WSS NEWS

WASHINGTON STATISTICAL SOCIETY

January 1992

Tufte Short Course Offered

The Washington Statistical Society is pleased to announce that its next short course will be **Statistical Graphics, Information Design, Scientific Visualization, by Edward Tufte**, professor of political science and statistics at Yale University.

The opportunities for better statistical graphics are changing rapidly, as exciting technological improvements continue to be introduced. In this course, Tufte will cover interpretation, presentation and design of statistical data, from the use of traditional charts, graphs and tables to the choice of computer displays, animations of data and advanced techniques for envisioning complex information. Strategies to extend the information resolution of paper and computer screen will be described, to increase the dimensionality and density of displays. Standards of quality derived from visual principles will also be discussed, including such topics as video, scientific visualization and multi-media, as well as paper. Tufte's two well-known books on this subject will be among the course materials provided to those who register.

The short course will be held on Wednesday, February 12, 1992, from 8:30 am - 5:00 pm in the Waterford-Lalique Suite, Crystal Ballroom, of the Hyatt Regency Bethesda. A registration form for the session is enclosed in this newsletter. For further information about the course, contact Glenn White at (202) 874-1114 (at work) or (301) 952-1507 (at home).

****

WSS Seminars (All events are open to any interested persons.)		
JANUARY		
8	Wed.	Data Augmentation Methods
16	Thurs.	Quality Initiatives in the Annual Refiling Survey
17	Fri.	What is the Chance of a Cold Spell?
22	Wed.	Test-Based Variable Selection Via Cross-Validation
28	Tues.	Variants of Hexagon Mosaic Maps for Display of Univariate and Multivariate Geographic Data
31	Fri.	Some Theory for Principal Curves
FEBRUARY		
12	Wed.	Statistical Graphics, Information Design, Scientific Visualization

Announcements

Call for Journal Submissions

In a continuing effort "to foster exchange of information across disciplinary lines on a wide spectrum of scientific subjects," the Washington Academy of Sciences is seeking manuscripts for publication in its Journal.

The *Journal of the Washington Academy of Sciences* is the official organ of the Academy and publishes scholarly scientific articles reporting the results of original research, thought-provoking, critical reviews and historical articles of general interest. Assistant Editors, Professors Bruce Hill and Milton Eisner (202) 625-4634, of Mount Vernon College, Math and Science Department, 2100 Foxhill Road, NW, Washington, DC 20007-1199, are urgently seeking well-crafted articles that contribute significantly to our knowledge in any area of science and engineering. Please contact Professors Hill and Eisner for the newly revised "Instructions to Contributors," or send the articles directly to them.

Science Fairs 1992: Reminder

Volunteers are still needed for judging 1992 science fairs in Maryland, DC, and Northern Virginia. If you would like to be a WSS science fair judge, or if you would like additional information about this activity, please contact Susan Ellenberg at (301) 496-0694; or send a note with your name, address and daytime phone number to Susan Ellenberg, Division of AIDS, 6003 Executive Blvd., Bethesda, MD 20892. (Or FAX: (301) 480-5703.)

Census Bureau's 1992 Annual Research Conference

The Census Bureau's 1992 Annual Research Conference (ARC 1992) will be held March 22-25, 1992, at the Holiday Inn Crowne Plaza in Arlington, Virginia, only 1/2 mile from National Airport and three blocks from Metro. ARC 1992 will feature such topics as accuracy of undercount estimates, post-enumeration survey estimation issues, quality management in statistical agencies, modeling social changes and ethnographic coverage evaluation, subnational population and housing estimation, enhancing the usefulness of wage and income data, electronic data collection, technical and management decisions in CAI, issues in CATI implementation, interviewer perspectives on CAPI, strategies for developing CAI systems, nonresponse and estimation issues in establishment surveys, bias corrections for survey data, combining administrative and survey data and preparing data for analysis and presentation. For further information contact Ms. Maxine Anderson-Brown, ARC Conference Coordinator, Office of the Director, Bureau of the Census, Washington, DC 20233, (301) 763-1150.

QL Update

Shail J. Butani, WSS Quantitative Literacy Coordinator for Fairfax County, reports that several exciting new projects took place this fall.

