

## *Biostatistics Program*

Speaker: Shanna H. Swan  
Gary M. Shaw  
Jane Schulman

Topic: "Reporting and Selection Bias in Case-Control Studies of Congenital Malformations"

Place: 2<sup>nd</sup> Floor Conference Room  
Regional Headquarters, Kaiser Permanente  
1950 Franklin  
Oakland  
(See Directions Below)

Date: Thursday, February 27, 1992  
Time: 3:30 p.m., Refreshments  
4:00 p.m. Talk

Directions: From the 19<sup>th</sup> street BART station take 19<sup>th</sup> street towards 20<sup>th</sup> (the lake) for 1 blocks. The building is between 20<sup>th</sup> and 21<sup>st</sup> streets. Signs and/or people will be posted to guide you to the room.  
(Behind the Cafeteria)

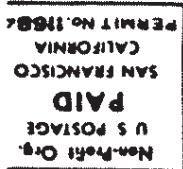
### **Abstract**

Reproductive studies of congenital malformations frequently rely on exposures reported by study subjects. Differential error in exposure reporting by cases and controls, which has alternately been referred to as "recall bias" and "reporting bias" may result in a biased effect measure. Some authors have attempted to avoid reporting bias by comparing exposures between two malformed groups, rather than between cases and non-malformed controls. This approach, however, may introduce its own bias, which we call *selection bias*. Both reporting bias and selection bias are shown to be algebraically equivalent to bias arising from exposure misclassification. The magnitudes of these biases are compared for a range of plausible parametric values. The case-control design is sensitive to both differential reporting and selection bias, and the choice of study design involves balancing these two sources of bias.

**If Your Local Membership Has Expired:**

There are two ways you can renew a local membership—directly through the chapter or indirectly through the national organization.

- 1) Local dues are \$9 for regular members and \$3 for students. Payments can be sent to the chapter treasurer, Lenny Ayyengar at the address shown at 120 Dunsmuir Way, Menlo Park, Ca. 94025.
- 2) When you become (or renew) your ASA national membership, you have the option to pay your local dues through them. The national offices are at  
1429 Duke Street  
Alexandria, Va. 22314-3402  
Phone (703)-684-1221



AMERICAN STATISTICAL ASSOCIATION  
SAN FRANCISCO BAY AREA CHAPTER  
670 Jefferson Drive  
Palo Alto, Ca. 94303





# The American Statistical Association

## San Francisco Bay Area Chapter

Since 1928

### CALENDAR

February 20, 1992--Thursday. Bruce Trumbo:

“Computer Searches of Statistical Literature as an Aid to Consulting and Research.”

February 27--Thursday. Swan, Shaw, and Schulman:

“Reporting and Selection Bias in Case-Control Studies of Congenital Malformations”

### *General Applications Program*

**Speaker:** Bruce Trumbo  
Professor of Statistics  
California State University at Hayward

**Topic:** “Computer Searches of Statistical Literature  
As an Aid to Consulting and Research”

**Place:** Golden Gate University  
Room 500  
536 Mission Street  
San Francisco

**Date:** Thursday, February 20, 1992  
**Time:** 3:30 p.m. Refreshments  
4:00 pm to 5:00 pm Talk

**JNCIL OF CHAPTERS REP.**  
Anthony D. Thrall  
(415) 855-2627

**PRESIDENT**  
Dean H. Fearn  
(510) 881 9160

**PRESIDENT-ELECT**  
Mike Tarter  
(510) 642 4601

**VICE PRESIDENT**  
**GENERAL APPLICATIONS PROGRAMS**  
Dave Kimble  
(510) 823-9017

**VICE PRESIDENT**  
**BIOSTATISTICAL PROGRAMS**  
Rose Ray  
(415) 688-7264

**TREASURER**  
Lenny Ayyanger  
(415) 852-3080

**SECRETARY**  
Loren Schoof  
(510) 823-9020

**ASQC TASK GROUP REP.**  
Fred Khorasani  
(408) 779-0035

**ASQC STATISTICAL TASK GROUP**  
Curtis Engelhard  
(408) 765-8325

### Abstract

Since 1975, the Current Index to Statistics (CIS) has provided bibliographic information on theoretical and applied papers and books in the statistical sciences. Recently, most of the computer files used to prepare these indexes have been modified and combined into a unified, computer searchable data base. I will mention some of the political, financial, and technical challenges to establishing the CIS Cumulative Data Base, discuss its use for statistical consulting and research, and speculate on future directions for computer searchable bibliographic data bases and for electronic publishing of statistics journals.

