

Introduction to Stata

Open Online Course

University of Mannheim

Lion Behrens, M.Sc.
behrens@uni-mannheim.de

April 2022

Overview

This self-paced open online course is developed for B.A. and M.A. students at the University of Mannheim. The course provides an introduction to Stata for data analysis that underlies academic research in the social sciences. The material is constructed around seven thematic schemes which together cover all essential skills that need to be mastered for applied quantitative research. Every thematic scheme is constructed around (i) a set of slides, (ii) a set of short video lectures, (iii) illustrative code and (iv) short exercises for self-study.

The data that is going to be used throughout the course is the cumulative datafile of the European Social Survey (Round 1-9).

Time schedule

The construction of this course is going to start on Monday, September 12 and last until Sunday, December 18. This means that the material for the seven thematic building blocks is going to be developed over the course of fourteen weeks or 98 days. Hence, for each of the seven building blocks, there are 14 days available to prepare the material. On Sunday, December 18, the material is ready to be placed online.

Course Content

Building Block	Topics	Prepared until
Getting started		
1 Introduction to Stata	<p><i>Topics covered:</i></p> <ul style="list-style-type: none">○ Video: Welcome and why Stata?○ Video: Stata, the different windows, do files, log files, basic functionality, and how to get help○ Video: Structuring do files and best practices○ Video: Stata's general command syntax and the SSC archive○ Video: Exploring data, variable types, numeric and string variables, ordering data, descriptive statistics <p><i>Learning objectives:</i></p> <ul style="list-style-type: none">– Understanding the advantages of Stata for data analysis– Understanding the basic functionality of Stata, the different windows and data editor, exploring a dataset and descriptive statistics– Knowing how to structure one's script– Differentiating basic data types and when they are used	Sunday, September 25

Stata Basics

2	Data Manipulation	<p><i>Topics covered:</i></p> <ul style="list-style-type: none">○ Video: Importing and exporting data○ Video: Logical and relational operators○ Video: Data manipulation and wrangling <p><i>Learning objectives:</i></p> <ul style="list-style-type: none">– Knowing how to read in structured datasets of various formats (dta, csv, txt) into Stata and how to store them as .dta– Understanding the basics of cleaning and preparing datasets (defining missing values, re-coding and transforming variables using <i>egen</i>)	Sunday, October 9
3	Data Management	<p><i>Topics covered:</i></p> <ul style="list-style-type: none">○ Video: Merging and appending data○ Video: Re-shaping data, long and wide formats <p><i>Learning objectives:</i></p> <ul style="list-style-type: none">– Knowing how to combine information from different sources into a joint dataset– Knowing how to re-shape data formats for different analysis techniques	Sunday, October 23
4	Control Flow	<p><i>Topics covered:</i></p> <ul style="list-style-type: none">○ Video: Conditional statements <p><i>Learning objectives:</i></p> <ul style="list-style-type: none">– Knowing how use conditional statements (if, if-else) to structure the workflow (conditional code execution)	Sunday, November 6
5	Statistical Modeling	<p><i>Topics covered:</i></p> <ul style="list-style-type: none">○ Video: Linear regression (incl. interactions, polynomials, variable transformations)○ Video: Generalized linear models○ Video: Multilevel regression <p><i>Learning objectives:</i></p> <ul style="list-style-type: none">– Knowing how to apply the most commonly used linear additive models in the social sciences– Knowing how to inspect the output of these models and all information stored in the background with <i>e()</i>– Knowing how to export and format regression results to publication-ready tables using <i>esttab/estout</i>	Sunday, November 20

6 Data Visualization*Topics covered:*

- Video: Visualizing data for exploration
- Video: Visualizing results from regression models

Sunday,
December 4*Learning objectives:*

- Knowing how to construct the most common plots in Stata (histograms, bar plots, scatterplots) and how to visualize regression results including uncertainty

Efficient workflow

7 Loops*Topics covered:*

- Video: for loops, while loops

Sunday,
December 18*Learning objectives:*

- Understanding how to write efficient code
 - Understanding how loops can shorten repetitive code
-