

INTERNATIONAL ASSOCIATION FOR STATISTICAL EDUCATION

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EDITORIAL

As the following announcements from the IASE Transitional Committee indicate, activities preparatory to holding the first general assembly of the Association are in progress, and plans are in place for a number of future meetings. Further updates and details will be given in the next Newsletter.

The next Newsletter will also contain brief reports on some conferences, such as the ISI Round Table Conference and the Statistics Sessions at IMCE, both recently held in Quebec, Canada. In this connection, readers who have participated in other conferences or projects on statistics education during the past few months are invited to write, phone, fax or send an e-mail message to the editor with information about it for the Newsletter. Please be sure to do so no later than the first week of December.

Our contributed article in this issue deals with an area in statistical education that is only recently beginning to receive the attention it deserves - namely, statistical instruction for personnel in industry. Comments and contributions on this subject are welcome. The editor would also be interested in hearing from readers involved in other non-traditional areas of statistical education.

ANNOUNCEMENTS FROM THE IASE TRANSITIONAL EXECUTIVE COMMITTEE

Enrolment of Founding Members

Membership in the Association is open to all individuals with a professional interest in statistical education.

An invitation to become a Founding Member of the IASE has been mailed to all those who have expressed interest in joining the Association. The invitation consists of a brochure containing pertinent information and an application form. Anyone who is considering membership but has not yet communicated his/her interest to an official of the Association or the ISI can elicit such an invitation by contacting Mr. Daniel Berze, Assistant Director for Administration at the ISI office in Voorburg. Upon returning the completed application form with payment of dues, the applicant becomes a Founding Member and receives an acknowledgement from the ISI office to that effect, together with additional information about the Association. One can enrol as a Founding Member at any time prior to the August 1993 ISI Session. However, only those already enrolled at the time of election of officers can participate in the election process.

Dues

The ISI has set the annual dues for individual membership in this Association at 38 US Dollars, or its equivalent (SF 57, £ 24, FF 212, DM 62, DFL 70). Members from a developing country are required to pay only 20 US Dollars, or its equivalent.

Members of the ISI may enrol as members in the IASE without payment of additional dues, provided they are not already enrolled as non-paying members in any other association of the ISI.

Institutional membership is also available. Inquiries concerning the dues schedule for an institutional member may be addressed to the ISI Permanent Office.

Election of the First Executive Committee

According to the statutes of the Association, the Executive Committee will consist of six officers: a president, a president-elect, and four vice-presidents - for membership, finance, scientific programs, and publications, respectively. Candidates for these offices will be selected from the pool of Founding Members by a nominating committee, whose chair is:

Prof. Lennart Rade, Mathematics Department
Chalmers University of Technology
S-412 96 Gothenberg, Sweden. FAX: (46) 31 16 19 73
and whose other members are:

Dr. Simplicie Dossou-Gbete, Mission Française de
Coopération, Brazzaville, Congo.

Professor Peter Holmes, Center for Statistical Education,
Sheffield, UK.

Professor Richard Scheaffer, University of Florida,
Gainesville, FL, USA.

Dr. S.M. Shen, University of Hong Kong, Hong Kong.

The Nominating Committee is inviting suggestions for candidates from the membership. Suggestions may be submitted to any of the five members of the Committee and must be received by November 15, so that the Committee may have sufficient time for deliberation prior to the preparation of the ballot. Ballots will be mailed to all registered members in the early months of 1993. The newly elected Executive Committee will assume office at the Association's first General Assembly.

First General Assembly

The first General Assembly, which is the first formal meeting of the Association, will be held in Florence, Italy, during the 49th Biennial Session of the ISI. ISI Session dates are 25 August to 3 September. In addition to the General Assembly, sessions organized by the IASE and devoted to statistical education will be included as part of the program in Florence. Members will receive more specific and detailed information about these meetings as the date approaches.

