

## Tide Table for Cape Lookout

```
In [1]: # Get imports
import requests as req
import datetime
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
```

```
In [2]: # Get today's date
today = datetime.date.today()
plot_title = today
today = str(today).replace('-', '')
today
```

```
Out[2]: '20190723'
```

```
In [3]: # Get the data
url = "https://tidesandcurrents.noaa.gov/api/datagetter?begin_date={}&end_date={}&station=8656841&product=predictions&datum=MLLW&time_zone=lst&units=english&format=json".format(today, today)

from_noaa = req.get(url)
data = from_noaa.json()

for d in data['predictions'][0:10]:
    print(d)
```

```
{ 't': '2019-07-23 00:00', 'v': '3.446' }
{ 't': '2019-07-23 00:06', 'v': '3.399' }
{ 't': '2019-07-23 00:12', 'v': '3.350' }
{ 't': '2019-07-23 00:18', 'v': '3.297' }
{ 't': '2019-07-23 00:24', 'v': '3.241' }
{ 't': '2019-07-23 00:30', 'v': '3.183' }
{ 't': '2019-07-23 00:36', 'v': '3.123' }
{ 't': '2019-07-23 00:42', 'v': '3.060' }
{ 't': '2019-07-23 00:48', 'v': '2.996' }
{ 't': '2019-07-23 00:54', 'v': '2.930' }
```

```
In [4]: # Pass data into a dataframe
tide_predictions = pd.DataFrame.from_dict(data[ 'predictions' ])
tide_predictions.head()
```

```
Out[4]:
```

	t	v
0	2019-07-23 00:00	3.446
1	2019-07-23 00:06	3.399
2	2019-07-23 00:12	3.350
3	2019-07-23 00:18	3.297
4	2019-07-23 00:24	3.241

```
In [5]: tide_predictions.info()

<class 'pandas.core.frame.DataFrame'>
RangeIndex: 240 entries, 0 to 239
Data columns (total 2 columns):
t      240 non-null object
v      240 non-null object
dtypes: object(2)
memory usage: 3.8+ KB
```

```
In [6]: tide_predictions.columns = ['hour', 'height']
tide_predictions['hour']=tide_predictions['hour'].str[-5:-3].astype(int)
+ (tide_predictions['hour'].str[-2:].astype(int))/60
tide_predictions['height']=tide_predictions['height'].astype(float)
tide_predictions.head()
```

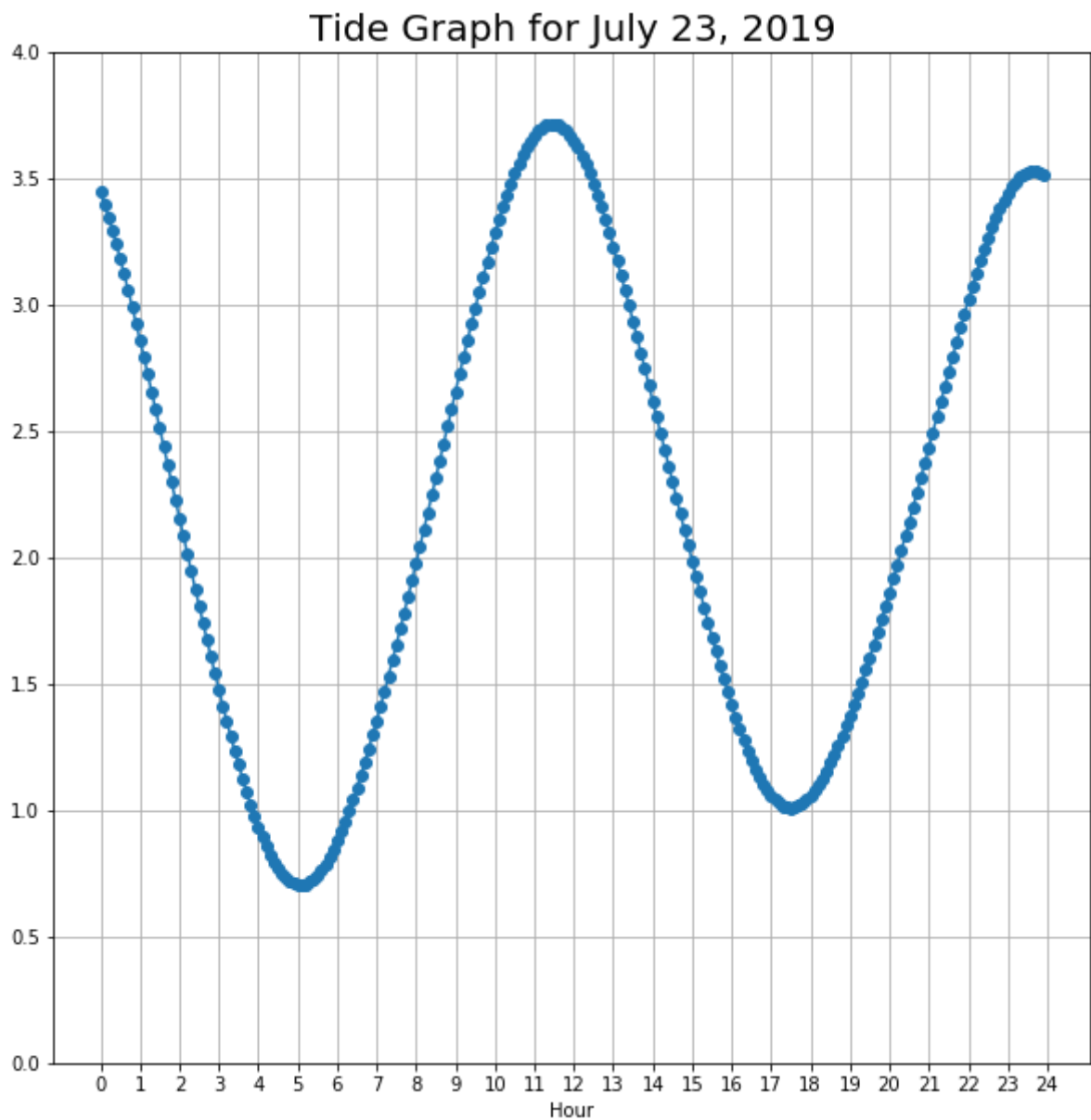
```
Out[6]:
```

	hour	height
0	0.0	3.446
1	0.1	3.399
2	0.2	3.350
3	0.3	3.297
4	0.4	3.241

```
In [7]: tide_predictions.info()

<class 'pandas.core.frame.DataFrame'>
RangeIndex: 240 entries, 0 to 239
Data columns (total 2 columns):
hour      240 non-null float64
height    240 non-null float64
dtypes: float64(2)
memory usage: 3.8 KB
```

```
In [8]: %matplotlib inline
plt.figure(figsize=(10, 10))
plt.plot(tide_predictions['hour'], tide_predictions['height'], marker=
'o')
plt.ylim(0, 4)
plt.title("Tide Graph for {:%B %d, %Y}".format(plot_title), fontsize=20)
plt.grid(axis='both')
plt.xticks(range(0, 25))
plt.xlabel('Hour')
plt.show()
```



In [ ]: