

ANL557 Applied Forecasting

Level: 5

Credit Units: 5 Credit Units

Language: ENGLISH

Presentation Pattern: EVERY JAN

Synopsis:

The use of data to reduce uncertainty surrounding decision making is one of the goals of data analytics. Forecasting is the process of utilizing historical data and current events to make statements about the future. It is widely used by industry practitioners and policy makers for practical purposes ranging from data-driven decision making, scenario planning and budgeting. In this course, students will learn the key properties of time series such as seasonality and trends. They will learn to construct predictive models using time series regressions and forecasting workhorses such as the ARIMA model. The course targets industry practitioners who are interested in learning the applications and industry use cases of forecasting. At the end of the course, students will acquire skills in building forecasting models using both scripting and non-scripting-based computing programs and deploying forecasting results for decision making.

Topics:

- Basic properties of time series data
- Time series visualisations
- Overview of linear regression
- Practical issues in time series regression
- Autoregressive models
- Predictor selection criteria
- Modelling trends
- Modelling seasonality
- Stationarity and differencing
- Moving average and autoregressive models
- ARIMA models
- Estimation and model selection of ARIMA models

Textbooks:

Forecasting: Principles and Practice 3rd Rob J Hyndman, George Athanasopoulos
Otexts
ISBN-13: 9780987507136

Learning Outcome:

- Design a forecasting model appropriate for the available historical data
- Assess the properties of time series data
- Appraise the suitability of various forecasting frameworks
- Select the suitable forecasting framework for the business problem
- Prepare data for forecasting
- Construct a forecasting model using a software

Assessment Strategies - Regular Semester (Evening Class):

Components	Description	Weightage Allocation (%)
Overall Continuous Assessment	PRE-CLASS QUIZ 1	10
	GROUP BASED ASSIGNMENT 1	30
	PARTICIPATION 1	10
Overall Examinable Components	ECA	50
Total		100

*The information listed is subject to review and change.