



WORKSHOP

## A GENTLE INTRODUCTION TO MATA

Milano, 4-5 May 2020

Mata, Stata's relatively "low level" built-in matrix compiled language, is similar in many ways to R, Matlab or GAUSS. As such, it cannot be considered a replacement for Stata, nor is it intended to be a stand-alone statistical package in itself. Rather it is a programming tool which is best used as a supplement to Stata, in order to execute those tasks, which Stata does not do very well on its own. One of the main drawbacks in learning Mata however, is that the Mata Reference Manual, whilst extremely detailed, offers little advice on how Mata can be actively implemented. In this course therefore, we seek to bridge this gap, offering participants a gentle, but extensive introduction into Mata's programming capabilities. To this end, the opening sessions focus on more general considerations, such as when the use of Mata is either justified or warranted and offers participants an overview of Mata's syntax and its principle commands. The program then moves on to illustrate both Mata's functions and built-in libraries and how Mata's operators (such as functions, pointers and structures) and code can be effectively integrated in both user written *do* and *ado-files*.

At the end of the workshop, it is expected that participants will be able to independently implement the techniques learnt during the course of the workshop in order to be able to use Mata to work more effectively in Stata.

This course is, by its nature, to be considered very much a "hands-on/applied training course". Each session is composed of both a theoretical component (in which the techniques are explained), and an applied (hands-on) segment, during which participants have the opportunity to implement the techniques under the watchful eye of the course tutor. Throughout the course, theoretical sessions are reinforced by practical examples, in which the course tutor discusses and highlights potential pitfalls and the advantages of individual programming techniques.

### WORKSHOP CODE

D-IN19

### DATE AND LOCATION

Milano, 4-5 May 2020

### TARGET AUDIENCE

Researchers in any field interested in learning Stata's programming matrix language. Ph.D students and researchers interested in extending their existing knowledge of Mata.

### REGISTRATION DEADLINE

Individuals interested in attending this workshop must return their completed registration forms by e-mail to TStat by the **14th April 2020** (training@tstat.eu).

### COURSE REQUISITES

A good knowledge of *do* files programming and a basic knowledge of *ado* files programming is required. The knowledge of alternative "low-level" and matrix programming languages may greatly enhance the understanding of more advanced topics like pointers, structures and classes.

<https://www.tstattraining.eu/training/gentle-introduction-mata/>

# A GENTLE INTRODUCTION TO MATA

## PROGRAM

- SESSION I:**
1. A Mata taxonomy
  2. Obtaining help in Stata
  3. Using Mata interactively
  4. Mata syntax and operators
  5. Subscripting
  6. Customizing graphs
  7. Functions: types, declarations and arguments
  8. Compile and use a function
  9. Flow of control: loops and branching
  10. Built-in Mata functions
  11. Mata libraries
  12. Using Mata with *do-files*
- SESSION II:**
1. Functions of functions
  2. Pointers and structures
  3. Classes
  4. Optimization: **optimize** and **moptimize**
  5. Using Mata with *ado-files*

## USEFUL READINGS

An Introduction to Stata Programming, Christopher F. Baum, Second Edition, Stata Press 2016

The Mata Book: A Book for Serious Programmers and Those Who Want to Be, William Gould, Stata Press 2018

## CONTACTS

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## REGISTRATION FEES

Students\*: € 600.00  
Academic: € 1000.00  
Non-Profit/Public Research Centres: € 1125.00  
Commercial: € 1250.00

\*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.

Please note that a *non-refundable deposit* of €100.00 for students and €200.00 for Academic, Non-Profit/Public Research Centres and Commercial participants, is required to secure a place and is payable upon registration. The number of participants is limited to 15. Places will be allocated on a first come, first serve basis.

Course fees cover: teaching materials (handouts, Stata *do files* and datasets to use during the course), a temporary licence of Stata valid for 30 days from the beginning of the workshop, light lunch and coffee breaks.

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

Further details regarding our registration procedures, including our commercial terms and conditions, can be found at <https://www.tstattraining.eu/training/gentle-introduction-mata/>