### Biographical Notes

Dr. Trumbo has undergraduate degrees in Mathematics and Chemistry. He has graduate degrees in Statistics from the University of Chicago. He is a fellow of the IMS and presently chairs the CIS management committee and is a member of the ASA committee on publications.



# The American Statistical Association

## San Francisco Bay Area Chapter

Since 1928

### Annual Business Meeting and Election of Officers

Date: Thursday June 18, 1992

Time: 3:30 p.m. Refreshments  
4:00 p.m. Talk  
4:40 p.m. Business  
(must finish by 5:15 p.m.)

Place: Room 500  
Golden Gate University  
536 Mission Street  
San Francisco  
(Between 2nd and Fremont streets)

Speaker: Anthony Thrall  
Electric Power Research Institute

Topic: Regional Ozone: Can Simpler Models Guide Policy?

#### *Abstract*

The 1990 Clean Air Act amendment calls for new strategies to control the concentration of ozone in regional air basins throughout the U. S. But because of the photochemical complexity of ozone formation, strategies that would work under one set of conditions may fail or even be counterproductive under other conditions. Thus proposed strategies must be adapted to the conditions of each region and require careful analysis.

Computer models have been developed to simulate the effect of proposed control strategies. These models simulate the environmental processes that influence ozone formation, and are thus the most credible projectors of ozone concentration under hypothetical conditions. Because of this scientific realism, these models are quite complex and require tremendous computing resources. The pursuit of scientific credibility has thus taxed both the quickness and comprehensiveness of the scientific response to policy questions.

Thought is now being given to the development of simpler models that would be more responsive to the needs of policy analysis. Would simpler models be less accurate projectors of ozone concentration? By how much? Under what Conditions? This is difficult to know. One should at least be able to compare the calculations of simpler and more complex models.

#### VICE PRESIDENT

Dave Kimble

(510) 823-9017

#### VICE PRESIDENT

Rose Ray

(415) 688-7264

OF CHAPTERS REP.  
Anthony D. Thrall  
(415) 855-2627

PRESIDENT  
Dean H. Fearn  
(510) 881 9160

PRESIDENT-ELECT  
Mike Tarter  
(510) 642 4601

GENERAL APPLICATIONS PROGRAMS  
Dave Kimble  
(510) 823-9017

BIOSTATISTICAL PROGRAMS  
Rose Ray  
(415) 688-7264

TREASURER  
Lenny Ayyanger  
(415) 323-1089

SECRETARY  
Loren School  
(510) 823-9020

ASQC TASK GROUP REP.  
Fred Khorasani  
(408) 779-0035

ASQC STATISTICAL TASK GROUP  
Curtis Engelhard  
(408) 765-9325

## EMPLOYMENT OPPORTUNITIES

### 1. RESEARCH STATISTICIAN, Chevron Research, Richmond

**RESPONSIBILITIES:** Consult with researchers and collaborate in projects relating to lubricants, fuels, and additives development.

**REQUIREMENTS:** Masters degree in statistics or biostatistics and one to three years experience. Excellent communication skills are required. Experience with linear models, experimental design, automotive testing, chemical testing, SAS, /CMS, DOS and other programming languages, and database management are desirable.

**SEND RESUME:** Chevron Research and Technology Company, Human Resources Group, P.O. Box 1627 Richmond, CA 94302-0627.

### 2. BIOSTATISTICS SUPERVISOR and INTERMEDIATE LEVEL BIOSTATISTICIAN, Syva, Palo Alto

**RESPONSIBILITIES:** Syva, the diagnostics subsidiary of Syntex is looking for innovative, dynamic biostatisticians seeking new challenges. Candidates for both the intermediate level and the supervisory position must demonstrate broad based, in-depth understanding of os statistical experimental designs and analyses. These positions call for the ability to apply relevant statistical concepts and the ability to communicate these concepts to non statisticians. Excellent listening, written and oral presentation skills are required.

