Form (H)
Short course description

Course title: ***Time series and Forecasting***	Course number and code: ***STAT 336***
Previous course requirement: ***STAT 332***	Language of the course: ***English***
Course level: ***6 / Year 3***	Effective hours: ***3(2+0+2)***

Course description وصف المقرر :

Decomposition and smoothing of time series. Stationary Time Series Models. Forecasting. ARIMA (p,d,q) models, autocorrelation and partial autocorrelation functions - identification of appropriate model. Fitting models to real and simulated data sets. Diagnostic checks on the residuals. Case studies: training on how to analyze real life data sets using statistical packages and writing reports.

Course objectives أهداف المقرر

Identification of time series components
Interpretation of the changes observed in a time series.
Knowledge of methods to identify a stationary series.
Building appropriate mathematical models to describe observed changes in a time series.
Perform diagnostic tests for proposed models to choose the most appropriate for a time series.
Learn how to get forecasts for a time series, and how to write appropriate reports of the findings.

Learning outcomes (understanding, knowledge, and intellectual and scientific skills)
After studying this course, the student is expected to be able to:

Define Basic features of a time series data
Realize the required actions to be taken to prepare the data for analysis
Define the autocorrelation and the partial autocorrelation structure of the data, and propose a suitable model for analysis
Perform diagnostic tests for proposed models to choose the most appropriate for a time series.
Study the forecasting accuracy of the selected model(s)

Textbook adopted and supporting references

Title of the book	Author's name	Publisher's name	Date of publication
Time Series Analysis	*Cryer, D. and Chan, K*	*Springer*	*latest edition*
Forecasting, Methods and applications	*Makridakis, S., Wheelright, S., and McGee, V*	*Wiley*	*latest edition*
The Analysis of Time Series	*Chatfield, C.*	*Chapman and Hall.*	*latest edition*