Week	Date	Topic	Interactive Readings and Lecture Notes	Activities and Assignments
1	8/22/2023 Lecture	Python language review	Data Camp: *Introduction to Python (4 hr)*	
	8/24/2023 Lab	Using Git for code management GitHub repository		*Git, GitHub and Python Setup* *DataCamp Workspaces*
2	8/29/2023 Lecture	Introduction to Data Science Data collection and storage Experimentaiton and prediction Dictionaries and Pandas	Data Camp: *Understanding Data Science (2 hr)* Data Camp*: Intermediate Python (4 hr)*	
	8/31/2023 Lab	Using Git for code management GitHub repository		*Git, GitHub, and Python Setup* (cont) Case Study 1: *20,000 board games* Due 9/7/2023
3	9/5/2023 Lecture	Writing your own functions Logic, flow control, filtering, loops Default arguments, variable-length arguments and scope Lambda functions and error handling	Data Camp*: Intermediate Python (cont)* Data Camp: *Python for Data Sciences 1 (3 hr)*	
	9/7/2023 Lab			Case Study 2*: Port Authority of New York and New Jersey* Due 9/14/2023
4	9/12/2023 Lecture	Iterators, lists, comprehensions, generators Flat files Relational databases	Data Camp: *Python for Data Science Toolbox 2 (4 hr)* Data Camp: *Introduction to Importing Data (3 hr)*	
	9/14/2023 Lab			Case Study 3: *Wholesale market prices: organic vs. convential* Due 9/21/2023
5	9/19/2023 Lecture	Transforming, aggregating, concatenating, and merging data Creating, slicing, indexing dataframes	Data Camp*: Join Data with Pandas (4 hr)* Data Camp*: Cleaning Data in Pyhton (4 hr)*	
	9/21/2023 Lab			Case Study 4a: *Feed grain logistics* Case Study 4b: *Estimated Income by Location* Due 9/28/2023
6	9/26/2023 Lecture	Create and customize plots Analyze time series and images Visualizing quantitave and categorical variables Create plots on data-award grids	Data Camp: *Introduction to Data Visualization with Matplotlib* (4 hr) Data Camp: *Intermediate Data Visualization with Seaborn* (4 hr)	
	9/28/2023 Lab			Case Study 5a: *Iris data set, basic* Case Study 5b: *Iris data set, intermediate* Due 10/5/2023
7	10/3/2023 Lecture	Exploring your data; tidying, combining, and cleaning your data for analysis Distinguish between independent and dependent variable relationships Inspect data using distribution plots	Data Camp: *Exploratory Data Analysis in Python* (4 hr)	
	10/5/2023 Lab			Case Study 6: *Planning a Float Trip* Due 10/12/2023
8	10/10/2023 Lecture	Catch up and reivew		
	10/12/2023 Lab	Self-assessment	*Bayou Meto LiDAR QA/QC analysis*	Analyze and plot by land cover type, show on map
9	10/17/2023 Lecture	Fall Break		
	10/19/2023 Lecture	Mid-term Exam (48 hour take home)		See Blackboard for posted exam

	Lecture			
10	10/24/2023 Lecture	Self-Assessment Review Mid-term Review		
	10/26/2023 Lecture	Mid-term Review		
11	10/31/2023 Lecture	Import data from the internet using APIs	Data Camp: *Intermediate Importing Data in Python* (2 hr)	
	11/1/2023 Lab			Case Study 7a: *Popular Books, Best Sellers, and Highly Rated Titles* Case Study 7b: *Online Data in BeautifulSoup* Due 11/9/2023
12	11/7/2023 Lecture	Recognize and distinguish between discrete and continuous variables Demonstrate parameter estimation by optimization Create and test hypothesis	Data Camp: *Statistical Thinking in Python 1 (4 hr)*	
	11/9/2023 Lab			Case Study 8: *Weather Stations* Due 11/21/2023
13	11/14/2023 Lecture	How and when to perform data preprocessing Standardize data Create new features to best leverage the information in your dataset Select the best features to improve your model fit.	Data Camp: *Understanding Machine Learning (2 hr)* Data Camp*: Statistical Thinking in Python 2 (4 hr)*	
	11/16/2023 Lab			Case Study 8: *Weather Stations (continued)* Due 11/21/2023
14	11/21/2023 Lecture		Data Camp: *Preprocessing for Machine Learning*	
	11/23/2023 Lab	Thanksgiving Break		
15	11/28/2023 Lecture	Constructing supervised learning models - classification and regression Fine tuning your model Preprocessing and pipelines	Data Camp*: Supervised Learning with Scikit Learn (4 hr)*	
	11/30/2023 Lab			Case Study 9: *California Housing Prices* Due 12/7/2023
16	12/5/2023 Lecture	Regular expressions & word tokenization Simple topic identification Name identity recognition	OPTIONAL - Data Camp: *Introduction to Natural Language Processing in Python (4 hr)*	
	12/7/2023 Lab	Review and Catch-up		OPTIONAL - Cast Study 10: *Building a "fake" news classifier*
Final	12/8/2023 Lecture	Reading Day		
	12/11/2023 FINAL	Final Exam (48 hr take home)		Final Exam (Date TBD)