

# INTERNATIONAL ASSOCIATION FOR STATISTICAL EDUCATION

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## C.I.R.D.I.S.: INTERUNIVERSITY CENTER FOR RESEARCH IN STATISTICS EDUCATION

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The founding of CIRDIS in 1991 was principally the result of an undertaking by the Italian Statistics Society (SIS) which in guaranteeing the necessary scientific, professional and cultural competencies, viewed such an organization as the most suitable instrument to satisfy the current educational demand for new teaching methods and instruments in the field of statistics, both in schools and in the work-place.

The Center's aim is to contribute to the development and improvement in the teaching of Statistics at all levels. To this end it intends to:

promote, support and coordinate research on the teaching of Statistics at Secondary School and University levels;

cooperate with competent institutions in their undertakings involving the education, professional training and specialization of teachers of Statistics at all levels as well as projects involving the development of programmes, syllabuses and teaching methods in the field of statistics;

collaborate and encourage the use of statistical methods in teaching, particularly with regard to the development of training indicators and methods of evaluation;

encourage both exchange of information and material with other national and international research groups involved in research projects in line with the aims of the Center;

organize meetings, seminars and conferences on specific aspects of Statistics education in collaboration with other national and international entities;

host individual scholars with specific qualifications and competencies in the teaching field, for periods of study or personal research;

create a Reference Archive Center of documented teaching material.

## Past Activities

### Research

Past research undertaken by CIRDIS has involved the following:

- the experimentation, for the purposes of teaching, with software that analyses and elaborates data and material specifically developed to encourage the learning of statistical concepts and methods (software, audio-visual material, learning aids);
- the analysis of Secondary School text books containing material concerning the study of Probability and Statistics;
- the development of statistical projects destined for Secondary Schools. The testing of learning units of current and specific subjects, as well as the use of statistical methods in quality control;
- participation in a project planned by the Centre for Statistical Education of the University of Sheffield (UK) on the use of databases and electronic sheets in the teaching of Statistics in the two-year Secondary School curriculum.

## Courses, Seminars and Conferences

Course on quality control for Quality Control Managers (CIRDIS, Perugia).

- Training course for Secondary School teachers in the use of computers in the teaching of statistics, XXXVI Scientific Conference, SIS. Pescara 23 April 1992.
- Professional Training seminar for Secondary School teachers (CIRDIS).
- Conference "Statistics and Probability in Basic Education", Bressanone, 13 April 1993.
- First Scientific Meeting of the International Association for Statistical Education (IASE), Perugia, 23-24 August 1993.
- Meeting with Secondary School teachers on the occasion of the XXXVII SIS Scientific Conference, Genova, 8 April 1994.
- Conference/Professional Training Course "Basic Statistics Education", Perugia, 20-24 November 1995.

## Complementary Activities and Covenants

- Journal INDUZIONI: Demography, Probability and Statistics in the Schools, Giardini, Pisa.
- Covenant with the Centre for Statistical Education, University of Sheffield, for the development of common research projects, the exchange and distribution of teaching material and hosting of member-scholars for study and research projects.

From its inception until April 1996, the Center was directed by Professor Giuseppe Cicchitelli, the directorships has been taken up by Professor Gianfranco Galmacci.

The CIRDIS administrative seat is in the Dipartimento di Scienze Statistiche, Casella Postale 1315/ succ. 1 06123 Perugia, Italia. E- mail: glm@stat.unipg.it

## CIRDIS and JSE

CIRDIS and the Department of Statistics of Perugia, Italy, are mirroring the Journal of Statistics Education (JSE) and the JSE Information Service (URLs <http://www.stat.unipg.it/jse/> and <ftp://ftp.stat.unipg.it/pub/stat/jse>).

JSE the Journal of Statistics Education, is a rigorously refereed electronic journal on postsecondary statistics education. JSE publishes high-quality articles on a variety of topics related to the teaching of statistics, including:

- case studies and anecdotal reports
- review and opinion articles
- results of controlled experiments on pedagogical methods
- discussion of the impact of new technologies and new methods of assessment on statistics education.

Journal departments include:

- "Teaching Bits: A Resource for Teachers of Statistics"
- "Reviews" of software, books, and teaching materials
- "Datasets and Stories"

Articles that make innovative use of the electronic medium are encouraged. Submissions to the journal are reviewed, double blind, by three referees.

The JSE Information Service, an adjunct to JSE, is a growing electronic archive of information, software, and discussions related to statistics and statistics education. In addition to the Journal of Statistics Education itself, the Information Service includes the following resources:

- JSE Guidelines for Authors and Call for Papers
- Fully indexed and searchable archives of these electronic discussion groups:
- Statistics education group, EdStat-L
- Statistics consulting group, STAT-L
- SAS group, SAS-L
- SPSS group, SPSSx-L
- Connections to Chance News, selected Census data, and the StatLib archive
- Free and shareware software related to statistics
- Information and programs to help find and use other network resources

National archive of SAS-related macros and programs

For more information on C.I.R.D.I.S, please contact Professor Galmacci.

