# STATA PROGRAMMING "A LITTLE BIT OF PROGRAMMING GOES AN AWFULLY LONG WAY…"
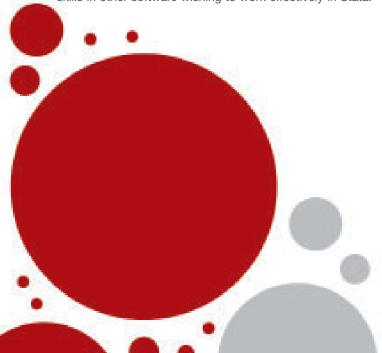
## GENERAL DESCRIPTION

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. The course begins by reviewing some general Stata commands, illustrating how they can be combined with some powerful Stata programming constructs for looping and branching. During the two days, participants will be shown how to write, modify and develop do files (user written Stata programs).

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. Enabling them, for example, to ultimately be in a position to automate the more repetitive tasks of data management, data analysis and data presentation in Stata.

In common with TStat's course philosophy, each individual 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 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 programming techniques.

## 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 familiarity/working knowledge of Stata. Participants are not however, required to have any programming experience in Stata or in other statistical packages.

## PROGRAM

### SESSION I: FUNDAMENTAL CONCEPTS/COMMANDS FOR STATA PROGRAMMING: A QUICK REVIEW

1. Developing effective DO-files in Stata
2. Tracking your workflow
   - DO-files, LOG-files and labelling
3. Managing directories and folders:
   - **pwd, mkdir, cd, dir, copy, erase, type**
4. The Stata command syntax
5. Reading data into Stata
   - **Import and exporting data from Excel and delimited .txt files**
6. Variable and data types
   - **numeric, string** and **missing** data
7. Data examination
   - Sub-setting the data using the if and in qualifiers
   - Stata's exploratory data analysis commands - **browse, edit, assert, describe, codebook, summarize, tabulate, inspect, graph**
8. Creating and manipulating variables
   - **generate, egen, replace, rename, recode** and **replace**
9. Converting strings to numerics and vice versa
   - **tostring, destring, encode**
10. Codifying missing values
    - **mvdecode** and **mvencode**
11. Generate dummy variables, lags and leads
12. Working with dates in Stata

### SESSION II: ORGANISING, MANIPULATING AND VISUALIZING YOUR DATASETS WITHIN A DO-FILE

1. Saving the dataset
   - **save, preserve, restore**
2. Advanced data management commands
   - **keep** and **drop**

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- **sort** and **gsort**
- **by-processing**
- **append**
- **merge** and **joinby**
- **collapse** and **contract**
- **order, aorder, move, reshape** (for panel data)

### SESSION III: 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 IV: 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

## REFERENCES

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

## DATES AND LOCATION

The course will take place in Berlin on the 6th and 7th April 2020.

## REGISTRATION FEES

Students*: € 526.00
Academic: € 876.00
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 applied to companies, Institutions or Universities providing a valid tax registration number.

Course fees cover: course materials (handouts, Stata *do files* and datasets to 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 17th March 2020.

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

### CONTACT INFORMATION:

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