Eight week program: 1hr 15min class each week

Week/ dates	Learning objectives	Syllabus	Ocean themes

Week 1	Ocean week
	
	Listen to the students about what they are interested in
	
	Expectations for the course
		● Introduction
		  - What is oceanography?
		  - What do oceanographers do?
		  - Who can be an oceanographer?
		    - Instructor introductions
		  - Icebreaker activity
		  - What is coding? What is Python?
		  - Syllabus outline
		  - Next week preview
			What kind of work do oceanographers do?

Week 2	Establish instructor/student relationship Open coding environment on student's machine/tablet Print statements and comments	● Open Google Colab ● Familiarize ourselves with Colab interface - text blocks vs. code blocks ● Practice the print command with ocean facts ● Practice adding comments ● Review best coding practices	Ocean animal facts
Week 3	Understand that there are different types of objects Assign some variables Do basic math operations	● Learn to assign variables ● Learn about objects: strings, numbers ● Making and using lists ● Basic math calculations/operations ● Review best coding practices	Shark species and marine life around Jamaica Bay and Long Island
Week 4	Understand True & False Learn how to write conditional Statements	● Intro to Argo floats ● Should we trust all the data we collect? ● Boolean logic ● *if* statements ● *else* statements ● Review best coding practices	Argo Floats and quality control of data

Week 5	Understand *'for'* loops and *'while'* loops
	
	Learn how to import packages
	
	Learn what kind of data is publicly available
		● More info about Argo floats
		● Introducing *for* and *while* loops
		● Importing packages for data science
		  - numpy, pandas, matplotlib
		● Look at publicly available datasets
		  - Discuss potential datasets for final projects
		● Review best coding practices
			Program your own Argo floats. While time<10days take measurement every hour.

Week 6	Use pandas to read oceanographic data Learn basic pandas operations	● Learn about CTDs ● Open some data using pandas ● Find maximum and minimum ● Find mean ● Make a new column ● Review best coding practices	Polar vs Tropical CTD (salinity and temperature profiles)
Week 7	Use pandas and matplotlib to plot oceanographic data Make multi-variable plots or	● Plot 1-D time series ● Label axes ● Plot two time series on one plot ● Plot subplots	Polar vs Tropical CTD (salinity and temperature profiles) Argo profile

	subplots of multiple variables	● Review best coding practices	trajectories
Week 8	Presentation of data/results Interpretation of data/results	● Final group discussion of plots ● Establish groundwork for continued mentoring	