Winter 2025

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Course Syllabus

Winter 2025 - *undergoing revisions*

The Python for Everybody (Py4E) book is available here: https://www.py4e.com/html3/

Start working on the notebooks right away. Hands on experience is vital to understanding the material.

	Topics	Readings	Notebooks	Assignments
Week 1	Variables and scope; good documentation; debugging; data types; digital representation of data; Pythonic thinking; importing modules.	Py4E_Ch1 Py4E_Ch2	Taste of Python, Python Basics	
Week 2	Conditional tests and loops; Version control with Git.	Py4E_Ch3, Py4E_Ch4	Conditional Statements, For loops, Functions	
Week 3	Object oriented programming; Algorithms; Accessing data files	Py4E Ch5, Py4E Ch 6	Modules	Space, Rocks, Water, or Birds #1
Week 4	Functions; Numpy; Scipy	Py4E Ch 7 Py4E Ch 8	Pandas intro	
Week 5	Pandas and other modules; Iterable objects		More Pandas!	Birds # 2, Rocks #2, Water # 2 Space # 2
Week 6	More with Pandas and data wrangling; accessing complex data files (netCDF, HDF)		Advanced Pandas	
Week 7	Matplotlib, Seaborn, and visualization		Visualizations	Water # 3, Rocks # 3 Birds # 3 Space #3 Project proposal due
Week 8	Geospatial data, projections and analysis		Geospatial data	
Week 9	Machine learning introduction; Google Earth Engine		Machine learning introduction	
Week 10	Finish Projects			Term project due