

# AUTOMATING YOUR RESEARCH IN STATA: “A LITTLE BIT OF PROGRAMMING GOES AN AWFULLY LONG WAY!”

## GENERAL DESCRIPTION

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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 files (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

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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

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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

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### 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 arguments*
  - 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

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

## DATE AND LOCATION

Due to the ongoing COVID-19 situation, the 2021 edition of this training course will be offered ONLINE on a part-time basis on the 2nd-3rd of November 2021 from 9.30 am to 2.00 pm Central European Time (CET).

## REGISTRATION FEES

Full-time Student\*: € 475.00  
Full-time PhD Student: € 605.00  
Academic: € 675.00  
Commercial: € 900.00

\*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 Stata 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 **24th October 2021**.

Further details regarding our registration procedures, including our commercial terms and conditions, can be found at [www.tstattraining.eu/training/stata\\_programming-ol/](http://www.tstattraining.eu/training/stata_programming-ol/).

## CONTACT INFORMATION:

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The logo for TStat, featuring a stylized 'T' in red and 'Stat' in black script, set against a grey circular background.