IASE Satellite Meeting

Immediately preceding the 49th Session of the ISI, the IASE will hold a two-day satellite meeting in Perugia, Italy. The meeting, scheduled for August 23-24, 1993, will provide a chance for formal and informal discussions on the future role and activities of the new Association. Plans to include invited addresses, contributed paper sessions, as well as a session meant to arrive at recommendations for the Association's future programme, tasks and strategies. Those interested in receiving the first circular are asked to contact:

Professor G. Cicchitelli, Dipartimento di Scienze Statistiche, Via A. Pascoli, 06100 Perugia, Italy
FAX: 39-75-43242; E-mail: statli@ipguniv.earn

ICOTS 4

There has been a minor change in the date previously announced for ICOTS 4, the Fourth International Conference on Teaching Statistics. The conference is now scheduled for 25-30 July, 1994, and will be held in Marrakesh, Morocco, as stated earlier. As with the other conferences in this series, the main objectives are to promote the interchange of ideas about teaching materials, method and content, and to foster international cooperation among teachers of statistics. Inquiries may be addressed to the chairman of the Local Organizing Committee:

Mr. Abdelaziz El-Ghazali, Director, I.N.S.E.A.
P.O. Box 6217, Rabat-Instituts, Rabat, Morocco,
Or to the chairman of the Programme Committee:

Prof. Yves Escoufier, Université Montpellier II
Science et Technique du Languedoc
Place E Bataillon - 34095, Montpellier Cedex 5, France.

OTHER NEWS AND ANNOUNCEMENTS

A UNESCO Publication

The recently published Volume 7 in the UNESCO series, Studies in Mathematics Education, is dedicated to the teaching of statistics. The book is available at any UNESCO bookshop. Inquiries about the series or about this particular volume can be addressed to Dr. Edward Jacobsen, Science and Technology Education Section, UNESCO, 7, Place de Fontenoy, 75700 Paris, France.

Electronic Forum for Statistics Education

A new forum for discussions on matters relating to statistics education at the college level was created with the launching of EDSTAT-L, a network of "subscribers" whose communications by electronic mail instantly and simultaneously reach all other subscribers on the list, and often trigger a barrage of responses from others with similar interests. Exchanges range over a vast array of topics, from misprints in a well-known textbook to merits of various software packages to problems in multiple regression, etc. Subscription to EDSTAT-L does not call for the payment of any dues. Information on how to subscribe is given on page 11 of the January 1992 Amstat News, the news magazine of the American Statistical Association. Alternatively, those interested in EDSTAT-L can write to:

Dr. Tim Arnold, North Carolina State University
Dept. of Statistics, Box 8203, Raleigh, NC 27695-8230, USA
Fax: (919)515-7591; internet:arnold@stat.ncsu.edu

Dr. Arnold, who will be managing editor of the new electronic journal, currently in the planning stage, has agreed to prepare an article on electronic communication for a future issue of this Newsletter.

Quantitative Literacy for Statisticians

At the annual meeting of the American Statistical Association, which was held in Boston on August 9-13, Quantitative Literacy (the program of summer workshops in which school teachers of science and mathematics receive training that prepares them to introduce statistics into their classrooms) became highly visible. The Presidential Invited Address was converted into a mini-workshop for the several hundred statisticians who attended the meeting. Seated in groups of 10-20 to a table, the statisticians were taught the fine art of exploring data, using small boxes of raisins and m&m's - which they were admonished not to eat before the necessary data was collected. It was an effective means of introducing the QL program to members of the Association who were not acquainted with it, and a further demonstration of the growing interest in statistical education.

STATISTICS IN INDUSTRY COURSES

Editor's Note: The following article describes a program started by statisticians at the B.F. Goodrich Company (BFG) near Cleveland, Ohio, USA, in which a series of courses in Experimental Design and Analysis was established.

The writer acknowledges the work of Ravindra Khattree, Ann Giovannitti-Jensen, and Dennis Keller, as well as contributions from other colleagues, in the preparation of course material.

In late 1990, statisticians at the BFGoodrich Company's Avon Lake (Ohio) Technical Center embarked on the development of a series of courses in statistics for BFG scientists, technicians, and managers. By offering these courses, the Statistics Group hoped to increase the statistical literacy of the BFG scientific community and in particular further the understanding of the benefits of statistically designed experiments in an R&D setting. An indication of a potential audience for the courses was seen in the results of a 1990 client survey, where most professionals indicated that they would be interested in receiving additional training in statistics.

