Editorial Address: Dr Anne Hawkins, 64 Bedford Court Mansions, Bedford Ave, Bloomsbury, London WC1B 3AD, UK. Tel/Fax: 071-636-0058 (71-636-0058) E-mail: teexash@ioe.ac.uk

President of the Association: Professor David S. Moore, Department of Statistics, Purdue University, West Lafayette, IN 47907-1399, USA. Telephone: 1 317 4946050; FAX: 1 317 4940558; E-mail:dsm@stat.purdue.edu

NEWS AND ANNOUNCEMENTS

ICOTS-4

The Fourth International Conference on Teaching Statistics will be held July 25-30, 1994, in Marrakech, Morocco. The following sessions are on the agenda:

- Statistical literacy of citizens and the public's view of statistics
- Integrating statistical topics throughout the school curriculum
- Data analysis for the elementary curriculum
- Hands-on and project-based teaching
- Research on teaching and learning statistics and probabilistic concepts
- Statistical training for and by consultancy
- Teacher training
- Computing and software in statistical teaching
- Learning statistics at a distance
- Use of video and multimedia technology for teaching
- Teaching statistics for future statisticians
- Teaching statistics for economic statisticians
- Statistics for employees of a statistical office
- Teaching statistics for future engineers
- Statistics for social scientists
- Statistics in continuing education for employees in industry
- Initial and continuing education for statistics in agriculture
- History of statistical teaching
- Statistical projects and competitions
- The statistics curriculum towards the year 2000
- Development of educational software in statistics
- Activities of professional societies in education and public awareness of statistics.

Bulletin 2 will be circulated shortly. For further information about contributing, or to add your name to the mailing list, please contact the chair of the Programme Committee; *Prof Yves Escoufier, Université Montpellier II, Sciences et Techniques du Languedoc, Place E Bataillon, 34095 MONTPELLIER, Cedex 5, France. Tel: 33 67-14-35-69, Fax: 33 67-14-35-58 E-mail: yes@helios.montpellier.inra.fr*

Wanted - Hosts for Future IASE Meetings

IASE is looking for expressions of interest in hosting the following meetings:

* 1995, IASE satellite meeting in conjunction with ISI Beijing Session.

* 1996, Round Table meeting in conjunction with ICME Seville.

1998, ICOTS-5

For details please contact: *Brian Phillips, Mathematics, Swinburne University of Technology, P.O. Box 218, Hawthorn 3122, Victoria, Australia (Fax 61 3 819 0821, E-mail brp@stan.xx.swin.oz.au)*

New Proceedings Now Available

In August 1992 the ISI held a round table entitled *Introducing Data Analysis: Who Should Teach it and How?* Approximately 20 delegates took part, from over 10 countries. They included school teachers, university statisticians, teacher trainers and governmental staff. The proceedings provide a broad perspective of differing issues associated with statistical education, with a particular emphasis on data analysis.

Copies of the proceedings (ed. L. Pereira-Mendoza) are available from the ISI Permanent Office, priced US$ 25.00 (US$ 20.00 for IASE members)

... and Coming Soon

Proceedings of the First Scientific Meeting of IASE, Perugia, Italy, 1993, L Brunelli and G Cicchitelli (eds)

These Proceedings will include the papers presented in Perugia plus abstracts of the poster presentations. In addition to classroom and curriculum issues in schools and universities, topics include Training of Government Statisticians, Computers and Software, Use of Video, Training in Consultancy, Electronic Communication as a Tool, and Statistical Education in Developing Countries. There is also a report on the special session on Teaching Statistics in Italian Schools.

This volume will be available for the cost of the postage from Dipartimento di Scienze Statistiche, Università di Perugia, Via A Pascoli, C P 1315 Succ 1, 06100 Perugia, Italy [Tel 39-75-5855242, Fax 39-75-43242 E-mail: statli@ipguniv.unipg.it]

Call for Contributors for "Handbook on Assessment in Statistics Education"

Joan Garfield and Iddo Gal are currently collecting papers for this book to be published next year. They are looking for additional authors to address selected topics. If you are interested in contributing send a message to Joan as soon as possible, indicating your area of expertise. You will receive detailed information on the book and guidelines for authors. *Joan Garfield, University of Minnesota, 140 Appleby Hall, 128 Pleasant St S E, Minneapolis, MN 55455, USA (Tel: 612-625-0338 Fax: 612-626-7848 E-mail: jbg@vx.cis.umn.edu)*

Research Information Being Sought

Carol Blumberg would like to hear of research studies on the learning and teaching of data analysis concepts and skills which focus on students of secondary and post-secondary levels (i.e. over the age of 12 years). She is not interested in studies done with children aged 10 and under, nor in studies related to the teaching and learning of probability and combinatorics. If you think that you can help, contact *Carol Blumberg, 129B Greystones Rd, Sheffield S11 7BS, UK. E-mail: c.j.blumberg@shu.ac.uk*

HOLISTIC STATISTICS IS THE CATS' MIUSE

Report by John Tucker

In August 1993, the Committee on Applied and Theoretical Statistics (CATS) organised a symposium on Modern Interdisciplinary University Statistics Education (MIUSE) to encourage debate about how best to train professional statisticians. Opening, Jon Kettenring called for departments to produce holistic statisticians - nimble problem solvers, who work smoothly on teams, communicate effectively about their work, and who thrive on exciting challenges in unploughed interdisciplinary areas. Peter Bickel outlined his proposals for an ideal graduate curriculum, including Data quality; History of statistics; Statistical consulting and work in interdisciplinary groups; and Statistics in the law and public policy.

