The Erdős Institute

# Summer 2025 Data Science Boot Camp

## Introduction

# Welcome!

- Welcome to the Erdős Institute Data Science Boot Camp!
- In this boot camp we will:
  - Learn some python
  - Learn some data science
  - Complete a data science project

# Top two resources

- Boot Camp Website, https://www.erdosinstitute.org/programs/summer-2025/data-science-boot-camp
- Erdős Institute Slack
  - Gain access through the course homepage.
  - #summer-2025-launch-cohort
  - #summer-2025-job-help
  - #summer-2025-data-science

# Lecturer

- Steven Gubkin, PhD
  - Head of Training and Assessment at Erdős since 01/01/24
  - PhD in Mathematics from Ohio State University
  - Taught math at Cleveland State from 2016 - 2023

# Group Project Coordinator

- Alec Clott, PhD
  - Head of Data Science Projects
  - Sr. Principal, Quantitative Analytics and Data Science at Gartner
- Graduated from OSU Political Science in 2021
- Your top contact for:
  - Project admin/requirement questions
  - Team formation questions

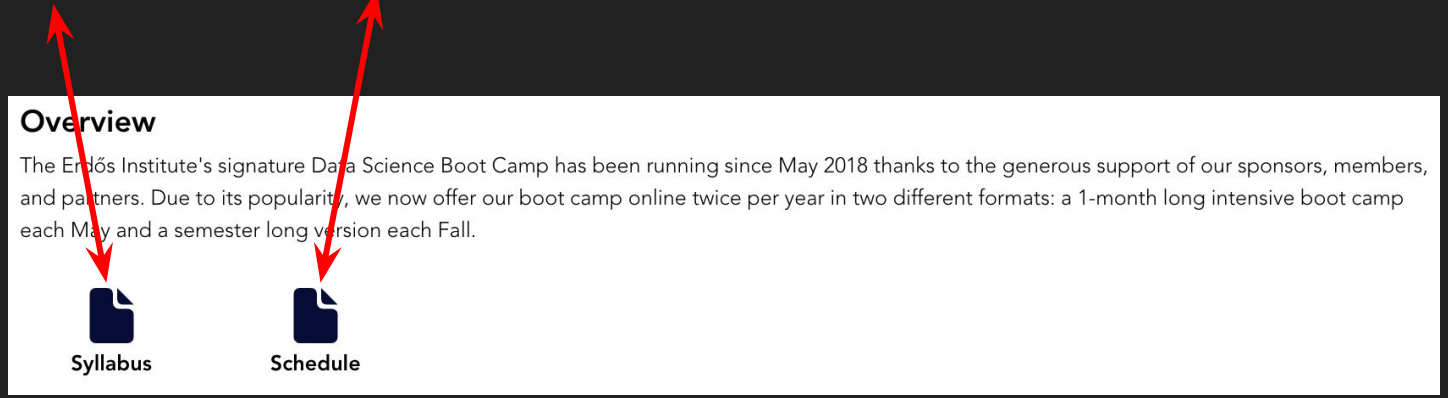
# Background of boot camp attendees

- Hundreds of students from all over the world
- Some of you may know other attendees, others of you won’t
- Many different backgrounds (subject areas, experience with coding)*
- Various types of data science career goals
- Various goals for the bootcamp
- Various goals for the projects

*And that is totally fine and expected!

# Phase I: Data Science instruction and Group Project

- 12 Live Lectures
- 12 Problem Solving Sessions
- All Zoom links can be found in your Erdős profile or on the course website
- Syllabus and Schedule can be found on the course website



# Lectures

- Live lectures 1:30 - 3:00 PM ET every Tu/Th until June 19th
  - Will be recorded and uploaded to the website
- Most lectures already have a pre-recorded video on the website broken down by notebook.

# Problem Sessions

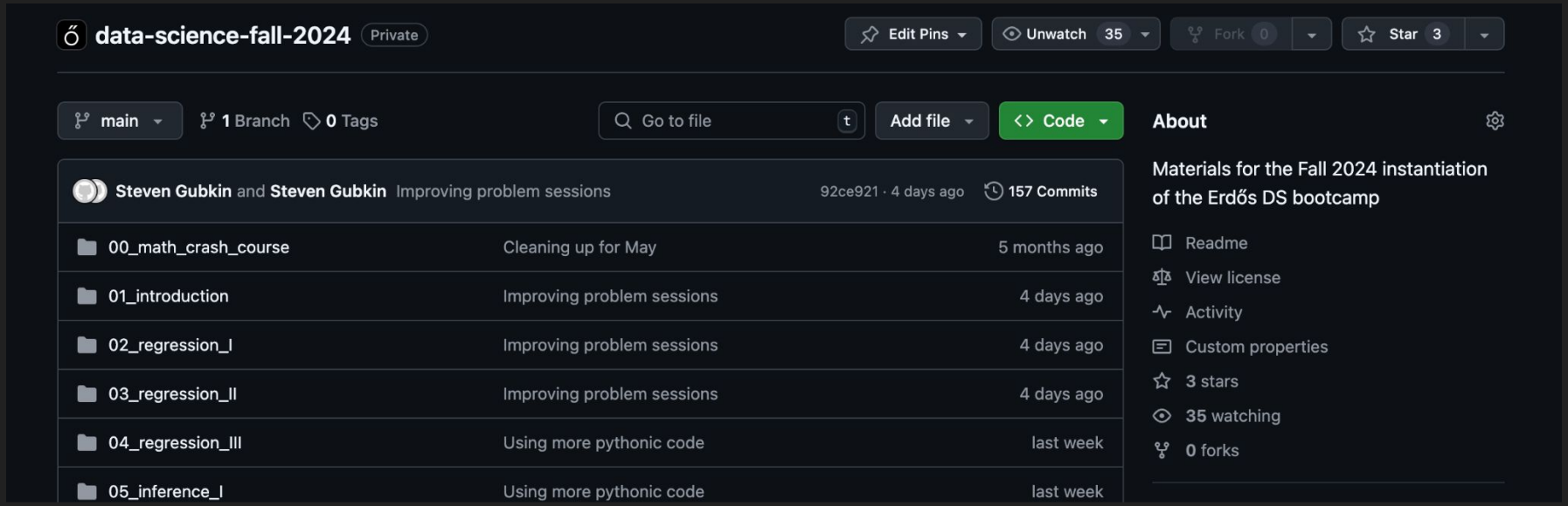
- One hour to work on problem sets in small groups
- Every W/F 1:00 PM - 2:00 PM ET
  - Will not be recorded
- TAs will rotate between groups to assist and observe
- Many problem sessions also have a “prep notebook” with prerequisite practice.

