

East Asia Training & Consultancy Pte Ltd
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Statistical Analysis Using S-PLUS

3-Day Professional Development Training Course

Contents

[East Asia Training & Consultancy Pte Ltd](#), invites you to attend a three day professional development training course, covering classical and modern approaches to statistical modelling using the facilities provided by S-PLUS, the well-known econometrics and statistical software package developed by Insightful (USA).

Course Programme

This three-day course will present classical and modern statistical data analysis approaches available with the latest version of S-PLUS. The main objective is to present S-PLUS as a complete data analysis and graphics environment. We present a brief introduction and background of several modelling methods, which include linear ANOVA, generalized additive, tree based, nonlinear, mixed effects and survival models. Using real world data, we will focus on fitting models and interpreting the results.

The course will use a workshop style presentation with the instructor presenting the material and participants invited to work through the examples provided, with extensions. There will also be times available for extended discussion and questions. Participants are invited to bring along their own data sets and discuss modelling strategies with the instructor.

Fee & Registration

The fee covers extensive course materials and databases, luncheons, tea and coffee breaks, refreshments, and opportunities to meet and network with S-PLUS researchers and forecasters from different industries throughout Asia. This is a 'hands-on' course. **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 it to (65)-62506369 or email it to us at S-PLUS@eastasiatc.com.sg to reserve your place.

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Confirmation will only be made upon receipt of payment. Further instructions will be sent to confirmed participants.

MAS Financial Sector Development Fund (FSDF)

Participants may be eligible for Financial Sector Development Fund (FSDF) support on a case by case basis. Interested applicants should submit their applications to the FSDF Secretariat directly. For enquiries, please contact the FSDF secretariat at 65- 6229 9396 or via email at fsdf@mas.gov.sg.

You may use the printable MAS FSDF application form in Word format posted on our website. Please submit your applications to the FSDF Secretariat directly at least 6 weeks prior to the commencement of the course.

Pre-requisites

This course assumes knowledge of basic statistics (including basic regression and analysis of variance) but the familiarity to S-PLUS is not required. This course is not meant to teach the theory of the statistical models, but rather, to introduce them and show how S-PLUS can be used to fit and analyse these methods.

Course Outline

Day 1

- | | |
|-------------------|---|
| 9:00am – 10:30am | ❖ Introduction <ul style="list-style-type: none">○ Overview of Statistical Models in S-Plus○ S-Plus Objects○ Manipulating Data |
| 10:30am – 11:00am | ~ Break ~ |
| 11:00am – 12:30pm | ❖ Graphics in S-Plus <ul style="list-style-type: none">○ Simple Graphical Tools○ Trellis Graphics |
| 12:30pm – 1:30pm | ~ Break ~ |
| 1:30pm – 3:00pm | ❖ Linear Models and ANOVA – I <ul style="list-style-type: none">○ Background○ Fitting and exploring the model |

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- Predictions
- Model selection

3:00pm – 3:30pm

~ Break ~

3:30pm – 5:00pm

❖ **Linear Models and ANOVA – II**

- Diagnostics and Transformations
- Robust Regression

Day 2

9:00am – 10:30am

❖ **Generalized Linear Models**

- Background: Link and variance functions
- Fitting the model
- Residuals, plotting the fit, predictions
- Different Families: Logistic, log-linear models

10:30am – 11:00am

~ Break ~

11:00 – 12:30pm

❖ **Nonlinear Models**

- Background
- Least squares nonlinear regression
- Model fitting and diagnostics
- Alternative algorithms

12:30pm – 1:30pm

~ Break ~

1:30pm – 3:00pm

❖ **Generalized Additive Models**

- Background
- Smooth Regression
- The fitting algorithm
- Plotting the fits
- Prediction

3:00pm – 3:30pm

~ Break ~

3:30pm – 5:00pm

❖ **S Programming**

Day 3

9:00am – 10:30am

❖ **Mixed Effects Models**

- Model fitting and diagnostic inspection
- Estimation and prediction
- Nonlinear mixed effects models

10:30am – 11:00am

~ Break ~

11:00am – 12:30pm

❖ **Tree Based Models**

- Background
- The fitting algorithm

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- Interacting with the Trees

12:30pm – 1:30pm

~ Break ~

1:30pm – 3:00pm

❖ Survival Analysis – I

- Background: Censoring
- Fitting a survival curve
- Comparing groups

3:00pm – 3:30pm

~ Break ~

3:30pm – 5:00pm

❖ Survival Analysis – II

- Cox proportional hazards model
- Parametric survival models

• General Notes

- All sessions will have 45 minutes of discussion on the topic and S-Plus functions and 45 minutes of hands-on tutorial with data sets.
- The data sets discussed in the examples will be provided. However, participants are encouraged to bring their own data sets.