

The Erdős Institute

Data Visualization Mini Course

Schedule

Prior to Mini Course

This mini course assumes basic proficiency with python. If you are unfamiliar with python, you can go through our python prep materials, <https://www.erdosinstitute.org/programs/asynchronous/python-prep>.

In order to go through the python content in this mini course you will also need to be able to run jupyter notebooks.

Mini Course Schedule

Below I have laid out a proposed eight-week schedule for the mini course. Lectures with an “(Optional)” next to them should be considered optional and are not required in order for you to receive the full benefits of the lectures.

Week 1

Lectures

- Data Viz Mini Course Introduction (Optional)
- Python Introduction (Optional)
- matplotlib: Introduction
 - Optional aside from installation and version check
- matplotlib: The Figure Object
- matplotlib: Axes Objects
- matplotlib: plt.plot
- matplotlib: plt.scatter
- matplotlib: Multiple Plots on One Axes
- matplotlib: plt.text
- matplotlib: Charts Involving Rectangles
- matplotlib: plt.imshow
- matplotlib: plt.pie
- matplotlib: Patches (Optional)
- matplotlib: plt.subplots
- matplotlib: Adjusting Non-Graphical Elements
- matplotlib: Saving a Figure to File (Optional)
- matplotlib: Next Steps (Optional)
- seaborn: Introduction
 - Optional aside from installation and version check
- seaborn: Data for seaborn
- seaborn: Figure vs. Axes-level functions
- seaborn: relplots (Optional)
- seaborn: displots (Optional)
- seaborn: catplots (Optional)
- seaborn: pairplot and jointplot (Optional)
- seaborn: Errorbars and Confidence Intervals (Optional)
- seaborn: Adjusting Non-Graphical Elements (Optional)
- seaborn: Next Steps (Optional)

Problem Sets

- Start working on problem set 1

Week 2

Lectures

- bokeh: Introduction
 - Optional aside from installation and version check
- bokeh: Static Plots
- bokeh: Data for bokeh
- bokeh: Adjusting Non-Graphical Elements
- bokeh: Adding Some Interactivity
- bokeh: Using Javascript in bokeh
- bokeh: Saving Figures (Optional)
- bokeh: Next Steps (Optional)
- plotly: Introduction
 - Optional aside from installation and version check
- plotly: Figures and Traces
- plotly: plotly.express
- plotly: Creating Graphs We Already Know
- plotly: New to Us Chart Types (Optional)
- plotly: Hover Effects
- plotly: Adjusting Figure Layout
- plotly: Saving plotly Figures (Optional)
- plotly: A Simple Dashboard
- plotly: Next Steps (Optional)

Problem Sets

- Complete problem set 1

Week 3

Lectures

- Web Browser Based Visualization Introduction (Optional)
- HTML: Introduction
- HTML: Elements and Tags
- HTML: Attributes, Classes, and IDs
- CSS: Introduction
- CSS: Common Style Updates
- CSS: External Style Sheets
- SVG: Introduction
- SVG: Adding Simple SVG Elements
- SVG: Paths
- SVG: Groups
- d3.js: Introduction
- d3.js: Starting a Local Server
- d3.js: Adding Script to HTML
- d3.js: Some JavaScript Syntax
- d3.js: JavaScript Data

Problem Sets

- Work on problem set 2

Week 4

Lectures

- d3.js: Binding Data
- d3.js: Loading Data With d3.js
- d3.js: Using Data
- d3.js: Drawing SVG With Data 1
- d3.js: Scales
- d3.js: Drawing SVG With Data 2
- d3.js: d3.js and Groups
- d3.js: Axes and Grids
- d3.js: Text, Titles, and Labels
- d3.js: Colormaps
- d3.js: Simple Hover Effects
- d3.js: Transitions
- d3.js: Updates
- d3.js: Remove
- d3.js: Buttons
- d3.js: Subsetting Data
- Web Browser Based Visualizations Next Steps (Optional)

Problem Sets

- Complete problem set 2

Week 5

Lectures

- Tableau: Tableau Introduction
- Tableau: Getting Started with Tableau
- Tableau: Brief App Introduction
- Tableau: Workbooks
- Tableau: Dimension and Measures
- Tableau: Scatter Plots
- Tableau: Line Charts
- Tableau: Bar Charts and Point Plots
- Tableau: Histograms and Box Plots
- Tableau: Some Additional Basic Counting Plots
- Tableau: Part-to-Whole Plots
- Tableau: Gantt Charts

Problem Sets

- Work on problem set 3

Week 6

Lectures

- Tableau: Tables
- Tableau: Maps

- Tableau: Calculations
- Tableau: Level of Detail Expressions
- Tableau: Filters
- Tableau: Axes, Labels, Legends, Titles, and Tool Tips
- Tableau: Interactions
- Tableau: Dashboards
- Tableau: Stories
- Tableau: Publishing to Tableau Public
- Tableau: Next Steps

Problem Sets

- Complete problem set 3

Weeks 7-8

- Complete your final project