# Math Hour and Office Hour

- Math Hour are every W/F 10:00AM to 11:00AM ET.
  - We go a little deeper into the math behind the techniques covered in lecture.
  - These are **optional.**
- Office Hour are by appointment.

# The GitHub Repository

- Link can be found on the course website
- Contains all of the educational content for the boot camp



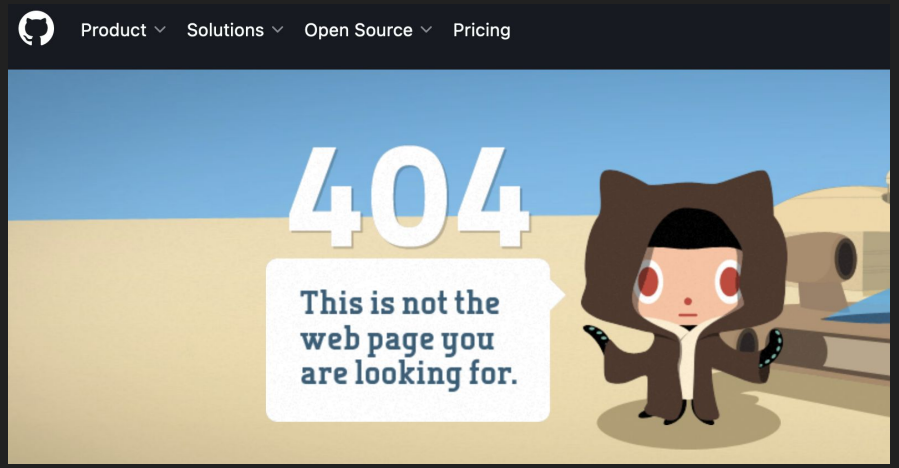
# The GitHub Repository - Steps

- Sign into your GitHub account
- Clone the repository onto your computer
  - Can find instructions in the “First Steps” section of the website
- Everyday of the boot camp you will need to “pull” the updates to the repository
  - Look for “Giting Started with GitHub” in the “First Steps” section of the website
- Make a folder where you copy over files you want to work on (leaving the git repo folder “clean”).

# The GitHub Repository - 404 Issue

If you receive the 404 Error when clicking repo link:

- Check you are signed in
- Check that you have added your GitHub link to your Erdős profile
- Request access on the course homepage




# Jupyter Notebooks

- All educational content contained in jupyter notebooks
- Allows combination of markdown and python code
- Let’s look at an example

# Jupyter Notebooks - Getting Set Up

- Lots of options:
  - Visual Studio Code ← this is what we officially support.
  - Jupyter Notebook
  - Anaconda Navigator
  - Many other options

# Conda Environment

- If you want the most streamlined experience possible this semester, you should set up the conda environment specified in the repository and run all of the notebooks with this environment.
  - Instructions in the repo README document
- Make sure you can run the following notebooks with this environment to confirm everything is working correctly:
  - `computer_setup_day/secret_code.ipynb`
- Enter the secret code here: https://www.erdosinstitute.org/ds-boot-camp-prep

# Data Science Group Projects

- An opportunity to work with real-world data and produce findings in a short time-span
- Focus on substantive areas (environment, health, finance, etc.) using techniques from the bootcamp.
  - The focus should be on using what we learn.
  - Okay to use more advanced methods.  Just make sure to compare their performance to the best model you could make using methods covered in the bootcamp.
- Building your portfolio is crucial in the data science market, provides a framework for job interviews

# Overall Structure

- **Team size:** 3-5 people

- **Goals:** “portfolio” project
  - Can be used in job interviews (when the time comes)
  - Results have business value
  - Communicate to lay-people **and** team of data scientists

- **Structure**
  - Group meetings -- each group decides how much time they want to spend
  - Check-in with project mentor on a regular basis (15-30 min)

# Project Submission

- Deliverables:
  - 5-minute overview video and slide show presentation
  - Annotated GitHub
  - Executive Summary
- Reviewed by project judges
  - You will get individualized feedback on your project.
  - You will earn a certificate as long as the project is deemed acceptable for a resume.
  - If the project would actually detract from your resume we will delay issuing a certificate until you have addressed the issues raised by the judges.
- Top 5 projects will present to all participants in our closing ceremony.

# Team Formation - Live Demo

https://www.erdosinstitute.org/programs/summer-2025/data-science-boot-camp/project-formation

# Phase II: Technical Interview Preparation

- If you completed a portfolio worthy Data Science project in Phase I you will continue on to Phase II:  Technical Interview Preparation.
  - This will consist of self-study and mock interview questions on probability, statistics, machine learning and SQL.
  - You will also complete mock “take home” mini-projects.
- If you did not complete a portfolio worthy group project in Phase I we encourage you to work on completing such a project in Phase II.

# Questions & Concerns?