**REQUIREMENTS:** The senior level position requires a Ph.D. in statistics, plus related experience in pharmaceutical or medical diagnostic programs. Candidates will have proven leadership skills, and experience with clinical trials, PMA's and PLA's. The intermediate level position requires an M.S. in statistics an three years related experience.

**SEND RESUME:** Syva Human Resources, Dept EP, MS 1-105, P.O. Box 10058, Palo Alto CA 94303, FAX (415) 857-1374.

---

### SF Bay Area Chapter Business

#### ADDRESS CHANGES/DUES:

Changes of address should be sent to the chapter treasurer, Lenny Ayyangar at the address listed below.

Several members are more than a year behind in local chapter dues. Please check the date on your mailing label. The printed date is the date that your dues **expires** (This is a revision of previous printed date conventions.) If you are overdue please send \$8 to:

Lenny Ayyangar  
Syntex Research  
3401 Hillview Avenue  
P.O. Box 10850  
Palo Alto, CA 94303

## Chapter Business

(Continued)

\*\*\*\*\*

### Amendments to the Chapter Constitution:

The following amendments to the chapter charter will be voted on during the business meeting. The first one affects the term of the Council of Chapters Representative. A. S. A. National wants this to be three years starting in January. The changeover began at the last SF chapter annual meeting. At that time, the term of the current Council Rep, Tony Thrall, was extended through December 31st of this year so that the next representative can take office on January 1st, 1993. The following is the text of Article IV, Section 1 that must be changed; new text is shown in bold italicized type and deleted material is "stricken-out".

### Article IV.

Section 1. The officers, with the exception of the ASQC Statistical Task Group Representative, shall be elected at the annual meeting by the full and associate members of the chapter. The ASQC Statistical Task Group Representative shall be elected at the Task Group's annual meeting. The officers, with the exception of the Council Representative, shall serve one year, beginning July 1, or until their successors are elected and qualified. The Council Representative shall serve a ~~two~~ *three*-year term, *beginning January 1*. The Executive Committee shall fill any vacancy which may occur between the elections in any office, with the exceptions of Vice President-Biostatistical Programs and ASQC Statistical Task Group Representative. Vacancies in these offices shall be filled by election at any meeting of the Biostatistical Program or the ASQC Statistical Task Group.

The next change to the chapter charter is the addition of a dissolution clause. This is necessary to maintain the non-profit, tax-exempt status of both the local chapter and the national A. S. A. organizations. The text is in the form of a new article to be added to our charter; it reads:

### Article X:

In the event of dissolution of the San Francisco Bay Area Chapter, the officers shall, after paying or making provision for payment and discharge of all of the liabilities of the San Francisco Bay Area Chapter, distribute all of the remaining net assets of the San Francisco Bay Area Chapter to the American Statistical Association exclusively for charitable, scientific, literary, and educational purposes. The American Statistical Association is an exempt organization under Section 501(c)(3) of the Internal Revenue Code.

This text differs from that in the previous newsletter. The new version was recommended by the national A. S. A. and protects it against liabilities incurred by local chapters.

\*\*\*\*\*

### Board of Governors:

For the past year, members of the chapter have been discussing creation of a Board of Governors composed of past chapter officers. The discussions were to determine the level of interest in such an body and possible areas of activity. The conclusion reached was that more time and investigation will be needed before a Board of Governors can be successfully implemented. Further action on this idea has therefore been postponed.

\*\*\*\*\*



# The American Statistical Association

## San Francisco Bay Area Chapter

Since 1928

### CALENDAR

May 21, 1992, Thursday: David Whitford:  
"Research, Evaluation, & Experimental Program  
for the  
1990 Decennial Census"

May 28, 1992, Thursday: William Butler and Abe Silvers:  
"Multivariate Assessment of Environmental Health Risks"

### Announcements

\*\*\*\*\*  
The nominating committee for the 1992-93 slate of chapter officers is now at work. Its chairmen is Dr. Kelvin Lee. Any suggestions for candidates should be sent to the committee members at the following addresses:

Dr. Kelvin Lee  
515 Tiller Lane  
Redwood City, Ca. 94065

Mike Ardley  
352 Parkside Drive  
Palo Alto, Ca. 94306

Dr. Alvin Wiggins  
Division of Statistics  
University of California at Davis  
469 Kerr Hall  
Davis, Ca. 95616