- At the request of Mathematics Specialists for Fairfax County Public Schools, the QL group conducted 5 workshops for the 130 lead math teachers from elementary schools. These teachers will, in turn, pass on information to other teachers in their schools.

The workshops, conducted by Butani and Sharon Bobbitt, focused on the need to integrate statistics with other subjects; the benefits of different types of graphs and charts; and the importance of actively involving the students in the process of collecting, organizing, displaying, and analyzing

Program Abstracts

TOPIC: Data Augmentation Methods

SPEAKER: Martin Tanner, University of Rochester

CHAIR: Mitchell H. Gail, National Cancer Institute

DATE/TIME: Wednesday, January 8, 1992, 11:00 AM-12:00 Noon

LOCATION: Conference Room J, Executive Plaza North, 6130 Executive Blvd., Rockville, MD. (Red Line--White Flint; approx. 1 mile)

SPONSOR: Division of Cancer Prevention and Control, National Cancer Institute and Public Health and Biostatistics Section

ABSTRACT: A variety of sampling-based algorithms are examined for parametric Bayesian/Likelihood-based inference, including: Monte Carlo, EM, Data Augmentation, Poor Man's Data Augmentation, Gibb's sampling and the Metropolis algorithm. These methods are compared and illustrated with several examples.

* * * * * * * * * * * * * * * * * * *

TOPIC: Quality Initiatives in the Annual Refiling Survey

SPEAKER: Gordon Mikkelson, Bureau of Labor Statistics

CHAIR: Sid Schwartz, U. S. Postal Service

DATE/TIME: Thursday, January 16, 1992, 12:30-2:00 PM

LOCATION: GAO Bldg., Room 2437, 441 G Street, NW, Washington, DC. (Red Line--Judiciary Square)

SPONSOR: Quality Assurance Section

ABSTRACT: The Annual Refiling Survey (ARS) is conducted by the Bureau of Labor Statistics (BLS) to update the standard industrial classification (SIC) codes of over six million business establishments on a three-year rotational cycle. These data are collected in a federal-state cooperative environment. In order to improve data quality and to ensure the consistency of procedures among states, the BLS has undertaken several initiatives. The following initiatives will be discussed: l) monitoring of the SIC coding operation, using a sequential likelihood ratio test; 2) an experimental automated SIC coding system; 3) a procedure that detects potential SIC coding errors, based on observed patterns of movement of units from one SIC to another; and 4) an analysis of the relationship between SIC code changes and the age and size of the unit.

Program Abstracts (Cont'd)

TOPIC: What is the Chance of a Cold Spell?

SPEAKER: Richard L. Lehman, National Meteorological Center, NOAA

CHAIR: John H. Herbert, Energy Information Administration

DATE/TIME: Friday, January 17, 1992, 12:00 Noon -2:00 PM

LOCATION: Room GJ-015, Forrestal Bldg., 1000 Independence Ave., SW. (Blue or
                Orange Line--L'Enfant Plaza) Government employees show ID; non-
                government employees call John Herbert at (202) 586-4360 for escort.

SPONSOR: Agriculture and Natural Resources Section

ABSTRACT: Evaluating extremes in the weather is always an important item for the
                energy and agricultural sectors of the economy. In this presentation, the
                degree to which skewed climatological data can be modelled with several
                gamma density functions will be shown. The results will be compared
                generally with standard approaches to the problem. In addition, the cold snap
                of December 1989 will be used as a particular case study. Finally, software
                which has been developed to perform such evaluations will be demonstrated.

* * * * * * * * * * * * * * * * * * *

TOPIC: Test-Based Variable Selection Via Cross-Validation

SPEAKER: David A. Grier, George Washington University

CHAIR: Sylvia Leaver, Bureau of Labor Statistics

DISCUSSANT: Daniel B. Carr, George Mason University

DATE/TIME: Wednesday, January 22, 1992, 12:30-2:00 PM

LOCATION: GAO Bldg., Room 2437, 441 G Street, NW, Washington, DC. (Red Line--
                Judiciary Square)

SPONSOR: Methodology Section

ABSTRACT: Test-based variable selection algorithms in regression often are based on
                sequential comparison of test statistics to cutoff values. A predetermined α-
                level typically is used to determine the cutoffs, based on an assumed
                probability distribution for the test statistic. In Gaussian linear regression,
                for example, backward elimination or stepwise selection involves compar-
                isons of test statistics to pre-specified t or F distribution cutoffs. In non-
                linear settings, a likelihood ratio, Wald or score statistic may be used, with
                standard normal or a chi-square cutoffs. Although such algorithms enjoy
                widespread use by data analysts, their statistical properties are not well

Program Abstracts (Cont'd)

Test-Based Variable Selection Via Cross-Validation (cont'd)

understood, either theoretically or empirically. Two inherent probems with these methods are that (1) as in classical hypothesis testing, the value of α is arbitrary, while (2) unlike hypothesis testing, there is no simple analog of type I error level for application of the entire selection algorithm to a data set. In this article we propose a new method, which we call backward elimination via cross-validation (BCV), for test-based variable selection in regression. It is implemented by finding the empirical value α^* of α, which minimizes a cross-validation estimate of squared prediction error. The model is then selected by running backward elimination on the entire data set using α^* as the nominal P-value for each test. We present results of an extensive computer simulation to evaluate BCV and compare its performance to standard backward elimination and stepwise selection.

* * * * * * * * * * * * * * * * * * * *

TOPIC: Variants of Hexagon Mosaic Maps for Display of Univariate and Multivariate Geographic Data

SPEAKER: Daniel B. Carr, George Mason University

CHAIR: Nancy Flournoy, The American University

DATE/TIME: Tuesday, January 28, 1992, 3:30-5:00 PM

LOCATION: Roper Hall, Room 100, The American University, Nebraska and Massachusetts Aves., NW, Washington, DC. Parking is available at meters and by daily permits available at Rockwood Hall. Call (202) 885-3120 for information.

SPONSOR: Statistical Computing Section

ABSTRACT: Hexagon mosaic maps result from partitioning maps into hexagon regions. The primary use for such univariate mosaic maps is to show broad geographic patterns that de-emphasize political boundaries. After selecting kriging or another estimation method for hexagon regions, hexagon mosaic maps provide numerous opportunities for purpose-specific variation. Displaying single "contour" intersections emphasizes changes between paired displays. Choosing a statistic, such as Kendal's seasonal tau, shows trends for several years on a single map. Plotting ray glyphs inside hexagons conveys local multivariate relationships on a map. Numerous examples illustrate the variations as applied to U.S. acid deposition network data. This work is joint with Anthony R. Olsen.

Program Abstracts (Cont'd)

TOPIC: Some Theory for Principal Curves

SPEAKER: Werner Stuetzle, University of Washington, Seattle, WA

CHAIR: Nancy Flournoy, The American University

DISCUSSANT: Ferdie Wang, The American University

DATE/TIME: Friday, January 31, 1992, 12:30-2:00 PM

LOCATION: GAO Bldg., Room 2437, 441 G Street, NW, Washington, DC. (Red Line--
              Judiciary Square)

SPONSOR: Statistical Computing Section

ABSTRACT: Principal curves, as introduced by Trevor Hastie in his Ph.D. thesis,
              represent an attempt at formalizing the notion of a "curve passing through
              the middle of a data set." They are a generalization of linear principal
              components and can be used in similar contexts. Theoretical results on
              principal curves of two-dimensional probability densities will be discussed.
              This is joint work with Trevor Hastie (AT&T Bell Laboratories) and Tom
              Duchamp (University of Washington).

* * * * * * * * * * * * * * * * * * *

Looking for New Members

The Washington Statistical Society is interested in drawing in new members. WSS associate memberships are $14 a year and entitle members to attend local events and receive the WSS NEWS. If you know someone interested in joining WSS, please complete the form below and send it to:

Stephanie Shipp
1000 Riva Ridge Road, Great Falls, VA 22066

==

Potential New WSS Member

Name: _____

Address: _____ City/State/Zip: _____

Work affiliation: _____

Person making recommendation: _____

Business phone: _____   Home phone: _____

Announcements (Cont'd)

the data. Bobbitt used the counting the raisins (or M&Ms) example to demonstrate how the concepts of estimation, range, mean, mode, median and variability can be illustrated to elementary school students in a very simple manner. Butani employed a questionnaire she had designed to illustrate how the students can be taught the concepts of a representative sample; inference from sample data to the population; and the importance of properly worded questions. Participants were also told of the many types of services that the volunteers could provide, free of charge, at their request.

