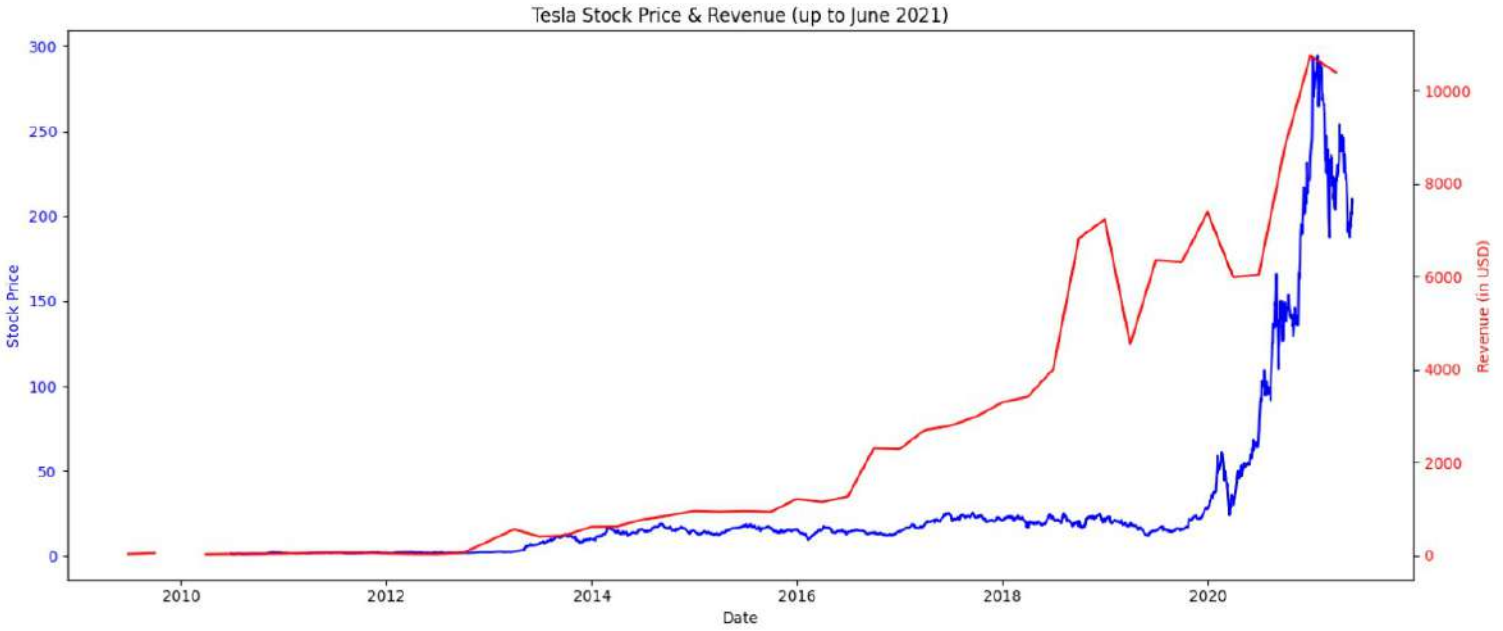
Question 5: Plot Tesla Stock Graph

Use the `make_graph` function to graph the Tesla Stock Data, also provide a title for the graph. Note the graph will only show data upto June 2021.

▶ Hint

[22]:
```
import yfinance as yf
import pandas as pd
import matplotlib.pyplot as plt
import requests
from bs4 import BeautifulSoup

# 1. Download Tesla Stock Data
tesla = yf.Ticker("TSLA")
tesla_data = tesla.history(period="max")
tesla_data.reset_index(inplace=True)

# 2. Download Tesla Revenue Data (Web Scraping)
url = "https://cf-courses-data.s3.us.cloud-object-storage.appdomain.cloud/IBMDeveloperSkillsNetwork-PY0220EN-SkillsNetwork/labs/project/revenue.htm"
html_data = requests.get(url).text
soup = BeautifulSoup(html_data, "html.parser")
table = soup.find_all("tbody")[1]
tesla_revenue = pd.DataFrame(columns=["Date", "Revenue"])
for row in table.find_all("tr"):
    cols = row.find_all("td")
    if len(cols) == 2:
        date = cols[0].text.strip()
        revenue = cols[1].text.replace('$', '').replace(',', '').strip()
        tesla_revenue = pd.concat(
            [tesla_revenue, pd.DataFrame({"Date": [date], "Revenue": [revenue]})],
            ignore_index=True
        )
```

```python
# 3. Data Cleaning and Preparation
tesla_data['Date'] = pd.to_datetime(tesla_data['Date'])
tesla_revenue['Date'] = pd.to_datetime(tesla_revenue['Date'])
tesla_revenue['Revenue'] = pd.to_numeric(tesla_revenue['Revenue'], errors='coerce')

# 4. Define the make_graph Function
def make_graph(stock_data, revenue_data, stock):
    fig, ax1 = plt.subplots(figsize=(14,6))
    # Filter up to June 2021
    stock_data_filtered = stock_data[stock_data['Date'] < '2021-06-01']
    revenue_data_filtered = revenue_data[revenue_data['Date'] < '2021-06-01']
    ax1.plot(stock_data_filtered['Date'], stock_data_filtered['Close'], 'b-', label="Stock Price")
    ax1.set_xlabel('Date')
    ax1.set_ylabel('Stock Price', color='b')
    ax1.tick_params(axis='y', labelcolor='b')
    ax1.set_title(f"{stock} Stock Price & Revenue (up to June 2021)")
    ax2 = ax1.twinx()
    ax2.plot(revenue_data_filtered['Date'], revenue_data_filtered['Revenue'], 'r-', label="Revenue")
    ax2.set_ylabel('Revenue (in USD)', color='r')
    ax2.tick_params(axis='y', labelcolor='r')
    fig.tight_layout()
    plt.show()

make_graph(tesla_data, tesla_revenue, 'Tesla')
```


Tesla Stock Price & Revenue (up to June 2021)
Stock Price
Revenue (in USD)
Date
300
250
200
150
100
50
0
10000
8000
6000
4000
2000
0
2010
2012
2014
2016
2018
2020