\*\*\*\*\*

CO

OF CHAPTERS REP.  
Anthony D. Thrall  
(415) 855-2627

PRESIDENT  
Dean H. Fearn  
(510) 881 9160

PRESIDENT-ELECT  
Mike Tarter  
(510) 642 4601

VICE PRESIDENT  
GENERAL APPLICATIONS PROGRAMS  
Dave Kimble  
(510) 823-9017

VICE PRESIDENT  
BIOSTATISTICAL PROGRAMS  
Rose Ray  
(415) 688-7264

TREASURER  
Lenny Ayyanger  
(415) 323-1089

SECRETARY  
Loren Schoof  
(510) 823-9020

ASQC TASK GROUP REP.  
Fred Khorasani  
(408) 779-0035

ASQC STATISTICAL TASK GROUP  
Curtis Engelhard  
(408) 765-9325

## *General Applications Program*

Speaker: David Whitford  
Chief of the Research Coordination Branch  
U. S. Bureau of the Census

Topic: **“Research, Evaluation, & Experimental Program  
for the  
1990 Decennial Census”**

Place: Demography Group  
University of California Berkeley  
2232 Piedmont Ave.  
Berkeley, Ca.

Date: Thursday, May 21st, 1992  
Time: 3:30 p.m. Refreshments  
4:00 pm to 5:00 pm Talk

### **Abstract**

The Research, Evaluation, and Experimental (REX) Program encompasses all research and evaluation projects for the 1990 census. This includes statistical evaluations of the coverage of the census, the accuracy of its content, and analysis of the efficacy of our data collection and processing operations. The studies are presented in four parts:

- The Content Studies examine the quality and accuracy of census data. For instance, the Content Reinterview Study was a nationwide survey of 35,000 units measuring variance in responses to census questions when the same questions are asked a second time.
- The Coverage Studies examine the census undercount. Demographic analysis, research, and the Post-Enumeration Survey of 170,000 households are included in this section.
- The Collection and Processing Studies encompass results such as those from a survey evaluating our outreach efforts. This survey examined the knowledge, attitudes, and practices of people before and after they received their census questionnaire.
- The final section deals with our Coverage Improvement evaluations. These measure the improvement in the census due to each census operation. The cost effectiveness of these operations is also addressed.

The presentation will describe the elements of the program, comment on the experimental designs and surveys involved, and summarize any results attained so far.;

## *Biostatistics Programs*

Speakers: William Butler  
Failure Analysis Associates

Abe Silvers  
Electric Power Research Institute

Topic: "Multivariate Assessment of Environmental Health Risks"

