12 – 1pm</p> <p><b>[Lecture] Data Visualization with Matplotlib (Plotting with Pandas)</b> 1 – 2:30pm</p> <p><b>Break, 2:30pm</b></p> <p><b>Feelings Friday</b> 2:45 – 3:45pm</p> <p><b>[Optional] Checkpoint</b> Canvas Time, 3:45pm</p> <p><b>[Pair Programming] EDA with Pandas Cumulative Lab</b> 4:15 – 5:30pm</p> <p><b>Canvas Time, 5:30pm</b></p>

# Checkpoints



Mini-assessments to check your understanding and key proficiencies.

**Five checkpoints per phase.**

You will have **45 minutes** to complete the checkpoint.

# Weeks 1 & 2

# Code Challenges

# Code Challenges



End-of-phase challenges that simulate real-world workflows or technical interviews.

Occur on the **second Friday** of the phase.

This will feel just like the checkpoints, but you will have **1 hour 30 minutes** to complete the code challenge.

# Week 3

## Project Week

MON

6

TUE

7

WED

8

THU

9

FRI

10

Phase 1 Project Due

<p>Warm Up &amp; Stand Up, 9am</p> <p>[Checkpoint] SQL 9:30 – 10:15am</p> <p><b>Break, 10:15am</b></p> <p>[Lecture] APIs 10:30am – 12pm</p>	<p>Warm Up &amp; Stand Up, 9am</p> <p>Project Work 9:30am – 12pm</p> <p>[Optional Lecture] Web Scraping 10:30am – 12pm</p>	<p>Warm Up &amp; Stand Up, 9am</p> <p>Project Work 9:30am – 12pm</p> <p><b>Phase 1 Project Office Hours 10:30 – 11:30am</b></p>	<p>Warm Up &amp; Stand Up, 9am</p> <p>Project Work 9:30am – 12pm</p>	<p>Warm Up &amp; Stand Up, 9am</p> <p>Project Work 9:30am – 12pm</p>
<p>Lunch 12 – 1pm</p>	<p>Lunch 12 – 1pm</p>	<p>Lunch 12 – 1pm</p>	<p>Lunch 12 – 1pm</p>	<p>Lunch 12 – 1pm</p>
<p>Project Work 1 – 5:30pm</p>	<p>Phase 1 Project O 1 – 2pm</p>	<p>Project Work 1 – 5:30pm</p>	<p>Office Hours: Dat 1 – 2pm</p>	<p>Project Work 1 – 5:30pm</p>
<p><b>Phase 1 Project Group Checkins 3 – 5pm</b></p>			<p>Dress Rehearsal: Phase 1 Project Presentations 1 – 2:30pm</p>	<p>Phase 1 Project Presentations 1 – 2:30pm</p>
<p>[Optional] Checkpoint Review, 5pm</p>			<p>Project Work 2:30 – 5:30pm</p>	<p>Project Wrap Up 2:30 – 4:30pm</p>
<p>Stand Down &amp; Cool Down, 5:30pm</p>	<p>Stand Down &amp; Cool Down, 5:30pm</p>	<p>Stand Down &amp; Cool Down, 5:30pm</p>	<p>Stand Down &amp; Cool Down, 5:30pm</p>	<p>Feelings Friday 4:30 – 5:30pm</p>
				<p>Canvas Time, 5:30pm</p>

# Projects



Either solo or in groups, you will **tackle real problems** to develop portfolio-ready projects you can showcase to potential employers.

Your project will consist of both **technical** and **non-technical deliverables**.

**Project presentations** are a chance to gain experience presenting your findings to a non-technical audience.

The requirements for each project will be outlined in the rubric, which we will go over during the project launch.

# Setting Yourself Up for Success



# Personal Empowerment Protocol

This is an important framework in general for debugging / working through problems.

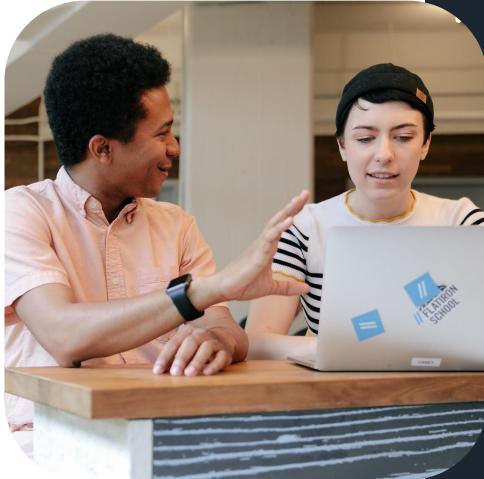
Reading errors, looking up problems, and collaborating with peers are **essential skills**.

Get practice with them before asking us!

## PERSONAL EMPOWERMENT PROTOCOL

- 
- 
1. READ THE ERROR
  2. GOOGLE THE PROBLEM
  3. ASK A NEIGHBOR
  4. ASK A TEACHER

# Individual Check Ins



Check in with your instructors!

Discuss your understanding, review labs or checkpoints, and otherwise check in on your progress through the program.

We will communicate how to sign up for specific time slots (to be determined!)

Would recommend **at least one** check in with an instructor per phase.

# Giving Feedback:

## C - A - S - K



### Consensual

If someone isn't in a good space to receive feedback, it won't stick and it won't help.

### Actionable

Outline ways to change or act on the feedback, instead of saying something vague like "this is bad".

### Specific

Give examples when you can, to anchor your feedback in a real way to the experience you had which prompted the feedback.

### Kind

The goal is to help someone improve, not to belittle others.



# Any Questions?