



STANDARD NORMAL DISTRIBUTION

INFERENTIAL STATISTICS

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Normal Distribution

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```
1 # imports and packages
2 import pandas as pd
3 import numpy as np
4 import matplotlib.pyplot as plt
5 from scipy import stats
```

Python

Z-score

```
1 # Creating a Dataframe
2 df = pd.DataFrame([1,2,2,3,3,3,4,4,5],columns=['Dataset'])
3 df
```

Open 'df' in Data Wrangler

Python

```
1 # summary of statistics
2 df.describe()
```

Python

```
1 # Z-scores
2 df['Z-score'] = stats.zscore(df['Dataset'],ddof=1)
3 df
```

Open 'df' in Data Wrangler

Python

```
1 # load dataset
2 df = pd.read_csv(r"raw\current-test.csv")
3 df
```

Open 'df' in Data Wrangler

Python

```
1 # summary of dataframe
2 df.info()
```

Python

```
1 # summary of statistics
2 df.describe()
```

Python

```
1 # Z-scores
2 df['Z-score'] = stats.zscore(df['Current'],ddof=1)
3 df
```

Open 'df' in Data Wrangler

Python

```
1 # Z-scores summary of statistics
2 df['Z-score'].describe()
```

Python



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Histogram

```
1 # histogram plot
2 plt.hist(df['Current'], bins=5)
3 plt.show()
```

Python

Normal Distribution

```
1 # normal distribution curve
2 mean = df['Current'].mean()
3 std = df['Current'].std(ddof=1)
4
5 x = np.linspace(0, 25, 100)
6 p = stats.norm.pdf(x, mean, std)
7
8 plt.plot(x, p)
9 plt.show()
```

Python

Standard Normal Distribution $N(0,1)$

```
1 # standard normal distribution N(0,1)
2 x = np.linspace(-3,3,100)
3
4 p = stats.norm.pdf(x, 0, 1)
5
6 plt.plot(x, p)
7 plt.show()
```

Python