When recruiting government statisticians, Philip Ross looks for well-rounded team players capable of developing information systems, organising data, doing inference and who are entrepreneurial - "the sort who would go out and look for problems". He, too, saw a need for statisticians with communication skills who can work with other scientists to understand how to approach new questions, and realise that the answers are not going to be perfect.

John Bailar is concerned that academic statisticians do not show students how statistics can help resolve the truly major problems of society. He decried the use of artificial data, saying that anyone who cannot find a suitable real example has something wrong with his/her teaching. He recommended departments to: teach inference in the face of bias; study procedures for decision making with poor data, and risk assessment with large, real examples; cut out parts of the traditional curriculum and increase the scope for electives in substantive areas; and encourage and support more government and industry internships.

Jean Thiebaux referred to statistics' important role in scientific discovery, and the great theoretical advances in statistics that have stemmed from practical problems. She thus recommends that students headed toward interdisciplinary research be encouraged in pre-graduate years ".. to study science in parallel with mathematics, philosophy, and (maybe) a little statistics" rather than concentrating solely on statistics courses. John Lehoczky said that "the challenge is not only how to increase cross-disciplinary training, but to find a way to do it that does not compromise the knowledge and skills a statistician must have to effectively contribute".

Joan Garfield stated four educational research findings of relevance to the teaching and learning of statistics: students learn by constructing knowledge and by being actively involved in learning activities; students do well only what they practice doing; students value what they know will be assessed; and students learn better if they work in small groups on structured learning activities, on open-ended problems, when they write about what they have learned, when problem solving and higher order reasoning skills are emphasised and when they receive consistent and helpful feedback on their performance.

The relationship between statistics and other disciplines was a recurring theme. Carl Morris views statistics as a "hub" for the university with connecting "spokes" to all other departments. For statisticians to take information from a source "spoke" and develop methodology from it that contributes to solving problems at other "spokes" requires continuous, strong interdisciplinary communication. Although he feels the future of statistics is secure, he believes that statistics departments could end up being ignored if they do not remain relevant.

Rao Jammalamadaka feels that most undergraduate statistics degrees should be awarded in a double major (paired with computer science, economics, biology, environmental science, sociology, psychology, etc.). He maintains that students at every level should encounter statistics driven by applications, and cited the pioneering efforts in curriculum development at the Indian Statistical Institute.

Edward Rothman believes that not only what is taught, but the way it is taught needs to be changed. In order to make students efficient learners, barriers between topics traditionally presented as separate, unrelated courses must be removed. Theory must be integrated with technique, and with practical and realistic use. Laurie Snell pointed out that, to incorporate more interdisciplinarity into the statistics curriculum, faculty will themselves need first to acquire background information on those other disciplines. He described Dartmouth's CHANCE database, a background information resource.

Prem Goel observed that graduate curricula are much more difficult to change than service courses, because of the faculty's many vested interests. He re-emphasised a need to change the reward system "... so that teaching becomes an important activity on a day-to-day basis". For Stephen Fienberg, interdisciplinarity means statisticians contributing to other fields as well as drawing something back. New methods or variations on existing ones may develop in one field and then have broader applicability. Such contributions can lay the foundation of an 'interdiscipline'. He advocates cross-appointments for Faculty to have the necessary interdisciplinary experience.

Closing, Ronald Thisted exposed several assumptions from the symposium discussions. These included the existence of a dissonance between what statisticians want to be and what they now do, a debatable presumption that a PhD program must span four years, and implicit assumptions that "... the right set of courses can in large measure produce the right product" and "... any student in a statistics program can be moulded into the right product". He suggested "... perhaps more specialisation ... in terms of being interdisciplinary early on, should be the order of the day", where this specialisation involved the immersion in just one other discipline. Addressing the question of how can holistic, data-savvy statisticians be created, he presented several successful approaches used at Chicago, along with his opinions on why they worked. Finally, he advocated the principle " .... that interdisciplinary work is not what you do, it is really a part of who you are".

Symposium proceedings, that will include speakers' presentations, audience questions, and discussion, are being produced by CATS for publication in February 1994. To obtain a copy, contact: John R. Tucker, Board of Mathematical Sciences, Room NAS 316, National Academy of Sciences, 2101 Constitution Ave, NW, Washington, DC 20418 (Telephone 202-334-2422, Fax; 202-334-1597, E-mail; JTUCKER@NAS.EDU)