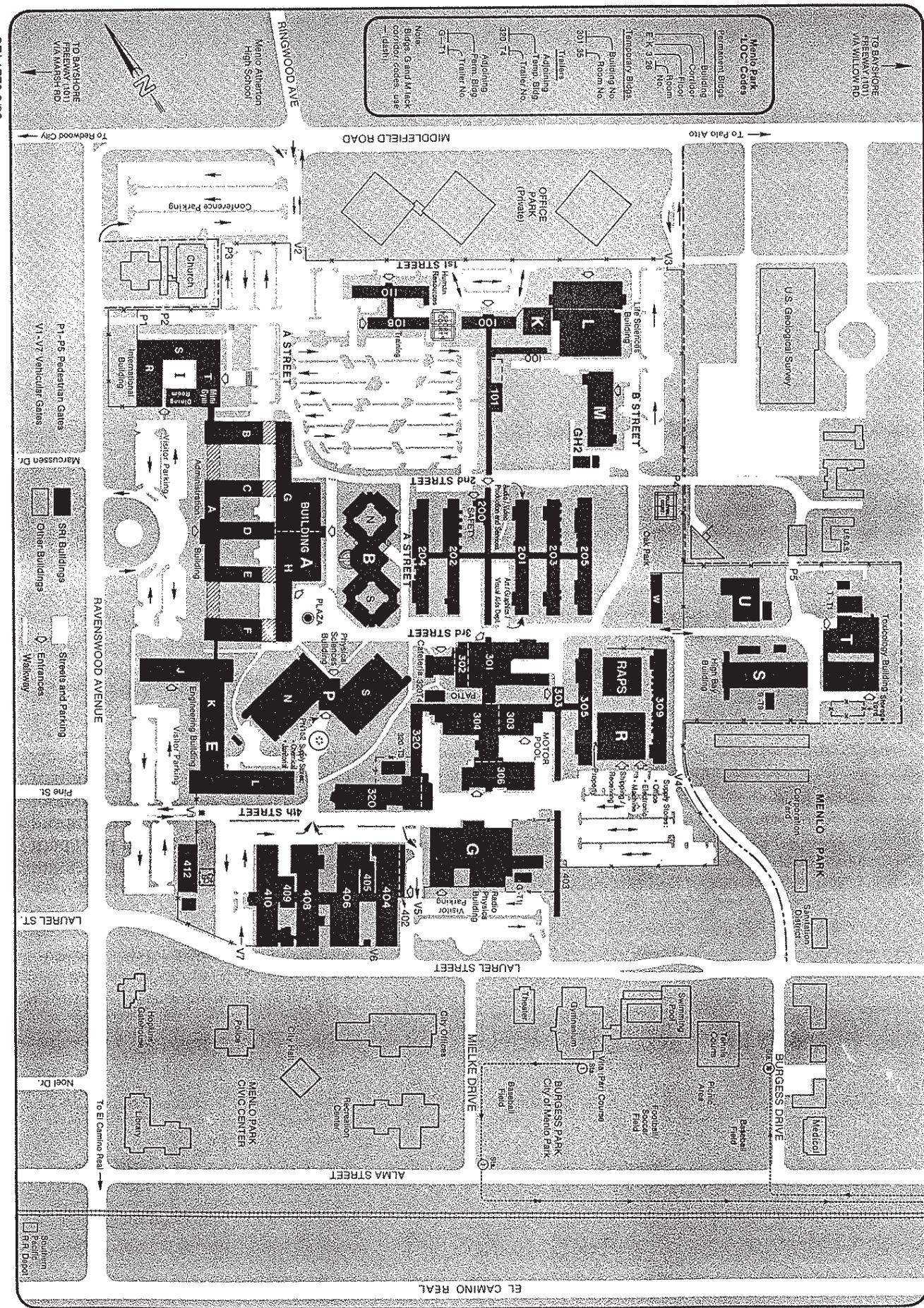
Place: SRI International  
333 Ravenswood Avenue  
Menlo Park, Ca.  
Room IS 109 (International Building)

Date: Thursday, May 28th, 1992  
Time: 3:30 pm Refreshments  
4:00 pm Talk  
(See Map on Other Side of Page)

### **Abstract**

Our talk presents a review of the application of multivariate statistical methods to epidemiologic data for the purpose of identification and assessment of environmental health risk. Emphasis is placed on the use and recent extension of standard statistical models (logistic regression, SIR, proportional Hazards model) to incorporate more of the available data in a single study; to combine information across studies; to avoid bias introduced by confounders and misclassification; and to accommodate complex sampling.

# SRI International HEADQUARTERS MAP



Annoumts  
(Continued)

\*\*\*\*\*  
As mentioned in the previous newsletter, here are the details on the chapter charter changes. The first one affects the term of the Council of Chapters Representative. A. S. A. National wants this to be three years starting in January. The changeover began at the last SF chapter annual meeting. At that time, the term of the current Council Rep, Tony Thrall, was extended through December 31st of this year so that the next representative can take office on January 1st, 1993. The following is the text of Article IV, Section 1 that must be changed; new text is shown in bold italicized type and deleted material is "stricken-out".

*Article Iv.*

Section 1. The officers, with the exception of the ASQC Statistical Task Group Representative, shall be elected at the annual meeting by the full and associate members of the chapter. The ASQC Statistical Task Group Representative shall be elected at the Task Group's annual meeting. The officers, with the exception of the Council Representative, shall serve one year, beginning July 1, or until their successors are elected and qualified. The Council Representative shall serve a ~~two~~ *three*-year term, *beginning January 1*. The Executive Committee shall fill any vacancy which may occur between the elections in any office, with the exceptions of Vice President-Biostatistical Programs and ASQC Statistical Task Group Representative. Vacancies in these offices shall be filled by election at any meeting of the Biostatistical Program or the ASQC Statistical Task Group.

