



TRAINING COURSE | ONLINE

INTRODUCTION TO SPATIAL ANALYSIS USING STATA

26-27-28 September and 3-4 October 2022

Many phenomena in the fields of economics, medical and social science, such as unemployment, crime rates or infectious diseases tend to be spatially correlated. Spatial econometrics has developed to include techniques and methods to model the spatial characteristics of such data, by taking into account both spillover effects and spatial heterogeneity.

Our “Introduction to Spatial Analysis using Stata” course offers researchers a unique opportunity to acquire the necessary toolset to conduct exploratory spatial data analysis. The course begins by providing an overview of Stata’s **sp suite** of commands for spatial analysis and then discusses both how to manage different kinds of spatial data and how to prepare spatial data for empirical analysis. The course moves on to focus on spatial data visualization, how to define proximity using spatial weight matrices and how to detect spatial autocorrelation. In the closing sessions participants are introduced to spatial autoregressive models, more specifically on the concepts of estimation, testing and model selection. Special emphasis is given to the computation and interpretation of average direct and indirect marginal effects and to the treatment of special cases, such as multiple spatial interactions and more endogenous covariates.

In common with TStat’s course philosophy, each individual session is composed of both a theoretical component (in which the techniques and underlying principles behind them are explained), and an applied segment, during which participants have the opportunity to implement the techniques using real data under the watchful eye of the course tutor. Throughout the course, theoretical sessions are reinforced by case study examples, in which the course tutor discusses and highlights potential pitfalls and the advantages of individual techniques. Particular attention is also given to both the interpretation and presentation of empirical results.

Upon completion of the course, it is expected that participants are able to identify and evaluate which specific spatial econometric methodology is more appropriate to both their dataset and the analysis in hand and subsequently apply the selected estimation techniques to their own data.

TARGET AUDIENCE

COURSE CODE

D-EF34-OL

Ph.D. Students, researchers and professionals working in public and private institutions interested in acquiring the latest empirical techniques to be able to independently implement spatial data analysis.

<https://www.tstattraining.eu/training/intro-spatial-analysis-stata-ol/>

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PREREQUISITES

Knowledge of basic econometrics tools such as ordinary least-squares, instrumental variables and maximum likelihood estimation of the linear regression model is strongly recommended. A basic knowledge of Stata's *do-file* programming is required.

PROGRAM

- SESSION I:**
1. Introduction:
 - Spatial data analysis using Stata: an overview of the **sp** suite
 - Space, spatial objects and spatial data
 2. Preparing data for the spatial analysis:
 - Spatial data declaration
 - Data with a *shapefile*: Creating and merging a Stata-format *shapefiles*
 - Data without a *shapefile*
- SESSION II:**
1. Visualizing spatial data:
 - Geographic coordinate systems
 - Plotting Maps
 - 2D spatial point patterns
 - Change coordinate system
- SESSION III:**
1. Measuring spatial proximity:
 - The *W* (eights) matrix
 - Normalization
 - Detect spatial autocorrelation
- SESSION IV:**
1. Spatial autoregressive models I:
 - A taxonomy
 - Quasi Maximum Likelihood estimation
 - Hypothesis testing and model selection
- SESSION V:**
1. Spatial autoregressive models II:
 - Partial effects: direct, indirect and total effects
 - Generalized method of moments estimation
 - Internal instruments
 - Multiple endogenous covariates
 - Multiple spatial lags

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DATE AND LOCATION

Due to the ongoing COVID-19 situation, the 2022 edition of this training course will be offered **ONLINE** on a part-time basis on the 26th-27th-28th of September and the 3rd-4th of October from 10.00 am to 1.30 pm Central European Summer Time (CEST).

REGISTRATION FEES

Full-time students*: € 890.00
Ph.D. Students: € 1140.00
Academic: € 1320.00
Commercial: € 1770.00

*To be eligible for student prices, participants must provide proof of their **full-time** student status for the current academic year. Our standard policy is to provide all **full-time students**, be they Undergraduates or Masters students, access to student participation rates. Part-time master and doctoral students who are also currently employed will however, be allocated academic status.

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

Individuals interested in attending this course must return their completed registration forms by email (training@tstat.eu) to TStat by the **16th September 2022**.

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

CONTACTS

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