AUTOMATING YOUR RESEARCH IN *STATA*: "A LITTLE BIT OF PROGRAMMING GOES AN AWFULLY LONG WAY!"

GENERAL DESCRIPTION

This course aims to provide participants with the fundamental *Stata* programming toolkit in order to facilitate, automate, replicate and personalize both data analysis, management and presentation. As such, session 1 reviews some general *Stata* commands, illustrating how they can be combined with some powerful *Stata* programming constructs for looping and branching. The course then moves on to focus on how the programming concepts of Macros, Loops, and Branching, can be implemented to effectively write, modify and develop do fi les (user written *Stata* programs).

In common with TStat's course philosophy, each session is composed of both a theoretical component (in which the programming techniques are fully explained via a series of course specific developed examples), and an applied (hands-on) segment, during which participants have the opportunity to implement the techniques under the watchful eye of the course tutor.

At the end of the course, it is expected that participants are able to personalize existing *Stata* commands and develop their own do files in order to organize their workload in a more automated, efficient, flexible and reproducible manner.

TARGET AUDIENCE

Researchers or professionals with previous programming skills in other software wishing to work effectively in *Stata*. Existing *Stata* users wishing to acquire the "standard" *Stata* programming toolkit in order to implement basic programming techniques to effectively automate a substantial part of their empirical data analysis.

PREREQUISITES

It is expected that individuals wishing to follow this course have a sound working knowledge of *Stata*. Participants are not however, required to have any programming experience in *Stata* or in other statistical packages.

PROGRAM

SESSION I: ORGANISING, MANIPULATING AND VISUALIZING YOUR DATASETS WITHIN A DO-FILE - A REVIEW

1. Saving the dataset
   - **save, preserve, restore**
2. Advanced data management commands
   - **keep** and **drop**
   - **sort** and **gsort**
   - **by-processing**
   - **append**
   - **merge** and **joinby**
   - **collapse** and **contract**
   - **order, aorder, move, reshape** (for panel data)

SESSION II: *STATA* CONSTRUCTS FOR DO-FILES PROGRAMMING

1. *Stata* **syntax**
2. Global and local macros
   - Global macros
   - Local macros
   - Recalling macros
3. Scalars and matrices
4. Extended macro functions
5. Macro increment and decrement functions
6. Advanced local macro manipulation
7. Temporary objects
   - Temporary variables: **tempvar**
   - Temporary Matrices and vectors: **tempname**
   - Temporary Files: **tempfile**
8. Looping in *Stata*
   - Looping using **foreach**
   - Looping using **forvalues**
   - Looping using **while**
9. Branching in *Stata* with: **if** and **else**
10. Writing and modifying a *Stata* program
    - Programs *without a*rguments
    - Programs with *positional arguments*
    - Programs with *named positional arguments*
    - Storing and retrieving program results
11. Programs with arguments using the **syntax** construct

SESSION III: AUTOMATION DO-FILE PROGRAMMING IN PRACTICE - MAKING LIFE EASIER!

1. A DO-file template
2. Master and Using DO-files
3. Speeding-up your workflow within a DO-file: real examples
   - Running estimations under alternative model specifications
   - Building, modifying and automating tables of estimation output
   - Returning estimation (**return, ereturn**)
   - Building, modifying and automating graphs
   - *Stata* graphic capabilities
   - The syntax of the graph command
   - Customizing graphs

SESSION IV: AUTOMATING THE TRANSFER OF *STATA* RESULTS TO EXTERNAL SOFTWARES - *STATA*'S MATRIX CAPABILITIES

1. *Stata* basic matrix commands
2. *Stata* matrix input and output
3. Matrix input from *Stata* estimation results
4. *Stata* matrix subscripts and combining matrices
5. Data/Matrix conversion
6. Integrating *Stata* matrix capabilities for DO-file automation: examples

COURSE REFERENCES

- Baum, C.F., (2016). *An Introduction to Stata Programming* Second Edition, Stata Press Publication.

DATE AND LOCATION

The 2025 edition of this training course will be offered online on a part-time basis on the 19th of May from 3:00 pm to 6:30 pm and the 20th, 21st of May from 10:00 am to 2:30 pm, Central European Summer Time (CEST).

REGISTRATION FEES

Full-time Student*: € 780.00
Full-time Ph.D. Student: € 1000.00
Academic: € 1155.00
Commercial: € 1350.00

*To be eligible for full-time 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, access to our student registration rates. Part-time master and doctoral students on the other hand, who are also currently employed will however, be assigned the standard academic registration fee.

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, program templates and datasets to use during the course), a temporary course licence of StataNow™ valid for 30 days from the beginning of the course.

Individuals interested in attending the training course, must return their completed registration forms to TStat by the 9th of May 2025.

Further details regarding our registration procedures, including our commercial terms and conditions, can be found at **www.tstattraining.eu/training/stata_programming-ol/.**

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