- Fairfax County has also requested two or three QL volunteers to work with core math teachers to revise the 7th and 8th grade math curriculum for the County.

- As an outgrowth of one of the QL workshops, a teacher approached Marie van Melis-Wright about evaluating a questionnaire prepared by her 8th grade class. Rather than conduct a routine paper-and-pencil review, van Melis-Wright organized the production of a videotape, designed to allow the students to see the process of questionnaire design. Bureau of Labor Statistics' behavioral scientists were filmed discussing such issues as: sample selection, confidentiality, need for purpose statement, need to develop an introduction for respondents, potential impact of various forms of response options, etc. In addition, the panel looked at the relative strengths and weaknesses of every question. Participants in the videotape panel discussion included: Paul Bliese, Fred Conrad, Jim Esposito, Ruth McKay, Marie van Melis-Wright, Paul Mullin, Joan Sander, and Kathy Puskar.

Help the Quantitative Literacy Group of WSS continue activities such as these in Fairfax County or in your own jurisdiction. Call Ron Fecso at (202) 334-2295 to get involved. (As little as a few hours a year can help.)

Tentative Schedule of SIGSTAT Meetings

SIGSTAT is the Joint Special Interest Group in Statistics for the Capital PC User Group and WORMSC (Washington Operations Research/Management Science Council). The tentative schedule of events for the next few months is as follows:

Jan. 8 StatXact 2.0.--Exact p-values and confidence intervals for one- and two-sample procedures, RxC contingency tables, stratified 2x2 tables and stratified 2xC tables.

Feb. 19 S-Plus 2.0 Graphics.-- Interactive dynamic graphics, including 3D data spinning, scatterplot matrix brushing and point identification using a mouse.

Mar.11 S-Plus 2.0 Statistical Analysis.--A look at the many new statistical features of Version 2.0 (ACE, Projection pursuit, M-estimation, Tree-based regression, Generalized linear models,...).

All meetings are scheduled for Wednesdays from 12:30-1:30 pm in Room B-14, 1301 New York Ave., NW, Washington, DC. (The building is located midway between the Metro Center and McPherson Square Metro stops.) If this is your first SIGSTAT meeting, call Charlie Hallahan, (202) 219-0507, to gain entry into the building.

Announcements (Cont'd)

Washington Academy of Sciences Session

The Washington Academy of Sciences and its co-sponsors announce the following upcoming event for their 1991-92 Science and Engineering Program:

Electron Chemistry for Decontamination, featuring Frazer Walsh, Tracer Technologies Inc., Cambridge, MA, and William Cooper, Water Research Center, Florida International University, Miami, FL.

The session will be held Thursday, January 16, 1992, 7:00 to 9:30 pm at Potomac Electric Power Company, Auditorium, 1900 Pennsylvania Ave., NW, Washington, DC. (Enter on H Street.) For more information, call the Washington Academy of Sciences office, at (703) 527-4800.

Employment Column

Survey Statisticians

NORC is a not-for-profit survey research organization affiliated with the University of Chicago. Founded to conduct research in the public interest, NORC has been an industry leader for 50 years. We carry out high quality surveys on behalf of government agencies, foundations, and academic researchers. These surveys cover a broad range of issues, including health care, education, work experience, and racial and social attitudes. In addition, NORC's methodological work is at the forefront of innovation within the industry.

NORC has staff of more than 300 in Chicago and Washington, DC, that include statisticians, psychologists, economists, sociologists, political scientists, systems analysts, and computer programmers. We also maintain a national field staff of both supervisors and interviewers.

NORC is seeking survey statisticians with experience in sample design and selection, estimation procedures, quality assurance methods, statistical computing, and data analysis. A master's degree or Ph.D. in statistics (or a closely related field) is a requirement. Positions are available in both our Chicago and Washington offices.

NORC offers competitive salaries and a generous benefits package. Interested applicants should send a resume with salary requirements to Personnel Department, Survey Statistics, NORC, 1155 E. 60th Street, Chicago, IL 60637. EOE

Statistical Programmer

Science Applications International Corporation, an employee-owned company, has an immediate opening for a statistical programmer in its Environmental and Health Services Group in Falls Church, VA. Our statistical programmers are integral team members in environmental and health-oriented studies, where they are responsible for database management, programming, and graphical presentation of results.

