

## GENERAL DESCRIPTION

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Linear regression models allow one to evaluate the relationship between variables and a continuous response variable. To determine for example, whether there is a relationship between wages and a series of individual characteristics such as age, sex, race or educational attainment, whether a firm's decision to invest depends on its underlying financial structure or on its ease of access to external financing, whether the birthweight of a baby is determined by specific characteristics of his or her mother.

This course offers participants a rigorous overview of linear regression techniques. During the two days, you will: i) be given the theory underlying linear regression and, through a series of applied examples, learn to estimate regression models in order to examine relationships between multiple variables; ii) undertake rigorous specification testing in order to test, and correct, for common problems of autocorrelation, endogeneity and heteroskedasticity in the estimated model. Special attention will also be given to the interpretation and presentation of results. At the end of the course, it is expected that participants are able to implement independently the methodologies and techniques acquired during the two days.

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.

## TARGET AUDIENCE

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The course is of particular interest to researchers and professional working in economics, finance, the social sciences and public health, wishing to implement simple and multiple linear regression techniques.

## COURSE REQUISITES

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Participants require an introductory knowledge of econometrics/statistics and the statistical software Stata in order to successfully follow the course.

## PROGRAM

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### LINEAR REGRESSION, ENDOGENEITY AND INSTRUMENTAL-VARIABLES

#### SESSION I: LINEAR REGRESSION - BASICS

1. The linear regression model
2. The OLS estimator
3. Model goodness of fit
4. Testing hypotheses
5. Non i.i.d. errors
6. Qualitative regressors
7. Stata implementation

#### SESSION II: LINEAR REGRESSION - ENDOGENEITY AND INSTRUMENTAL VARIABLES

1. Endogenous regressors
2. IV and GMM estimators
3. Tests of over identifying restrictions
4. Tests of exogeneity
5. Testing for weak instruments
6. Stata implementation

## USEFUL TEXTS

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- Econometric Analysis of Cross Section and Panel Data, Wooldridge, MIT Press (2010)
- Microeconometrics Using Stata, Cameron e Trivedi, StataPress (2009)
- Microeconometrics: Methods and Applications, Cameron e Trivedi, Cambridge University Press (2005)

## DATE AND LOCATION

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The course will be held in Munich the 28th and 29th of May 2018.

## REGISTRATION FEES

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Students\*: € 526.00

University: € 781.00

Non-Profit/Public Research Centres: € 986.00

Commercial: € 1095.00

\*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 be applied to companies, Institutions or Universities providing a valid tax registration number.

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, light lunch and coffee breaks.

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.

To maximize the usefulness of this course, we strongly recommend that participants bring their own laptops with them, to enable them to actively participate in the empirical sessions.

Individuals interested in attending the training course, must return their completed registration forms to TStat by the 8th of May 2018.

Further details regarding our registration procedures, including our commercial terms and conditions, can be found at <https://www.tstattraining.eu/training/linear-regression-techniques-in-stata>.

## CONTACT INFORMATION:

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