# Week of 07/06/21

1. Nested For loops:
   1. <https://www.educba.com/python-nested-loops/?source=leftnav>
2. LMEM in Python: <https://towardsdatascience.com/how-to-run-linear-mixed-effects-models-in-python-jupyter-notebooks-4f8079c4b589>
   1. Installation

# Week of 06/14/21

1. Using Markdown Reference Tutorials:
   1. <https://www.datacamp.com/community/tutorials/markdown-in-jupyter-notebook>
   2. <https://www.markdownguide.org/basic-syntax>
   3. Formatting Custom Badges:
      1. <https://shields.io>
   4. Inserting Emojis:
      1. [https://www.markdownguide.org/extended-syntax#:~:text=Emoji](https://www.markdownguide.org/extended-syntax#:~:text=Emoji%20There%20are%20two%20ways%20to%20add%20emoji,like%20Emojipedia%20and%20paste%20it%20into%20your%20document)
   5. Inserting Images:
      1. [https://reactgo.com/github-add-images-readme/#:](https://reactgo.com/github-add-images-readme/#:~:text=%20%20%201%20Click%20on%20the%20image,and%20select%20copy%20image%20address%20option.%20More%20)

Week of 06/07/21

1. How to setup PyCharm with an anaconda virtual environment already created

<https://medium.com/infinity-aka-aseem/how-to-setup-pycharm-with-an-anaconda-virtual-environment-already-created-fb927bacbe61>

1. How to add a pycharm project w/ own environment & configuration into Git Repository <https://www.geeksforgeeks.org/how-to-upload-project-on-github-from-pycharm/>

# Week of 05/31/21

## Basic Plotting with Matplotlib

* 1. <https://coursera.org/share/fc680d2f56a3f4ff05db434ec9256c09>
  2. Using html to display figures in jupyter notebook
  3. Setting x and y axis limits

1. Scatterplots with Numpy
   1. <https://coursera.org/share/2cd6fc4c2528305d9e4ee0b3a1542b47>
   2. Changing point color and size
   3. Adding labels to x and y axis
   4. Title
   5. Legend and legend positioning
2. Line Plots with Numpy
   1. <https://coursera.org/share/f1a5b3288c374f83f1bccb40835cc2ed>
   2. Assigning different trendlines/colors to different series
   3. Filling area on graph between two series
   4. Legend with legend entries (i.e. names of data series)
   5. Plotting with dates/times (using pandas)
   6. Rotating tick labels
   7. Adjusting subplot so text doesn’t run off the image
3. Bar Charts
   1. <https://coursera.org/share/3d4c353b903b8ac953656baa45f48f80>
   2. Adding error bars
   3. Stacked bar charts
   4. Horizontal bar charts
4. Linear Models in R
   1. <https://bodowinter.com/tutorial/bw_LME_tutorial1.pdf>
   2. p-values
   3. R^2 and R^2 adjusted values
   4. fixed effects
   5. multiple regression
   6. residual plots
5. Linear Mixed Effect Models in R

# Week of 05/24/21

1. Numpy Essentials

## Creating and Manipulating Numpy Arrays <https://coursera.org/share/fc35b45178cbb58cbb1ab610600334c9>

## Modifying array dimensions

* + 1. Slicing Arrays
    2. Creating Multidimensional Arrays
    3. Creating arrays with same shape
    4. Creating array of extracted elements
    5. Loading Datasets into Numpy arrays
    6. Boolean indexing

## Boolean masking

## Aggregation functions

1. Pandas Essentials

## Creating and Manipulating Panda Series

* + 1. <https://coursera.org/share/4d34bf74db63f575f4426bca221f3637>
    2. Creating a series from lists and dictionaries

## Querying a Series

* + 1. <https://coursera.org/share/4d34bf74db63f575f4426bca221f3637>
    2. .loc() and .iloc() functions

## Merging Data Series with append()

* + 1. <https://coursera.org/share/4d34bf74db63f575f4426bca221f3637>
  1. .unique() function

## groupby() function

* + 1. <https://coursera.org/share/e13e8af284c547c9d0f949f496076742>

1. Tuples: Python tutorial 5.3: <https://docs.python.org/3/tutorial/datastructures.html#tut-tuples>
2. Lambda and List Comprehensions: <https://coursera.org/share/f8a191f11b4ea0cbfa247ccfb54dec63>
   1. Lambda defined in Python Reference Tutorial: 4.7.6 <https://docs.python.org/3/tutorial/controlflow.html?highlight=lambda>

## Basic Regular Expressions

* 1. <https://coursera.org/share/3527409502b8e467afa471afe9843b0f>

1. Viewing DataFrames with Pandas

## Setting Indices

* + 1. <https://coursera.org/share/d4a3af4aa52422ada9d328c2a49fb342>

1. Cleaning DataFrame

## Finding and Dropping Nan values

* + 1. <https://coursera.org/share/8b1029c8f6760861f259a643d083b030>

## Creating, Dropping, and Renaming Columns

* 1. max() and min() across rows

## Merging DataFrames

* 1. <https://coursera.org/share/7fcd19468b8c917d723c9dabfd8d4545>

# Week of 05/17/21

## Opening & Reading Dataframe

* 1. Using list() to transform datafile into list
  2. reader() function
  3. Loading a Dataset with numpy:
     1. <https://coursera.org/share/fc35b45178cbb58cbb1ab610600334c9> 22:45

## str/float/int Type Conversions

* 1. Using .astype() to do type conversion to a numpy array
     1. <https://coursera.org/share/fc35b45178cbb58cbb1ab610600334c9>

## Dictionaries, dir() function, .keys()

## Positive vs. Negative Indexing

## Direct Indexing

## Of a unique value of a variable in a dataset

* + 1. <https://www.coursera.org/learn/python-data-analysis/lecture/HPh3O/python-more-on-strings>

## List slicing

* 1. Separating str headers from int data

## Replacement function

* 1. Removing substrings
  2. Removing unwanted characters
  3. Also in data cleaning...

## Append function

* 1. Adding elements to a list

## For Loops

* 1. Computing averages using for loops and len() function
  2. Using for loop to create a new list from an empty set

## While Loops

## If statements (including elif and else)

## Other statements

* 1. Define (Def)
  2. “In” keyword
  3. Break
  4. Pass
  5. Continue
  6. Return

## Any and all functions

## Defining Callable Functions

## keyword and positional arguments

* + 1. <https://www.coursera.org/learn/python-data-analysis/lecture/v7PKy/python-functions>