

## East Asia Training & Consultancy Pte Ltd

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# STATISTICAL METHODS FOR RESEARCH USING STATA

## 4-Day Professional Development Workshop

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**East Asia Training & Consultancy Pte Ltd** invites you to attend a four -day professional development workshop, reviewing statistical methods for research using Stata to analyse the course databases. Stata is the well-known statistics and econometrics software package developed by StataCorp (USA). Stata is a statistical software package that offers a broad range of statistics to professional researchers in many disciplines. Stata is particular useful to professionals working in areas of business, social science, health and medical research, education, economics and science.

### COURSE DESCRIPTION

The comprehensive 'hands-on' workshop will provide an in depth look at how Stata can be used for statistical research in business, government, education, healthcare, and science. Every stage in the research project will be discussed. The first half-day will be devoted to providing participants with an overview of Stata; the final half-day will consist of participants leaning how to write their own statistical tests as well as how to construct Iteratively Re-weighted Least Squares (IRLS) and Maximum Likelihood commands. Participants will also learn how to develop simulated data sets of a specified distribution. During the main part of the course, discussion will emphasize the use of research models such as logistic regression, count response regression models, categorical response models, panel/longitudinal models, and mixed effects models for understanding the specific goals of a research study.

### WHO SHOULD ATTEND

This course is of value for Stata & non-Stata users as well. It is a course on research design and appropriate tests and models. We'll teach non-Stata users

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the basics of Stata so that you can implement these methods into your research, but you can also translate many methods into your own preferred software application; eg. SAS, SPSS, S-Plus/R, Genstat. In other words, this course is suitable to researchers across many disciplines as well as users of most any software. Case studies are from business, social science, health and medical research, education, and science.

### **FEE & REGISTRATION**

The fee includes extensive course materials, data-sets, lectures, lunches, morning and afternoon coffee/tea breaks, receptions and the opportunity to network with researchers, economists and biostatisticians across the various industries in Asia. This is a “hands-on” workshop. Participants are required to bring their own laptops.

**The number of participants is restricted.** Please register early to guarantee your place. Please complete the official registration form and fax to (65)-62506369 or email it to us at [stata@eastasiatc.com.sg](mailto:stata@eastasiatc.com.sg) to reserve your place. Confirmation will only be made upon receiving full payment. Further instructions will be sent to confirmed participants.

### **COURSE OUTLINE**

#### **SESSION 1, DAY 1, AM (2.5 hrs)**

##### **Overview of Stata**

- User interface, help system, file management, working with do-file editor
- Updating program and accessing user-written routines
- Data management: basic principles of organization and transformation
- Data management tools and data validation
- Introduction to graphics
- Producing publication-quality output

#### **SESSION 2, DAY 1, PM (3.5 hrs)**

##### **Research design**

- Data size considerations
- Selecting appropriate model and test
- Sample size and power analysis

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- Distribution tests and transformations
- Exact statistics
- Computation of precision / standard errors
- Basics of ANOVA

### **SESSION 3, DAY 2, AM (2.5 hrs)**

#### **Regression and generalized method of moments (GMM) estimation**

- Basics of regression methodology
- Regression with indicators (ANOCOVA)
- Instrumental variables (IV) models
- IV-GMM modeling and diagnostics
- Nonlinear least squares models

### **SESSION 4, DAY 2, PM (3.5 hrs)**

#### **Maximum likelihood estimation and limited dependent variables models**

- Maximum likelihood techniques; Wald, LM, LR tests
- Binary response models: logit and probit
- Models for proportions data
- Ordinal response models: ordered logit and probit

### **SESSION 5, DAY 3, AM (2.5 hrs)**

#### **Models for count data and categorical response data**

- Poisson and negative binomial regression
- Extended count data models
- Proportional odds models
- Multinomial logit models
- Discriminant analysis

### **SESSION 6, DAY 3, PM (3.5 hrs)**

#### **Models for longitudinal / panel data and survival-time data**

- Fixed effects / random effects models
- Seemingly unrelated regressions models
- Dynamic panel data (DPD) models
- Generalised estimating equations (GEE) models
- Basics of mixed and multilevel models

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- Conditional mixed process models
- Data organization for survival-time models
- Overview of nonparametric survival techniques
- Cox proportional hazards model
- Parametric survival models

### **SESSION 7, DAY 4, AM (2.5 hrs)**

#### **Introduction to programming and Mata**

- Programming with do-files
- Programming with ado-files
- Introduction to Mata

### **SESSION 8, DAY 4, PM (3.5 hrs)**

#### **Programming in Stata**

- Do-file programming: recipes
- Ado-file programming: developing a Stata command
- Programming ml, nl, nlsur function evaluators
- Programming egen functions
- Mata programming: interfacing with Stata
- Mata programming: recipes
- Workshop: participants' programming needs and solutions