The final lineup of course offerings is shown below, with details on each provided. Each course involves about twelve hours of instruction (two days, including lunch breaks):

STATISTICS 101 (Basic Tools of Industrial Experimentation)

Course materials consist of a 200-page text and handouts, including some reproductions of articles, and accompanying transparencies. Topics covered are:

- Why use statistics?
- Exploring graphical displays and summaries
- Statistical testing and errors in testing
- Developing cause and effect relationships
- Experimental design concepts (steps in experimentation, design vs one-at-a-time and undesigned experimentation)
- Exploring sample cause/effect relationships (simple linear regression, analysis of variance)
- Exploring product and process performance (multiple regression with main effects and two-factor interactions)
- Some useful designs (two-level fractional factorial, Plackett-Burman).

During the early stages of development of this first course, the group considered use of a commercially available series of instructional videotapes as an alternative to writing a course from scratch. While the tapes were well produced and the program informative, the group felt that the students needed more groundwork in basic statistical concepts than was offered by the tapes, which began with a discussion of the benefits of experimental design. The fact that the video course offered no supplementary "hands-on" workshops for the students also factored in the decision to proceed with "in-house" development of the course.

STATISTICS 102 (RS/Explore and RS/Discover Software):

This course gives students a "quick start" in interactive menu-driven statistical software from the BBN Software Products. Course material consists of student workbooks and instructor's manuals written by BBN. Supplemental workshops offer students the chance to analyze "real data" using the software. Topics covered are:

- Review of RS/1 Software (making data TABLEs)
- RS/Explore Quick Start (data analysis; all sections include workshops)
- making/editing DATASETs
- making/editing REGRESSIONs (single predictor)
- making/editing MULTREGs (multiple predictor regression)
- other (analysis of covariance, 1- and 2-way ANOVA)
- RS/Discover Quick Start (experimental design/analysis)
- Overview/review of design of experiments
- Overview of RS/Discover (define and analyze EXPERIMENTS)
- EXPERIMENT example/workshops.

STATISTICS 201 (Investigating Variations in Data):

This course covers several topics of particular interest to our client base. Course materials consist of a 145-page text, handouts of solutions to in-class workshops, and accompanying transparencies. Topics covered are:

- Probability distributions (normal, t, chi-square, F)
- Comparison of two populations
- Comparison of several populations (including test for heteroscedasticity)

- Test reproducibility (including definition and design/analysis for quantifying)
- Components of variation (including design strategies)
- Cross check studies (including design/quantification of differences).

The courses were initially advertised primarily through a letter to all R&D managers and directors at Cleveland-area BFG facilities. The letter asked the recipient to circulate attached course descriptions to scientists and technicians in their areas and return a list of interested parties. Further advertising was done via specific appeals to key client managers and/or departments, through the site newsletter, and by word of mouth.

The two non-software based courses are taught at local hotel/conference centers in order to minimize distractions. The software course is held in a computer training facility at the Avon Lake Technical Center.

As of this writing, 82 students have taken STATISTICS 101, 39 have taken the software course, and 48 have taken STATISTICS 201. Although it is difficult to determine how many students are using their new skills, feedback has been overwhelmingly positive and usage of statisticians and the statistical software are up slightly. However, only a small fraction of the total Cleveland-area BFG scientific community has gone through any part of the training program.

As we expand our number of graduates, we will continue to review and revitalize the current series of courses. An "Advanced Design of Experiments" course, continuing where STATISTICS 101 leaves off, may also be developed and offered given sufficient interest.

Having now gone through the process of developing courses for industrial statisticians, I would offer the following suggestions for prospective course developers:

- Be proactive. Don't wait until statistics utilization and/or funding is threatened to begin training.
- Define your objectives - why teach? what to teach? whom to teach? - and keep them in mind as you develop courses.
- Practice teaching your courses in front of a knowledgeable audience. We included both peers and statistically-literate clients in our "dry run" audiences.
- Publicize your courses as much as you can.
- Teach off-site if at all possible. Convey the message that this is not just another day at the office. This will lessen the number of potential distractions.
- Give the students a course evaluation form and read their comments. The comments we have received have already helped us fine-tune our program.
- If development time is limited, consider purchasing a pre-packaged video course from outside.

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