The next change to the chapter charter is the addition of a dissolution clause. This is necessary to maintain the non-profit, tax-exempt status of both the local chapter and the national A. S. A. organizations. The text is in the form of a new article to be added to our charter; it reads:

*Article X:*

*Upon the dissolution of the chapter, assets shall be distributed to the AMERICAN STATISTICAL ASSOCIATION, 1429 Duke Street, Alexandria, Virginia, 22314, for one or more exempt purposes within the meaning of Section 501 (c) (3) of the Internal Revenue Code of 1954, or corresponding section of any future Federal tax codes.*

\*\*\*\*\*

## **Short Course Brochure Sent Out**

The chapter will be offering a short course titled *High Definition Data Analysis* through the University of California Berkeley Extension. The course will meet in San Francisco on June 25th and 26th. A brochure describing the course, fee, and application procedure was sent to all chapter members recently. If you have not received a brochure or would like additional copies, please contact either contact U. C. Berkeley Extension at (510)-642-3113; you can register by phone at (510)-642-4111. You can also contact the chapter Secretary:

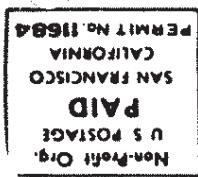
Loren Schoof  
570 Jefferson Drive  
Palo Alto, Ca. 94303  
(Work) (510)-823-9020  
(Home) (415)-329-1540.

Note: the price quoted in the previous newsletter was in error. The correct figure, as shown in the brochure, is \$595.

\*\*\*\*\*

## IMPORTANT: Short Course Structure Changed

The short course on *High Definition Data Analysis* has been restructured. The first day will cover the basic technical background and techniques. The second day will focus on working with student-supplied data sets and software installation. **You may now take the first day only for a price of \$250.** The full two-day session remains \$595. If you are interested, you can use the information on the brochure sent to you by U. C. Extension to register. You may also call U. C. Extension at (510)-642-4111. Register for course EDP: 309211 and priority code 588DS. Registrations must be in soon, as the course begins on June 25th.



American Statistical Association  
SAN FRANCISCO BAY AREA CHAPTER

570 Jefferson Drive  
Palo Alto, Ca. 94303





# The American Statistical Association

## San Francisco Bay Area Chapter

Since 1928

### Business Meeting

Date: Wednesday October 21, 1992

Time: 3:30 p.m. Refreshments  
4:00 - 5:00 p.m. Talk

Place: So. Sciences #205  
Cal State Hayward  
Hayward, CA 94542

Speaker: Raymond J. Brady  
Association of Bay Area Governments  
Research Director  
MetroCenter  
Oakland, California

Topic: The Bay Area In Transition

#### Abstract

"Recovery for the Bay Area economy is not just around the corner" states our speaker. Drawing upon research undertaken at ABAG, the speaker will present the present situation including mistakes that have been made, a realistic assessment of current sectors and jobs; and prospects for the Bay Area economy in the 1990s. Dr. Brady will provide a brief presentation of the ABAG modeling system before moving into discussion on the economy. If interest exists, he had agreed to provide an in-depth discussion at a future session.

COUNCIL OF CHAPTERS REP.  
Anthony D. Thrall  
(415) 855-2627

PRESIDENT  
Mike Tarter  
(510) 642 4601

PRESIDENT-ELECT  
David L. Kimble  
(510) 823-9017

VICE PRESIDENT  
GENERAL APPLICATIONS PROGRAMS  
Loren School  
(510) 823-9020

VICE PRESIDENT  
BIOSTATISTICAL PROGRAMS  
Rose Ray  
(415) 688-7264

TREASURER  
Lenny Ayyanger  
(415) 323-1089

SECRETARY  
Ronald G. Thomas  
(415) 493-5000 ext. 2181

ASQC TASK GROUP REP.  
Fred Khorasani  
(408) 779-0035

ASQC STATISTICAL TASK GROUP  
Curtis Engelhard  
(408) 765-9325

## **JOB OPPORTUNITIES**

**KOMAG, INC.**  
Dept. CH-11102  
275 South Hillview Drive  
Milpitas, CA 95035  
Telephone: (408) 946-2300  
Fax: (408) 946-1126

**Contact: Chris Hilton at (408) 946-2300 Ext. 7509**

\*\*\*\*\*

Komag, Incorporated develops, manufactures and markets sputtered thin-film metallic disks for use in high-capacity, high-performance Winchester disk drives. Komag is the largest independent supplier of these disks to independent disk drive manufacturers and computer system manufacturers which build their own disk drives.

