**ECE 3522: Stochastic Processes in Signals and Systems**

# Computer Assignment (CA) No. 1: Simple Statistics

The goal of this assignment is to familiarize you with how to read and process time series data in MATLAB.

The tasks to be accomplished are:

1. Load and plot the data located here:

<http://www.isip.piconepress.com/courses/temple/ece_3522/resources/time_series/>

The first data set represents Google’s stock price since its inception. Instructions for downloading historical stock price information can be found here:

<https://support.google.com/finance/answer/71913?hl=en>

The second data is set an audio file sampled at 8 kHz.

1. Compute some global statistics on these signals: minimum value, maximum value, mean, median and variance.
2. Define a window of data to be N samples (e.g., every three samples). Define a frame to be M samples (e.g., every ten samples). Loop over these signals and compute the mean and variance for each window of data. Plot the results. Do this for the following parameter combinations:

Google Stock Price: M = 1, 7, 14, 30 (days); N = 7, 30 (days) [use the closing value]

Audio File: M = 40 (5 msec), 80 (10 msec), 160 (20 msec); N = 160 (20 msec), 240 (30 msec)

Compare and contrast these plots to the values obtained in step 2.