

# Quarto Document

Sohyun Park

2024-10-04

## Table of contents

<b>1</b>	<b>Sections</b>	<b>1</b>
1.1	Colors . . . . .	1
1.2	Shapes . . . . .	2
1.3	Textures . . . . .	2
1.4	Equations . . . . .	2
<b>2</b>	<b>Citations</b>	<b>2</b>
<b>3</b>	<b>Cross References</b>	<b>2</b>
3.1	Plot . . . . .	3
3.2	Equation . . . . .	3
<b>4</b>	<b>Callouts</b>	<b>3</b>
<b>5</b>	<b>Placing Colorbars</b>	<b>4</b>

[Quarto Document](#)

## 1 Sections

### 1.1 Colors

- Red
- Green
- Blue

## 1.2 Shapes

- Square
- Circle
- Triangle

## 1.3 Textures

- Smooth
- Bumpy
- Fuzzy

## 1.4 Equations

Einstein’s theory of special relatively that expresses the equivalence of mass and energy:

$$E = mc^2$$

## 2 Citations

Mary says *Hydrophobicity is ubiquitous. Many aquatic and semi-aquatic plants, such as the lotus, utilise hydrophobicity in their self-cleaning mechanisms which reduce their chances of infection from harmful pathogens present in the bodies of water in which they grow [2]. Butterflies have been found to utilise hydrophobicity to ensure that rain droplets which fall on their wings roll off away from their bodies [3]. Proteins have been found to utilise localised hydrophobicity to evacuate surrounding water and enable ligand binding [4]. Detergents utilise the hydrophobicity driven self assembly of amphiphilic molecules into micelle structures to remove grease from clothes [5]. The influence of hydrophobicity is felt in every aspect of our lives.* (Coe, n.d.).

Coe, Mary  
Kathryn. n.d.  
“Hydropho-  
bicity Across  
Length  
Scales: The  
Role of  
Surface  
Criticality.”

## 3 Cross References

See Figure 1 in Section 3.1 for a demonstration of a simple plot.

See Equation 1 to better understand standard deviation.

### 3.1 Plot

```
import matplotlib.pyplot as plt
plt.plot([1,23,2,4])
plt.show()
```

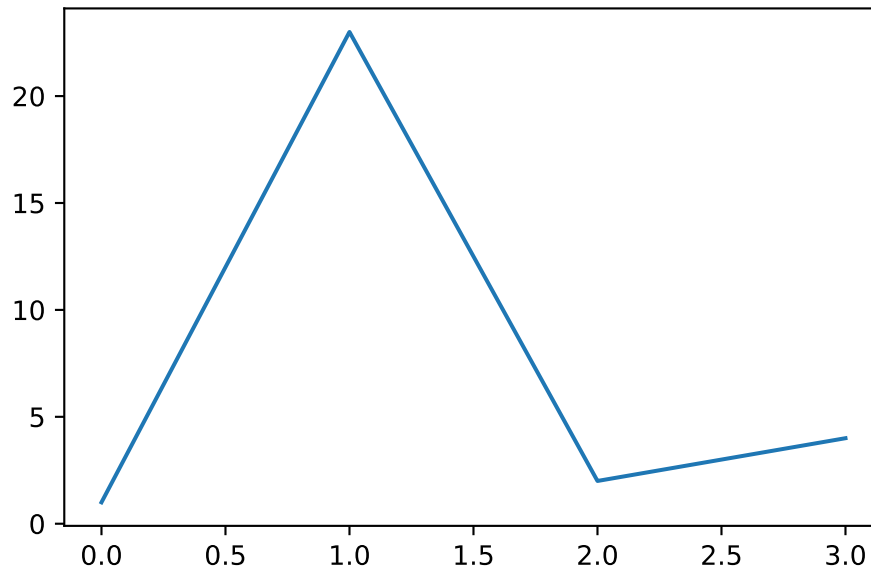


Figure 1: Simple Plot

### 3.2 Equation

$$s = \sqrt{\frac{1}{N-1} \sum_{i=1}^N (x_i - \bar{x})^2} \quad (1)$$

## 4 Callouts

#### **i** Note

Note that there are five types of callouts, including: `note`, `tip`, `warning`, `caution`, and `important`.

## 5 Placing Colorbars

Colorbars indicate the quantitative extent of image data. Placing in a figure is non-trivial because room needs to be made for them. The simplest case is just attaching a colorbar to each axes:<sup>1</sup>.

<sup>1</sup> See the [Matplotlib Gallery](#) to explore colorbars further

```
# #/ column: screen-inset
import matplotlib.pyplot as plt
import numpy as np

fig, axs = plt.subplots(2, 2)
fig.set_size_inches(20, 8)
cmaps = ['RdBu_r', 'viridis']
for col in range(2):
    for row in range(2):
        ax = axs[row, col]
        pcm = ax.pcolormesh(
            np.random.random((20, 20)) * (col + 1),
            cmap=cmaps[col]
        )
        fig.colorbar(pcm, ax=ax)
plt.show()
```

