Supplemental Material for Learning Python

Tutorials/Online Learning

Unidata Online Python Training: At your own pace training on the Python language, with examples chosen from the geosciences. Also has links to other introductory materials.
https://unidata.github.io/online-python-training/

Unidata Python Training Workshop: Jupyter Notebooks and materials for Unidata's Python training workshop, which focuses on scientific Python tools and accessing data using Unidata tools.
https://unidata.github.io/unidata-python-workshop/

Unidata Notebook Gallery: a collection of example Jupyter notebooks for working with Python and meteorology
https://unidata.github.io/notebook-gallery/

SciPy Lectures: "One document to learn numerics, science, and data with Python"
http://www.scipy-lectures.org/

Google's Python Class:
https://developers.google.com/edu/python/

Tools and Libraries

Getting Python

Anaconda: a Python distribution that comes with many scientific libraries (only downside is the 2GB download).
https://www.continuum.io/downloads

Miniconda: which uses the same packages as Anaconda, but gives you a smaller initial download.
http://conda.pydata.org/miniconda.html

Documentation for conda, which is used to install packages in miniconda/Anaconda:
http://conda.pydata.org/docs/

General Purpose

NumPy: provides general array for computations, as well as some simple calculations. This is used by almost every other Python scientific library.
http://www.numpy.org/

Matplotlib: the predominant plotting library for publication-quality graphics:
http://matplotlib.org (Gallery of examples: http://matplotlib.org/gallery.html)

SciPy: a collection of various general purpose algorithms (ODE solvers, numeric integration, basic statistics, random number generators, spatial algorithms)
https://www.scipy.org/scipylib/index.html

Jupyter: an interactive computing environment; the notebook environment provides a sandbox for testing and developing code. Notebooks are also an excellent document format for combining prose, code, and resulting images:
https://jupyter.org/ (Online demo of notebooks: https://try.jupyter.org/)

IPython: an interactive shell for working with Python; this is also used to run Python code within Jupyter.
https://ipython.org/

CartoPy: A library providing cartographic tools for python; based on Matplotlib, so knowledge of Matplotlib carries over.
http://scitools.org.uk/cartopy/

Domain-specific Tools

MetPy: a collection of tools in Python for reading, visualizing, and performing calculations with weather data. Aims to achieve GEMPAK-like functionality in Python.
https://unidata.github.io/MetPy

netCDF4-python: Read and write netCDF files from Python; the Python API is much simpler to use than that of C/C++. Also allows remote data access over OPeNDAP.
https://unidata.github.io/netcdf4-python/

Siphon: Tools to access remote datasets hosted on a THREDDS data server
https://unidata.github.io/siphon

Scikit-learn: Machine learning in Python
http://scikit-learn.org/stable/

Scikit-image: Image processing in Python http://scikit-image.org/

Statsmodels: statistical models and tests in Python
http://statsmodels.sourceforge.net/

SymPy: a Python library for symbolic mathematics.
http://sympy.org

Pandas: High-performance data structures for manipulating data in Python; well-suited to time series data
http://pandas.pydata.org/

Xarray: like Pandas, but for N-dimensional (think: gridded) data
http://xarray.pydata.org/

Support

Unidata's python-users list: Mailing list for Unidata to answer Python questions from its users; anything Python and the geosciences is fair game.
https://www.unidata.ucar.edu/support/#mailinglists

PyAOS: A collection of resources for Python in the atmospheric and oceanic sciences; has its own community mailing list.
http://pyaos.johnny-lin.com/

Can also contact me with questions:
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