THIRTIETH GREGYNOG STATISTICAL CONFERENCE

PROGRAMME

All talks will take place in Seminar Room 1 (Floor 2, far end).

Sunday

17 April   13.00   *Lunch*

14.15   **Prof Denise Lievesley** (Essex University)
Non-response in survey research

15.45   *Tea*

16.15   **Dr Martin Crowder** (Surrey University)
Repeated Measures I

19.00   *Dinner*

Monday

18 April   08.30   *Breakfast*

09.30   **Dr Sheila Gore** (MRC, Cambridge)
HIV Epidemiology in Scotland

11.00   *Coffee*

11.30   **Dr Martin Crowder** (Surrey University)
Repeated Measures II

13.00   *Lunch*

Afternoon Free (walks, etc.)

16.00   *Tea*

17.30   **Dr Jack Kleijnen** (Tilburg University)
Sensitivity Analysis and Optimization of Simulation Experiments

19.00   *Dinner*

Tuesday

19 April   08.30   *Breakfast*

09.30   **Prof Dennis Lindley** (Minehead)
The Pivotal Argument

11.00   *Coffee*

11.30   **Mr Martin Gibson** (Jaguar Cars)
Does Industry need SPC?

13.00   *Lunch*

14.00   **Dr Martin Crowder** (Surrey University)
Repeated Measures III

15.30   *Tea*

SPEAKERS

Dr Martin Crowder (Surrey)
Mr Martin Gibson (Jaguar Cars)
Dr Sheila Gore (MRC, Cambridge)
Dr Jack Kleijnen (Tilburg University and Cardiff)
Prof Denise Lievesley (Essex University)
Prof Dennis Lindley (Minehead)

ABERYSTWYTH

Mr D A Jones	Miss H Chandler
Dr J A Lane	Miss E J Raeburn
Miss S G Lutkins	Miss E Jones
Dr R J Owen	Mr M Aslam
Mr M Cain	Mr C Meddur

BANGOR

Mr M Helan
Mr A El-Bouzaidi

BIRMINGHAM

Dr P V Bertrand	Mr T Holliday
Mr R L Holder	Mr G Heslop
Dr R A Atkinson	Mr R Imon
Prof A J Lawrance	
Dr P Davies	
Mr A J Girling	
Prof H E Daniels	

CARDIFF

Dr R C H Cheng	Miss J Bishop
Dr B Nix	Miss L Traylor
Mr T Iles	Miss T England
Mr B Evans	

SWANSEA

Dr J du Preez	Mr L Cui
Dr J Pemberton	Miss M Rajadhyaksha
Dr M Kelbert	Mr A Merlushkin
Dr A D Mayer	Miss J Mooney
Dr A M Sykes	Mr A Beet
Dr A Watkins	Mr J Radcliffe
Prof A Hawkes	Mr S James
Dr O Gobachev	Mr A Lewis
Prof A Samylovskiy	Miss S Axtell

WARWICK

Prof J B Copas	Mr O Machado
Prof P J Harrison	Mr F Heydari
Dr H G Li	Mr N Butler
	Mr C Allard
	Mr A Karkcun-Gargoumi
	Mr N Bisson
	Miss C Price
	Mr L Rodriguez-Carvajal
	Mr J Lo

UNIVERSITY OF WALES COLLEGE OF MEDICINE

Dr F Dunstan	Miss Rosamund Wilson

GREGYNOG CONFERENCE - ABSTRACTS

Non Response in Survey Research *Denise Lievesley*

Most statistical work on non-response has concentrated on how to correct for its effects once it has arisen. Denise Lievesley will take a rather different perspective by considering how it might be reduced. She will begin discussing how non-response arises in face to face interview surveys and will outline a programme of work designed to maximise response within a given outlay of resources.

Repeated Measures (3 talks) *Martin Crowder*

Repeated measurements arise in many diverse fields, and are possibly even more common than single measurements. They are measurements made of the same characteristic on the same observational unit but on more than one occasion. In longitudinal studies individuals may be monitored over a period of time to record a developing pattern. Over the period the conditions may be deliberately changed, as in crossover trials, to study the effects on the individual. In most contexts where a single measurement can be made, repeated measurements can be made. Exceptions include cases where measurement or observation is destructive. If observation only alters the state of a unit this can often be included in the repeated measures model; for instance, in education successive test scores can incorporate a learning effect.

Repeated measurements may be spatial rather than temporal. For instance, the breaking strength of load-bearing cables may be measured at several points along the length, so 'time' becomes 'distance'. In two dimensions, the intensity of corrosion may be recorded at points over the floor area of a metal tank.

The basic data format is 'n *individuals* χ *p measurements*'. The individuals may be humans, litters of animals, pieces of equipment, geographical locations, or any other unit for which the observations are properly regarded as a collection of connected measures.

The methods used range from very simple techniques (*t*-tests, Anova, etc), intermediate methods (regression models incorporating random effects), and more recent research methodology.

Sensitivity analysis and optimization of simulation experiments *Jack Kleijnen*

This talk gives a survey of what-if analysis and optimization of simulation models, using statistical techniques for the design and analysis of experiments with these models. The simulation models may be deterministic or random. The statistical analysis uses regression (meta)models and Least Squares. The design uses classic experimental designs such as 2^{k-p} factorials, which are both efficient and effective. If there are hundreds of simulation inputs, then special techniques such as group screening and sequential bifurcation may be used. This overview includes applications.

The Pivotal Argument *Dennis Lindley*

The pivotal argument is studied when both the sample and parameter spaces are finite. The finite restriction avoids complicated mathematics and easily reveals the strengths and weaknesses of pivots. Additionally, it is easy to produce illuminating examples. The general conclusion is that the method only works where it is equivalent to Bayes with a uniform prior.

GREGYNOG STATISTICAL CONFERENCE 1994 - PARTICIPANTS

SPEAKERS

Dr Martin Crowder (Surrey)
Mr Martin Gibson (Jaguar Cars)
Dr Sheila Gore (MRC, Cambridge)
Dr Jack Kleijnen (Tilburg University and Cardiff) *+ Mrs Kleijnen*
Prof Denise Lievesley (Essex University)
Prof Dennis Lindley (Minehead)

ABERYSTWYTH

~~Students~~

Mr D A Jones
Dr J A Lane
Miss S G Lutkins
Dr R J Owen
Mr M Cain

~~Staff~~

Miss H Chandler
Miss E J Raeburn
~~Miss E Jones~~
Mr M Aslam
Mr C Meddur
Mr G John

BANGOR

Mr M Helan
Mr A El-Bouzaidi

BIRMINGHAM

Dr P V Bertrand
Non-resid. Mr R L Holder
Dr R A Atkinson
Prof A J Lawrance
Sun night { Dr P Davies
{ Mr A J Girling
Prof H E Daniels

Mr T Holliday
~~Mr G Heslop~~
Mr R Imon

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Dr R C H Cheng
Dr B Nix
Mr T Iles
~~Mr B Evans~~

Miss J Bishop
Miss L Traylor
Miss T England

SWANSEA

Dr J du Preez
Non-resid. Dr J Pemberton
Dr M Kelbert
Dr A D Mayer
Dr A M Sykes
Mon night { Dr A Watkins
{ Prof A Hawkes
Hotel { Dr O Gobachev
{ Prof A Samylovskiy

Mr L Cui
~~Miss M Rajadhyaksha~~
Mr A Merlushkin
~~Miss I Mooney~~
Mr A Beet
Mr J Radcliffe
Mr S James
Mr A Lewis
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