An MS degree in computer science, statistics or a related field, with at least 5 years data management and statistical programming experience, is preferred for this position. SAS and IBM mainframe experience, as well as a commitment to quality, are essential.

Employment Column (Cont'd)

This position offers a competitive salary and an excellent benefits package, including stock ownership and retirement programs. For immediate consideration, please forward a resume with salary history to SAIC, Department KMP-61, 1710 Goodridge Drive, McLean, VA 22102. EOE

Biostatistician/Epidemiologist

Children's Hospital announces an opening for a biostatistician/epidemiologist in the Office of the Research Director. This person will join a team which provides statistical consultation on a variety of research projects for clinical faculty and staff. Responsibilities include:

- Review of protocols
- Design of clinical trials and laboratory experiments
- Analysis of data
- Preparation of reports
- Conduct of seminars.

The position requires a Ph.D. in biostatistics, statistics or epidemiology, with at least two years of consulting experience in an academic or medical environment. Experience using statistical software (e.g., BMDP, SAS, SPSS) is essential. Knowledge of a scientific programming language (e.g., Fortran) is preferred.

The position offers opportunities for an academic appointment to the George Washington University School of Medicine and for pursuing an individual course of research.

Please send application materials to Lorrie Kaitz, Human Resources Department, Children's Hospital, 111 Michigan Ave., NW, Washington, DC 20010.

Statistician

Response Analysis Corporation, an employee-owned survey research and consulting firm located in Princeton, NJ, has a position available for a statistician.

Qualified applicants must have research design and survey methodology experience, applied multivariate analysis skills, and sampling and estimation experience. Strong SAS and PC skills are important. An advanced degree in statistics or a closely related field and work experience in applied survey research is required.

The person will work with survey research project directors, contribute to proposals and reports and interact with commercial and government clients. Interpersonal skills are important.

We offer a competitive salary and excellent benefits, including medical, 401(k), and an employee stock ownership plan. Please send your resume, with salary requirements, to Personnel Administrator, Room WSN, Response Analysis Corporation, PO Box 158, Princeton, NJ 08542. EOE

President Fritz Scheuren (202) 874-0700	**Past President** Ed Wegman (703) 993-1691	**President-Elect** Marie Argana (301) 763-4595

Secretary Ruth Ann Killion (301) 763-8558	**Treasurer** Ginny deWolf (202) 366-5372

WSS Program Chairs

Agriculture & Natural Resources		**Economics**		**Methodology**	
Cynthia Clark	(202) 447-4557	Linda Atkinson	(202) 219-0505	Sue Ahmed	(202) 219-1781
John Herbert	(202) 586-4360	Art Kennickell	(202) 452-2247	Tapan Nayak	(202) 994-6355

Physical Sciences & Engineering		**Quality Assurance**		**Social & Demographic Statistics**	
Telba Irony	(202) 994-7522	Carrol Kindel	(202) 219-1371	Mike Horrigan	(202) 523-1327
John Sjogren	(202) 767-4940	Sid Schwartz	(202) 268-3490	Jeff Passel	(202) 857-8678

Statistical Computing		**Short Courses**		**Public Health & Biostatistics**	
Nancy Flournoy	(202) 885-3127	Glenn White	(202) 874-1114	Barry Graubard	(301) 496-8547
Sylvia Leaver	(202) 272-2350	Mary Batcher	(202) 874-0464	Ed Lakatos	(301) 496-5905
		Don Gantz	(703) 993-1695		
Data Collection Methods		Brad Pafford	(202) 268-6044		
Jared Jobe	(301) 436-7111				
Clyde Tucker	(202) 272-2280				

Employment		**WSS NEWS Editors**		**Membership**	
Bill Arends	(202) 447-6812	Wendy Alvey	(202) 874-0455	Stephanie Shipp	(202) 272-5060
		Bettye Jamerson	(202) 874-0453	Antoinette Ware	(202) 586-2048
Quantitative Literacy				Renee Miller	(202) 586-2088
Ron Fecso	(202) 334-2295				
Easley Hoy	(301) 763-7800				

WASHINGTON STATISTICAL SOCIETY

P.O. Box 752
Suitland, MD 20752

FIRST CLASS