University of Cyprus
Department of Mathematics and Statistics

DSC 534
Time Series Analysis
Fall Semester 2025 - 2026

Instructor:	Yiolanda Englezou
Office:	STHEE01 -
E-mail:	englezou.yiolanda@ucy.ac.cy

Office hours:	Thursday 10:00-12.00 or by appointment
Teaching schedule:	Monday and Thursday 15.00-17:00 (STHEE01 022)

Objectives

The purpose of this course is to learn how to analyze data to construct plausible time series models, and how to use the methods developed in the course to estimate parameters in certain time series models.

Content

Stochastic processes, weak and strong stationarity. Autoregressive and moving average based models for stationary and non-stationary time series. Trend and seasonal behaviour, sample autocorrelation function and sample partial autocorrelation function. Parameter estimations, model identification, prediction. ARMA, ARIMA and SARIMA models. Properties, estimation and examples. ARCH and GARCH models for volatility.

Learning Outcomes

Upon completion of this course, the student will know:

- the theoretical basis for modeling and analysis of time series data
- how to identify the correct model for each data set
- how to perform inference/ estimate the model parameters
- do forecasting for these models

Προτεινόμενα **Βοηθήματα**

1. Brockwell, P.J. and Davis, R.A., Introduction to Time Series and Forecasting, Taylor and Francis, 2002.
2. Shumway, R.H. and Stoffer, D.S, Time Series Analysis and Its Applications: With R Examples (Springer Texts in Statistics) 4th Edition, 2017.

Assessment

Method of Assessment	**Date**	**Percentage**
Projects (2) (October, November)		50%
Final Exam (comprehensive)	During December	50%

97.5—100: 10, 92.5—97.5: 9.5, 87.5—92.5: 9, …….52.5—57.5: 5.5, 50—52.5: 5.
No student passes the course with a grade below 50%.