

Programming Workshop: Intro to Plotting

Beginner's Workshop #7
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Outline

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Plotting Overview

- Can use Python to make any type of plot
 - Scatter, line, box and whisker, histogram, etc.
 - 2D and 3D options available
 - Static or dynamic
- Common and extensive library: Matplotlib
 - Syntax similar to Matlab
 - Can be used to make simple, quick diagrams or complex, highly customized plots

Matplotlib: Installation

```
sudo apt-get install python3-pip
```

```
pip3 install matplotlib
```

OR

```
sudo apt-get install python3-matplotlib
```

Matplotlib: Basic Steps

1. Import matplotlib.pyplot
2. Rearrange Data
3. Add data to plot or axis object
4. Make changes to attributes as needed
5. Show the plot

Matplotlib: Simple Example 1

Very simple example - basic line plot

See source.

Matplotlib: Simple Example 2

Very simple example - showing some attribute modification

See source.

Matplotlib: Simple Example 3

Simple example - showing use of figures, subplots, and axis objects for modification of attributes

See source.

Matplotlib: Example 1

Complex example. Showing 3D line plot capabilities.

See source.

Matplotlib: Example 2

Complex example. Showing 3D wire plotting

See source.

Matplotlib: Example 3

Complex example. Showing complex 3D plotting with very intricate coloring.

See source.

Matplotlib: Example 4

Complex example. Showing 3D surface plot.

See source.