## PROJECT MEANS

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The Department for Education and Employment in Great Britain has been funding a number of groups to set up Networks in Higher Education. One of these groups is in Statistics. The Project Director is Anne Hawkins, the director of the RSS Centre for Statistical Education at the University of Nottingham and the Project Manager is Peter Holmes. The project is based at the Centre and has as other core partners the universities of Nottingham Trent, Sheffield and Sheffield Hallam. Work has now started on this project under the acronym MEANS (Matching Education, Assessment and employment Needs in Statistics).

The primary aims are to

- a. identify the statistical skills and knowledge which are needed by people whose work includes statistical duties and by those who work with them;
- b. identify examples of good statistical training and assessment practice;
- c. promote a closer correspondence between training and assessment in higher education and employment needs, based on the findings in (a) and (b);
- d. provide a forum for discussion, dissemination and research collaboration making full use of electronic as well as more traditional means of communication;
- e. lay the foundations for enabling the network to extend into more higher education contexts where statistics is taught.

So in this project we are trying to facilitate (provide the MEANS!!) a closer match between the statistical training received in higher education, and graduates' subsequent employment needs. To this end the project team will be holding seminars, gathering information and examples of good practice, establishing a discussion forum and Web pages to help people find suitable teaching and training materials and so on.

The more people we can get involved with this project from all sides of the education/training spectrum the more useful the project is likely to be. We particularly want to be in contact with a wide variety of employers of graduates who have to use statistics in their work and with these graduates themselves (especially those in the early years of working).

We are also looking for teaching material that we can point to as good examples for preparing undergraduate students for the statistics they have to use in employment, or material that companies are using as in-house material for the young graduates in your employment.

So please contact Peter Holmes if:

1. You are an employer of graduates and expect them to do statistical work;
2. You are a graduate employee doing any statistical work;
3. You are involved with educating graduates who will use statistics in their work, even if you are not teaching in the context of statistics/mathematics specialities;
4. You know of others who are concerned with improving the match between the teaching of undergraduate statistics and the use of statistics in employment contexts;
5. You are running statistics courses specifically to help those in employment, including in-house statistical training courses or in-service courses;
6. You have a story to tell about good or bad experiences comparing statistics in work and undergraduate statistical training;
7. You are actively involved (or know of others involved) in co-operative ventures between employers and teachers/trainers in statistics;
8. You know of any teaching material which you have found particularly helpful in preparing undergraduates or graduate employees for the statistics used in employment;
9. You wish to be part of a network of people interested in these problems.

Peter Holmes would like to hear of any similar initiatives in other countries.

## ADVANCED PLACEMENT STATISTICS COURSE FOR U.S. HIGH SCHOOL STUDENTS

*Rosemary A. Roberts, Chair, AP Statistics Test Development Committee, Bowdoin College, Brunswick, ME, E-mail: roberts@bruin.bowdoin.edu*

In the United States and Canada, statistics is not usually offered at the secondary school level. However the recent introduction of an Advanced Placement Statistics course and examination will provide an opportunity for secondary school students to pursue and receive credit for a college-level statistics course. The Advanced Placement (AP) Program, sponsored by the College Board, is based on the premise that college-level material can be taught successfully to able and well-prepared secondary school students. The first AP statistics examination will be given in May 1997. This article gives a brief description of the course and examination.

The AP Statistics course emphasizes concepts rather than techniques. The topics are divided into four major themes: exploratory analysis, planning a study, probability, and statistical inference. Within each theme the topics emphasize statistical thinking and minimize computational procedures. The instructional emphasis is toward a mode of teaching that engages students in constructing their own knowledge. Important components of the course should include the use of technology, projects and laboratories, cooperative group problem-solving, and writing as a part of concept-oriented instruction and assessment.

The AP Statistics examination consists of a 90 minute section of multiple-choice questions and a 90 minute section of free response questions. The two sections are equally weighted. The free response section asks the student to answer open-ended questions and to complete an investigative task involving more extended reasoning.

While it would be ideal for students to have access to the computer during the exam this is currently unrealistic. Thus graphing calculators will be expected and computer output will be provided as necessary. Students will be expected to be familiar with standard computer output and every school offering the AP Statistic course is encouraged to make available a computer with an appropriate software package for work both in and outside the classroom.

Readers interested in more information about the AP Statistics course are referred to the Course Description, (IN-201619), which is available from: Advanced Placement Program, P.O. Box 6670, Princeton, NJ 08541-6670; Tel: (609) 771-7243. This publication includes a course outline, a discussion of the AP statistics examination including sample questions, and statements on the use of technology and instructional emphasis.

**DO NOT FORGET ABOUT ICOTS 5!**