

MATH 2720 Introduction to Programming with MATLAB
Homework 4 (Due 10/7 Thur., 9:29 AM)

Create script files,

`hw4_p1_yourlastname.m, ... hw4_p5_yourlastname.m,`

containing commands to carry out the following calculations. Please email your files to me at `minhyung_cho@uml.edu`

1. Plot the function $f(x) = \cos(x)$ for $-2\pi \leq x \leq 2\pi$ and mark the points $(0, 1)$ and $(\pi, -1)$ with circles. Then add symmetric error bars to the graph you just generated using error bars of half-width 0.2 and 0.3 for two points.
2. Download the script file `temp_data.m` class homepage and run the file. This will generate a 181×1 array names `temp`. Generate a histogram with 11 bins for the data in this array. Label the horizontal axis with **Temperature (F)** and label vertical axis **Number of Days**.
3. Plot the curve given by the parametric equations

$$x = (1 + t^2) \sin(20t), y = (1 + t^2) \cos(20t), z = t$$

for $-5 \leq t \leq 5$.

4. Graph the surface given by

$$z = x^2 - y^2$$

for $-3 \leq x \leq 3, -3 \leq y \leq 3$.

5. Graph the surface given by the parametric equations

$$x = r \cos(\theta), y = r \sin(\theta), z = 9 - r^2$$

for $0 \leq \theta \leq 2\pi, 0 \leq r \leq 3$.