



One Day Statistical Guidelines Course

Presenter : Frikkie Calitz, Manager- Biometry Unit
Contact details: Work - 012 427 9819 Mobile - 073 009 6755
Company : Agricultural Research Council
1134 Park Street, Hatfield – Pretoria, 0083

The course objectives:

The target group is Agricultural Students or researchers that had to perform their own research project – the aim of the course is to provide them with statistical guidelines to be able to help themselves or to speak the same language as the statistician who assist them. The course is based on questions researchers ask though many years of experience also for the researcher to answer the questions the statistician will ask to assist him to do proper experimental planning.

The course content:

- 1) Why planning experiments?
- 2) Choosing the Research method
 - *Studying accumulated records*
 - *Observational studies*
 - *Designed Experiments*
- 3) Formulation of Objective (s)
- 4) Defining the Population
- 5) Representative Sample (Sampling methods)
- 6) Formulation of Hypothesis / Hypothesis Error Types
- 7) Selection of Experimental Treatments
- 8) Central Composite Rotatable Design for response surface plots
- 9) Size and Shape of Experimental Plots
- 10) Number of Replications
- 11) Choice of experimental design
 - *Completely Randomized Design / (One-Way with one or more observation per plot)*
 - *Randomized Complete Blocks Design*
 - *Strip Block, Chain Block, Connected block Design and Rotational design.*
 - *Latin Square Design*
 - : *Youden Squares*
 - : *Quasi-Latin Squares*
 - : *Carry-over Latin Square Design*
 - : *Latinized Row-Column Designs*
 - : *Rectangular Lattice designs*

- *Balanced Incomplete Block Designs*
- *Treatment Designs : Factorial (Two-way one or more observation per plot)*
: *Confounding and Fractional*
: *Split-Plot*
- *Nested Design*
- *Test Retest design for reliability of a sensory panel*

12) Randomization

13) Short introduction to the meaning of multivariate procedures :
MANOVA, MCluster, PCA, DA, PCR, PLS

14) Mixed models

15) Repeated measurements or Repeated experiments

16) Measuring scales

: *Nominal or classification scale*

: *Ordinal-or order scale*

: *Interval scale*

: *Proportional or ratio scale*

17) Recording of data

The course outcomes:

The student or researcher will have a good understanding why statistics is needed for research and will be able to use this course material to perform excellent research. With this course as back ground one will be able to understand the questions ask by a statistician during consultation and will assist one to ask meaningful questions.

Course program:

08:00-08:30 Registration

08:30-10:30 Points 1-10 of Statistical Guidelines Content

10:30-10:45 *Refreshments*

10:45-12:30 Point 11 of Statistical Guidelines Content

12:30-13:30 *Lunch (Own Lunch – Tee, Coffee will be provided)*

13:30-15:00 Points 12-15 of Statistical Guidelines Content

15:00-15:15 *Refreshments*

15:15-16:00 Points 16-17 of Statistical Guidelines Content

The quotation amounts:

Guidelines course = R495 + Tax per attendance

Minimum of 10 attendances

PowerPoint slideshow handouts will be given.

Thank you for your interest.