

# Software Introduction

This document is to help get you familiar with some of the main software tools we will be using in this course. Installing these tools is described in the document Software Installation.

Some of the main software tools we will use are:

- **Python** is the language we will be using this semester. It is an open source language known for its quick development time, extensibility, and large standard library. Python will work well for us because it is easy to learn, and since it is open source and extensible, there are many scientific computing and data analysis tools for the language.
- **PyCharm** is an integrated development environment for Python. It has built in tools to help us write and debug our python code. It also provides a seamless integration for Jupyter.
- **Jupyter** is an open source notebook creation / viewing tool that is somewhat similar to Mathematica. The notebook allows integration of equations, figures, functions and python code. Since we can run python code in Jupyter, it provides a nice interface to our python programs and functions.
- **Anaconda** is a collection of python modules tailored for scientific computing and data analysis. In addition to the python modules, it also includes tools for managing which modules and module versions are available to a program. The python interpreter is part of the Anaconda package. Jupyter as well as other packages like Matplotlib, NumPy, BeautifulSoup, AstroPy, and SciPy as well as many others.

## Resources:

Some good resources to get started with python, PyCharm, and Jupyter are:

- ☐ The [python tutorial](#), especially useful now are sections [1](#), [3](#), [4](#) and [5](#).
- ☐ Python's list of [simple programs](#) has some great programming examples.
- ☐ [PyCharm](#) has a page on [Creating and Running Your First Python Project](#). There is also a good video describing PyCharm down a bit on the [PyCharm homepage](#).
- ☐ The tutorial titled [Using Jupyter Notebook with PyCharm](#) is a good introduction to [Jupyter](#).