**FINN 6216 Homework Assignment #3.1**

**Same rules as always.**

1. Given the distribution you put together in HW 2.3, problem 3, compute Spearman’s rho and Kendall’s tau, either numerically or analytically, if an analytical solution is available. Compute the actual correlation of the distribution as well. It will probably not be the same as Is attainable? Why or why not? Can you estimate or compute the maximum and minimum attainable correlation?
2. Go back to the data for 10 stock positions from HW2.2. Create a *grouped t copula* with the 10 stocks divided up into the first 5 and also the last 5 stocks. For the two inverse gamma random variables and , choose degrees of freedom parameters and corresponding to the average kurtosis of the first 5 stock positions’ shifts, and then the last 5. Now adjust the covariance matrix of the underlying 10 normal random variables so that the covariance matrix of the overall theoretical shifts matches the sample covariance matrix when you multiply by for the first 5 shifts and by for the last 5. Now that you have done all this, do a 5000 scenario Monte Carlo of this distribution and compute 99% VaR. To be a little clearer on how you make this adjustment, note that when you first set up the distribution, each X will have variance so the constant you need to multiply each X by is to get it to the correct (sample) variance.
3. In class I gave an example of a white noise process that was not strict white noise. Now I want to modify that so that the probabilities of the discrete variable are rather than In other words, or always, and you never produce a new independent uniform variable. Is this now strict white noise, or just white noise? Please explain.

**Remember that I will not be giving a class on Thursday, March 2 because I will be on vacation next week. March 9 is during the school break, so this assignment is due March 16.**