

## MODULE ONE: TIME SERIES ECONOMETRICS



# Part One

- 1- Time series econometrics: preparing dataset, data description, graphs, and visualizations.
- 2- Stationarity and model selection criteria: Akaike and Schwarz, testing unit root, different types of stationarity, and lag operators
- 3- Stationary models: ARMA and ARIMA models and the detection of autocorrelation
- 4- Hodrick-Prescott Trend and Cyclical Decomposition.
- 5- Heteroskedastic and Autocorrelated Consistent Estimator - HAC-

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# Part Two

- 1- Volatility models: ARCH and GARCH models
- 2- Non-stationary and cointegrated models: Error correction model and ARDL
- 3- Johansen test, Engle & Granger, and Bound Testing methodologies for cointegration, roots and ranks.

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# Part Three

1. VAR family: VAR, VECM, and VARX
2. Structural VARs
3. Impulse responses, historical and variance decompositions
4. In and out-sample forecasting
- 5- Introduction to Mixed Data Sampling (MIDAS) Methods