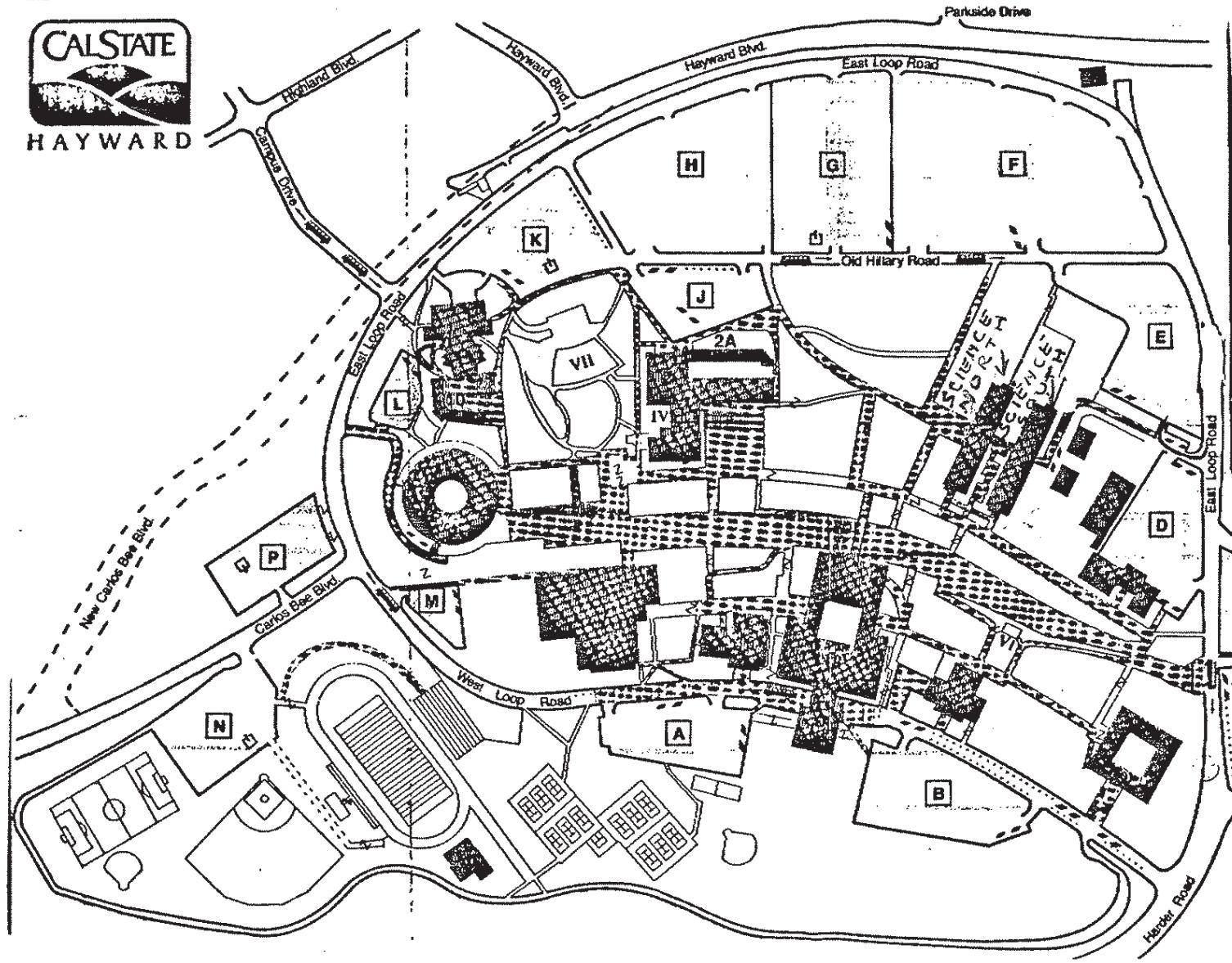
\*\*\*\*\*

### **STATISTICIAN**

Komag, the world leader in the manufacture of thin film hard disks for computer disk drives, is seeking an accomplished Statistician, preferably with a background in the disk drive industry or a related area.

