CS/Math 514, Fall 2019 – Numerical Analysis (Roos)

How to complete programming assignments

- It is strongly recommended that you use Python 3. More specifically, it is recommended that you use `jupyter notebook` or a similar interactive IDE, `matplotlib` for easy plotting and `numpy` for easy vectorization.
- Please write **readable** code (for example, use meaningful variable and function names, use **comments** to explain what you are doing). If the graders don't understand your code, you will not get full credit.
- Do not make your code more complicated or lengthy than necessary. Unreasonably complicated code will not receive full credit.
- Print out the code and its output. Clearly label which parts of your program and its output correspond to which parts of the assignment.

Code sample on how to create plots:

```python
import numpy as np
import matplotlib.pyplot as plt

# Create x values.
x = np.arange(0, 1.01, .01)

# Define function to plot.
f = lambda x: .8*np.cos(x) +.1 * np.sin(10*x)-.2

plt.plot(x, f(x), 'b') # Plot f(x).
plt.plot(x, f(x)+.1, '--g', x, f(x)-.1, '--g')

plt.axis([0, 1, 0, 1]) # Define limits of axes (optional).
plt.xlabel('x') # Label of x-axis (optional).
plt.ylabel('y') # Label of y-axis (optional).

plt.show()
```

The code produces the following plot: