

## GENERAL DESCRIPTION

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Time series data is nowadays collected for several phenomena in social and empirical sciences. The aim of this course is to show participants how to use Stata to perform analysis, modelling and forecasting of time series. The course provides an overview of methods for analysing, modelling and forecasting the dynamic behavior of economic time series and offers several practical examples of empirical modelling using real-world data. The course does not require any previous knowledge of Stata, since Module 1 provides an introduction to Stata's basic commands before moving to the analysis of time series features and to univariate time series models. Module 2 covers multivariate time series models for stationary and nonstationary series.

In common with TStat's training philosophy, throughout the course theory and methods are illustrated in an intuitive way and are complemented by practical exercises with Stata. In this manner, the course leader is able to bridge the "often difficult" gap between theory and practice of time series modelling and forecasting. At the end of the course, participants are expected to be able to autonomously implement the methods discussed in the course.

## TARGET AUDIENCE

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Researchers and professionals working in financial institutions, policy institutions, research departments of utilities, governments, corporations, Ph.D and Master students in economics, finance, engineering needing to learn the time series methods.

## PREREQUISITE

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Participants should have a knowledge of the inferential statistics and introductory econometric methods illustrated in Wooldridge, J. M (2019).

Participants are not required to be familiar with the statistical software Stata.

## PROGRAM

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### SESSION I: WORKING WITH TIME SERIES IN STATA

1. A quick introduction to Stata for time series data:
  - Importing datasets
  - Creating and formatting date variables using date and time functions and declaring datasets to be time-series
  - Using time-series operators to create lags
  - Differences
  - Leads
2. Graphical analysis of time series:
  - Line plot
  - Correlogram
  - Histogram
3. Testing for autocorrelation and testing for unit root
4. Univariate time series models: theoretical elements and practical applications of modelling real-world macroeconomic time series with the **arima** command
5. Modelling volatility: univariate ARCH/GARCH models. Theoretical elements and practical applications of modelling real-world financial time series with the **arch** command
6. Forecasting with AR(I)MA-ARCH models

## SESSIONS II: MULTIVARIATE TIME SERIES MODELS

1. Stationary Vector Autoregression (VAR) modelling: theoretical elements and practical applications of modelling real-world macroeconomic time series with the `var` command
2. Checking correct specification of VAR models: diagnostic tests and plots
3. Granger causality and impulse response function analysis
4. Non-stationary time series: an introduction to cointegration
5. Vector error-correction models: theoretical elements and practical applications of modelling real-world macroeconomic time series with the `vecm` command

## COURSE LEADER

Dr Elisabetta PELLINI, Centre for Econometric Analysis, Cass Business School, London (UK).

## SUGGESTED READING (PRE - AND POST-COURSE)

Introduction to Time Series Using Stata. Stata Press Publication, S. Beckett (2020).

Financial Econometrics Using Stata. Stata Press Publication, S. Boffelli and G. Urga (2016).

## DATES AND LOCATION

Due to the current Public Health situation, the 2020 edition of this training Course will be offered **ONLINE** on a part-time basis. The course program has therefore been restructured into two, three hour, sessions which will be offered on the 24th-25th August 2020 at the following times:

**Time Zone (1)** from 8.00 am to 11.30 am CEST

**Time Zone (2)** from 3.00 pm to 6.30 pm CEST

in order to facilitate participation for our clients based in both Europe/Middle East and North and South America.

## REGISTRATION FEES

Full-time Students\*: € 355.00

University: € 505.00

Commercial: € 675.00

\*To be eligible for student prices, participants must provide proof of their **full-time** student status for the current academic year.

Fees are subject to VAT (applied at the current Italian rate of 22%). Under current EU fiscal regulations, VAT will not however applied to companies, Institutions or Universities providing a valid tax registration number.

The number of participants is limited to 8. Places, will be allocated on a first come, first serve basis. The course will be officially confirmed, when at least 5 individuals are enrolled.

Course fees cover: course materials (handouts, Stata *do files* and datasets to be used during the course), a temporary licence of Stata valid for 30 days from the beginning of the course.

Individuals interested in attending the training course should contact TStat Training to ask for a registration form. The completed application should then be returned to TStat by **4th August 2020**.

Further details regarding our registration procedures, including our commercial terms and conditions, can be found at <https://www.tstattraining.eu/training/time-series-modelling-forecasting-stata-ol/>.

## CONTACT INFORMATION:

Monica Gianni | TStat Training | Kleebergstraße, D-60322 Frankfurt am Main  
TStat S.r.l. | Via Rettangolo, 12-14 I-67039 Sulmona (AQ) | T. +39 0864 210101

[www.tstattraining.eu](http://www.tstattraining.eu) | [www.tstat.eu](http://www.tstat.eu) | [training@tstat.eu](mailto:training@tstat.eu)