You'll assist R&D and Manufacturing by conducting design of experiments; and act as an internal statistical consultant to all Komag groups. Additionally you'll conduct courses in SPC (control charts) and designed experiments (emphasis on design for manufacturability/robust design).

The ideal candidate will have a Master's in Statistics; 3-5 years of related experience; expertise with designed experiments, SPC, and Taguchi methods; and familiarity with Deming style transformation. You should be comfortable and experienced in teaching others, as well as possess strong communication skills.





# The American Statistical Association

## San Francisco Bay Area Chapter

Since 1928

December 1992

### Joint Biostatistics and General Applications Program

#### Panel Discussion & Annual Holiday Party

##### TOPIC

The San Francisco Bay Area Chapter of ASA: What is our Mission?

The SF Bay Area chapter of ASA is one of the largest local chapters with over 500 members. Our membership ranges from Sacramento to San Jose and includes both university and industrial statisticians. How can our local chapter serve this geographically and professionally diverse membership?

##### PANEL MEMBERS

Byron Brown

Professor and Head of the Division of Biostatistics

Jim Lanahan

Actuarial Technician

William N. Mercer

Terry Speed

Professor and Chairman, Department of Statistics

University of California, Berkeley

Raymond Wong

Chief Statistician

Pacific Gas and Electric Company

##### PLACE

University of California, Berkeley

Neyman Seminar Room, 100 Evans Hall

##### DATE

##### TIME

Wednesday, December 16, 1992

3:30 - 4:00 Coffee

4:00 - 5:00 Panel Discussion

##### HOLIDAY PARTY

Professor Michael Tarter will host the party at 2727 Benvenue in Berkeley. Directions will be given at the meeting. Please RSVP by leaving a message at (415) 688-7264

COUNCIL OF CHAPTERS REP.  
Anthony D. Thrall  
(415) 855-2627

PRESIDENT  
Mike Tarter  
(510) 642 4601

PRESIDENT-ELECT  
David L. Kimble  
(510) 823-9017

VICE PRESIDENT  
GENERAL APPLICATIONS PROGRAMS  
Loren Schoof  
(510) 823-9020

VICE PRESIDENT  
BIOSTATISTICAL PROGRAMS  
Rose Ray  
(415) 688-7264

TREASURER  
Lenny Ayyanger  
(415) 323-1089

SECRETARY  
Ronald G. Thomas  
(415) 493-5000 ext. 2181

ASQC TASK GROUP REP.  
Fred Khorasani  
(408) 779-0035

ASQC STATISTICAL TASK GROUP  
Curtis Engelhard  
(408) 765-9325

## **JOB OPPORTUNITIES**

**KOMAG, INC.**  
**Dept. CH-11102**  
**275 South Hillview Drive**  
**Milpitas, CA 95035**  
**Telephone: (408) 946-2300**  
**Fax: (408) 946-1126**

**Contact: Chris Hilton at (408) 946-2300 Ext. 7509**

\*\*\*\*\*

Komag, Incorporated develops, manufactures and markets sputtered thin-film metallic disks for use in high-capacity, high-performance Winchester disk drives. Komag is the largest independent supplier of these disks to independent disk drive manufacturers and computer system manufacturers which build their own disk drives.

\*\*\*\*\*

### **STATISTICIAN**

Komag, the world leader in the manufacture of thin film hard disks for computer disk drives, is seeking an accomplished Statistician, preferably with a background in the disk drive industry or a related area.

You'll assist R&D and Manufacturing by conducting design of experiments; and act as an internal statistical consultant to all Komag groups. Additionally you'll conduct courses in SPC (control charts) and designed experiments (emphasis on design for manufacturability/robust design).

The ideal candidate will have a Master's in Statistics; 3-5 years of related experience; expertise with designed experiments, SPC, and Taguchi methods; and familiarity with Deming style transformation. You should be comfortable and experienced in teaching others, as well as possess strong communication skills.