Current issues in statistical theory and application: Panel discussion

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Scientific points

- In unblocked experiments, lowest pairwise variance is obtained when replications are as equal as possible. With block size 2 and low replication, lowest pairwise variance is obtained, in general, if all treatments are compared to a control. Does this generalize to all block sizes if the average replication is low enough? Theory from asymptotic combinatorics seems a promising approach.

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- How do statisticians keep up with new technology? For example, when two-colour microarrays were introduced, the genomics people had never heard of ‘row–column designs’; by the time that the statisticians had caught up, the technology had changed.

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- Statisticians need a sound grounding in mathematics, including linear algebra and calculus as well as probability.
- So many individual problems can be solved by computer that there is a danger that people will forget that functions can be maximized by hand, or eigenvalues found by hand. Often the ‘by hand’ approach is necessary for a general theory.

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  - managerial statistics (it seems to be impossible to convey to the bureaucrats that their student questionnaires are badly worded, that their timing of data collection is bad, that their data summaries are silly . . . .)

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- In science generally, how do we deal with "We all have computers these days, so we don't need statisticians"?