**Module 1 Time Series Review**

Know what is meant by a series having a trend and/or season and be able to identify if a series has a trend and/or season Decomposition

STL verus Classical

Formula for decomposition (multiplicative and additive)

What does multiplicative seasonality look like compared to additive seasonality

Seasonally adjusted data (for both additive and multiplicative series)

Know all the different Exponential Smoothing models and be able to identify which one is being used (either by R output or by an equation given)

Know the different accuracy measures and how to calculate them (potential disadvantages too)…formulas for these will be provided

Difference between an accuracy statistic and a goodness-of-fit statistic

Know how to make trending data stationary

Know what a Random Walk is and how to deal with it

Know how to read and interpret ADF tests (and hypotheses)

Know what a Stationary time series is

Correlation functions (what each one is and what it tells you)

-Try to figure out ARIMA model, understand ACF, PACF

Know what Autocorrelation is

* Simply pearson, yt and ytlag

Know what Partial Autocorrelation is

* Yt and lagYt conditioned on …

-PACF and ACF first one are always same

White noise (and how to test for no autocorrelation…know the hypotheses)

* Residuals follow normal distribution, constant variance, no sig autocorrelation
* Normal 0QQ plots, histogram
* Variance – residual plots
* Auto correlation – Ljung box test (p+q) fit df ,not anything lower than p+q, Hypothesis null (no auto ) and alternate

What an AR, MA and ARMA (or ARIMA) model is

-AR3 – upto 3 lags of Y

-MA 2 – 2 lags of error

-Concept of whats being modeled

-Just ARMA know to right

Can write out any one of these models