

Week	Learning objectives	Syllabus	Ocean themes
Week 1	<p>Ocean week</p> <p>Listen to the students about what they are interested in</p> <p>Expectations for the course</p>	<ul style="list-style-type: none"> • Introduction <ul style="list-style-type: none"> - What is oceanography? - What do oceanographers do? - Who can be an oceanographer? <ul style="list-style-type: none"> - Instructor introductions - Icebreaker activity - What is coding? What is Python? - Syllabus outline - Next week preview 	What kind of work do oceanographers do?
Week 2	<p>Establish instructor/student relationship</p> <p>Open coding environment on student's machine/tablet</p> <p>Print statements and comments</p>	<ul style="list-style-type: none"> • Open Google Colab • Familiarize ourselves with Colab interface <ul style="list-style-type: none"> - text blocks vs. code blocks • Practice the print command with ocean facts • Practice adding comments • Review best coding practices 	Ocean animal facts
Week 3	<p>Understand that there are different types of objects</p> <p>Assign some variables</p> <p>Do basic math operations</p>	<ul style="list-style-type: none"> • 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	<p>Understand True & False</p> <p>Learn how to write conditional Statements</p>	<ul style="list-style-type: none"> • Intro to Argo floats • Should we trust all the data we collect? • Boolean logic • <i>if</i> statements • <i>else</i> statements • Review best coding practices 	Argo Floats and quality control of data
Week 5	<p>Understand <i>'for'</i> loops and <i>'while'</i> loops</p> <p>Learn how to import packages</p> <p>Learn what kind of data is publicly available</p>	<ul style="list-style-type: none"> • More info about Argo floats • Introducing <i>for</i> and <i>while</i> loops • Importing packages for data science <ul style="list-style-type: none"> - numpy, pandas, matplotlib • Look at publicly available datasets <ul style="list-style-type: none"> - Discuss potential datasets for final projects • Review best coding practices 	Program your own Argo floats. While time<10days take measurement every hour.
Week 6	<p>Use pandas to read oceanographic data</p> <p>Learn basic pandas operations</p>	<ul style="list-style-type: none"> • 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	<p>Use pandas and matplotlib to plot oceanographic data</p> <p>Make multi-variable plots or subplots of multiple variables</p>	<ul style="list-style-type: none"> • Plot 1-D time series • Label axes • Plot two time series on one plot • Plot subplots • Review best coding practices 	Polar vs Tropical CTD (salinity and temperature profiles) Argo profile trajectories
Week 8	<p>Presentation of data/results</p> <p>Interpretation of data/results</p>	<ul style="list-style-type: none"> • Final group discussion of plots • Establish groundwork for continued mentoring 	