2010 NCTS Short Course on Statistics

Topics on Design of Multi-tiered Experiments

Speaker: **Prof. R. A. Bailey**
(Queen Mary, University of London)

Time: **PM 2:00-4:00,**
12/22 (Wed.), 12/24 (Fri.), 12/29 (Wed.), 12/31 (Fri.)

Place: **Lecture Room B, NCTS, 4th Floor, The 3rd General Building, National Tsing Hua University**

Description:

The course will consist of four blocks of about two hours each, as follows.

Basic principles of design of experiments

This will be heavily based on my 2008 book "Design of Comparative Experiments". Although I expect that many participants will be familiar with this material, the aim is to ensure that we are all speaking the same language before we go on to the harder stuff.

Using panel diagrams and skeleton anova tables to summarize the properties of a designed experiment with two tiers

The approach to anova tables is the one in my book. Anyone who wants to do preparatory reading about panel diagrams can consult the paper "Multiple randomizations" by C. J. Brien and R. A. Bailey, Journal of the Royal Statistical Society, Series B, 68 (2006), 571-609. "Two tiers" is the normal situation where there is a set of treatments and a set of plots, and treatments have to be allocated to plots.

Extension of the above to (i) non-orthogonal designs and (ii) experiments with three or more tiers

This will cover some material from the paper "Decomposition tables for experiments. I. A chain of randomizations" by C. J. Brien and R. A. Bailey, Annals of Statistics 37 (2009), 4184-3190.

Principles for designing multi-phase experiments