Project 4

Physics 250 Econophysics

In this project, the goal is to write a computer code that will take the 10 time series that you used in Project 1, and the plotting methods you developed in Project 2, and determine whether the daily returns of the time series are also Leptokurtoric. One of you time series should be the S&P500.

1. We will use Log(Price), where "Log" is natural logarithm.

2. So instead of $\Delta P(t_i) = P(t_i) - P(t_{i-1})$ from last time, we will replace this by:

$$\Delta P(t_i) = Log(P(t_i)) - Log(P(t_{i-1})) = Log\left(\frac{P(t_i)}{P(t_{i-1})}\right)$$

Note that $P(t_i)$ is the price, or value of the index, at the close on day i.

3. Plot the 10 histograms as in Project 2, and also plot the Gaussian histogram as before on the same plot. As before, the Gaussian you want has the same mean and standard deviation as the actual data.