In [55]:
```python
import pandas as pd
import numpy as np

import matplotlib.pyplot as plt
plt.style.use('seaborn')
# headers = ['Wavelength', 'Eumelanin', 'Pheomelanin']

df = pd.read_csv("/Users/joeljohnson/Documents/Github/CG_Research/Data/hem.t
print(df.head())
WL = df.iloc[27:227,0].astype(int)
Hb02 = df.iloc[27:227,1].to_numpy().astype(float)
Hb = df.iloc[27:227,2].to_numpy().astype(float)
# Plot the data
plt.plot(WL, Hb02)
plt.plot(WL, Hb)
# plt.plot(WL, AbsorbanceHbO2)
plt.title("Molar Extinction Coefficient (e) of Oxygenated and Deoxygenated H
plt.ylabel("e (cm^-1/(moles/liter)")
plt.xlabel("Wavelength (nm)")
plt.legend(["HbO2", "Hb"])
# plt.plot(WaveLength, Hb)

plt.show()
def get_ua(e):
    # µa(lambda) = (2.303) e(lambda) (150 g/liter)/(64,500 g Hb/mole)
    ua = 2.303*e*(150/64500)
    return ua

uaHb02 = get_ua(Hb02)
uaHb = get_ua(Hb)
plt.plot(WL, uaHb02)
plt.plot(WL, uaHb)
plt.title("Absorption Coefficient of Oxygenated and Deoxygenated Hemoglobin
plt.ylabel("Absorption Coefficient ua (cm^-1)")
plt.xlabel("Wavelength (nm)")
plt.legend(["HbO2", "Hb"])
plt.show()
```
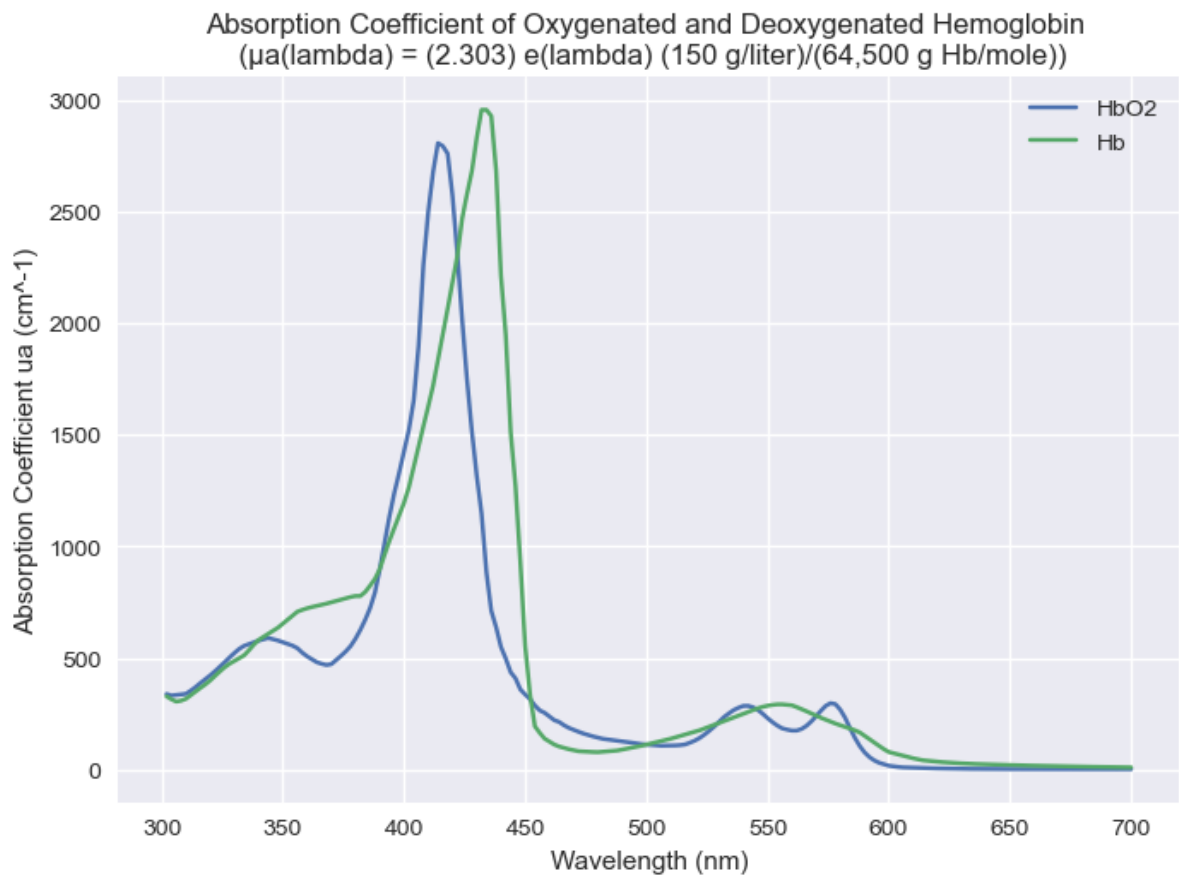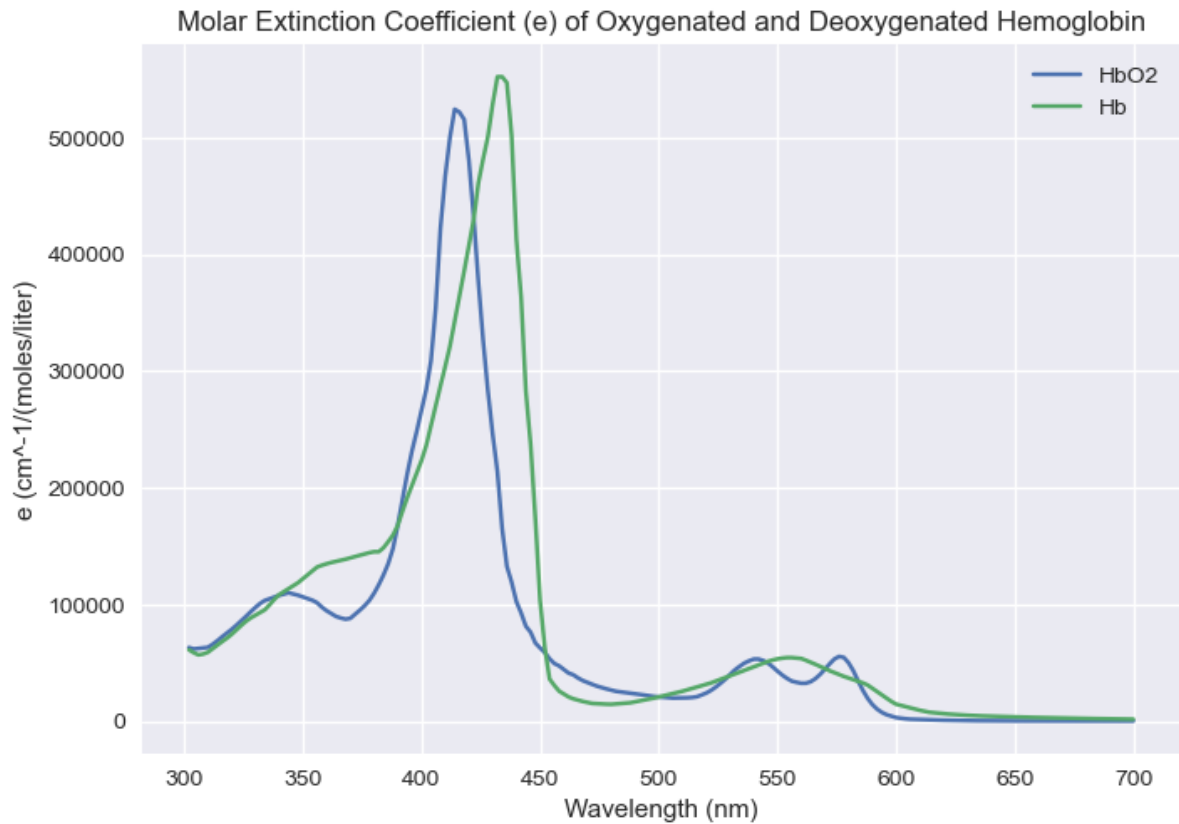
```
      0       1       2
0    wl    HbO2      Hb
1   250  106112  112736
2   252  105552  112736
3   254  107660  112736
4   256  109788  113824
```

Molar Extinction Coefficient (e) of Oxygenated and Deoxygenated Hemoglobin

Absorption Coefficient of Oxygenated and Deoxygenated Hemoglobin
(μa(lambda) = (2.303) e(lambda) (150 g/liter)/(64,500 g Hb/mole))

In [ ]: