



# WSS NEWS

November 2007

WASHINGTON  
STATISTICAL  
SOCIETY

## Save the Date

December 11th 12:30-2:00pm

Book Signing at Reiter's Books

Jana Asher, David Banks, and Fritz Scheuren  
*Statistical Methods in Human Rights*

Food and beverages provided.

All three authors will be there: Reiter's Books, 1990 K Street NW, Washington DC

Sponsor: WSS Human Rights Section

Look forward to seeing you there

## WSS and Other Seminars

(All events are open to any interested persons)

November

7 Wed. **Cell Lines, Microarrays, Drugs and Disease: Trying to Predict Response to Chemotherapy**

28 Wed. **The Effects of Active Duty on the Income of Reservists and the Labor Market Participation of Spouses**

29 Thur. **Tests of Unit Roots in Time Series Data**

December

6 Thur. **Evaluating Continuous Training Programs Using the Generalized Propensity Score**

7 Fri. **Disparate Modes of Survey Data Collection**

Also available on the Web at the following URL: <http://www.scs.gmu.edu/~wss/>

## Announcement

### SIGSTAT Topics for Fall 2007

**November 21, 2007: Survival Models in SAS: PROC LIFETEST – Part 2**  
(<http://www.sas.com/apps/pubscat/bookdetails.jsp?pc=55233>)

Continuing the series of talks based on the book “Survival Analysis Using the SAS System: A Practical Guide” by Paul Allison, in November we’ll finish Chapter 3: Estimating and Comparing Survival Curves with PROC LIFETEST. Topics discussed are:

1. log-rank (Mantel-Haenszel.), Wilcoxon, and likelihood ratio tests for differences in survivor functions
2. the Life Table method for estimating the survival and hazard functions
3. testing for the effects of covariates

**December 19, 2007: Survival Models in SAS: PROC LIFEREG – Part 1**  
(<http://www.sas.com/apps/pubscat/bookdetails.jsp?pc=55233>)

Continuing the series of talks based on the book “Survival Analysis Using the SAS System: A Practical Guide” by Paul Allison, in November we’ll start Chapter 4: Estimating Parametric Regression Models with PROC LIFEREG. Topics discussed are:

1. the Accelerated Failure Time model
2. alternative distributions
3. categorical variables and the CLASS statement
4. maximum likelihood estimation
5. hypothesis tests

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**SIGSTAT** is the Special Interest Group in Statistics for the **CPCUG**, the Capital PC User Group, and **WINFORMS**, the Washington Institute for Operations Research Service and Management Science.

All meetings are in Room S3031, 1800 M St, NW from **12:00 to 1:00**. Enter the South Tower & take the elevator to the 3<sup>rd</sup> floor to check in at the guard’s desk.

First-time attendees should contact Charlie Hallahan, 202-694-5051, [hallahan@ers.usda.gov](mailto:hallahan@ers.usda.gov), and leave their name. Directions to the building & many links of statistical interest can be found at the **SIGSTAT** website, <http://www.cpcug.org/user/sigstat/>.

## Program Announcement

**Title:** Cell Lines, Microarrays, Drugs and Disease: Trying to Predict Response to Chemotherapy

**Speaker:** Keith Baggerly  
Bioinformatics and Computational Biology  
UT M. D. Anderson Cancer Center

**Date/time:** Wednesday, November 7, 2007 / 11a.m.-12noon

**Location:** Executive Plaza North  
Conference Room G  
6130 Executive Boulevard  
Rockville, MD

**Abstract:** Over the past few years, microarray experiments have supplied much information about the dysregulation of biological pathways associated with various types of cancer. Many studies focus on identifying subgroups of patients with particularly aggressive forms of disease, so that we know who to treat. A corresponding question is how to treat them. Given the treatment options available today, this means trying to predict which chemotherapeutic regimens will be most effective. We can try to predict response to chemo with microarrays by defining signatures of drug sensitivity. In establishing such signatures, we would really like to use samples from cell lines, as these can be (a) grown in abundance, (b) tested with the agents under controlled conditions, and (c) assayed without poisoning patients.

Recent studies have suggested how this approach might work using a widely-used panel of cell lines, the NCI60, to assemble the response signatures for several drugs. Unfortunately, ambiguities associated with analyzing the data have made these results difficult to reproduce. In this talk, we will discuss the steps involved in attacking response prediction, and describe how we have analyzed the data. We will cover some specific ambiguities we have encountered, and in some cases how these can be resolved. Finally, we will describe methods for making such analyses more reproducible, so that progress can be made more steadily.

For Additional Information contact Lisa Poe at the Office of Preventive Oncology  
cpfpcoordinator@mail.nih.gov  
(301) 496-8640

## Program Announcement

- Title:** The Effects of Active Duty on the Income of Reservists and the Labor Market Participation of Spouses
- Speaker:** Joshua Pinkston, Office of Employment and Unemployment Statistics, BLS
- Discussants:** Paul F. Hogan
- Chair:** Linda Atkinson, Economic Research Service, USDA
- Date/Time:** Wednesday, November 28, 2007 / 12:30 – 2:00 p.m.
- Location:** Bureau of Labor Statistics Conference Center. To be placed on the seminar attendance list at the Bureau of Labor Statistics you need to e-mail your name, affiliation, and seminar name to [wss\\_seminar@bls.gov](mailto:wss_seminar@bls.gov) (underscore after `wss`) by noon at least 2 days in advance of the seminar or call 202-691-7524 and leave a message. Bring a photo ID to the seminar. BLS is located at 2 Massachusetts Avenue, NE. Take the Red Line to Union Station.
- Sponsor:** WSS Economics Section
- Abstract:** Using data provided by the Department of Defense merged with Unemployment Insurance wage records, we first examine the effect of being called to active duty on the income of reservists and members of the National Guard. We examine how effects on reservists' income vary by income before being called to active duty as well as by the industry the reservists were employed in prior to active duty.

Furthermore, the data allow us to identify an unanticipated shock that entails both a short-run component (the effect on the reservist's income) and a long-run component in the form of increased risk of death or injury. We can then clearly identify the spouse's labor market response to this shock as well as the overall effect on family income.

In contrast to a traditional displaced worker problem, being called to active duty makes the reservists less available for household production than they were prior to being called up. If a reservist's income falls (or if expected lifetime income falls) the spouse's labor market participation may or may not increase. If a reservist's income rises when called to active duty (due to combat pay, etc.), the spouse's labor market participation will likely fall, unless the increase in income is balanced out by a lower expectation of future income. A reservist's income and the income of the reservist's family, therefore, will not necessarily move in the same direction when the reservist is called up.

### Note from the WSS NEWS Editor

Items for publication in the December issue of the WSS NEWS will be accepted until November 10, 2007. E-mail items to Michael Feil at [michael.feil@usda.gov](mailto:michael.feil@usda.gov).

## Program Announcement

- Title:** Tests of Unit Roots in Time Series Data
- Speaker:** Sastry Pantula, Head, Department of Statistics, North Carolina State University
- Chair:** Anne Polivka, Bureau of Labor Statistics
- Date/Time:** Thursday, November 29, 2007 / 12:30 – 2:00 p.m.
- Location:** Bureau of Labor Statistics Conference Center. To be placed on the seminar attendance list at the Bureau of Labor Statistics you need to e-mail your name, affiliation, and seminar name to [wss\\_seminar@bls.gov](mailto:wss_seminar@bls.gov) (underscore after `wss`) by noon at least 2 days in advance of the seminar or call 202-691-7524 and leave a message. Bring a photo ID to the seminar. BLS is located at 2 Massachusetts Avenue, NE. Take the Red Line to Union Station.
- Sponsor:** WSS Economics Section
- Abstract:** Unit root tests in time series analysis have received considerable attention since the seminal work of Dickey and Fuller (1976). In this talk, some of the existing unit root test criteria will be reviewed. Size, power and robustness to model misspecification of various unit root test criteria will be discussed. More recent work on unit root tests where the alternative hypothesis is a unit root process will be discussed. Tests for trend stationary versus difference stationary models will be discussed briefly. Current work on unit root test criteria on random coefficient models and seasonal series will also be discussed. Examples of unit root time series and future directions in unit root hypothesis testing will be presented.

## Program Announcement

- Title:** Evaluating Continuous Training Programs Using the Generalized Propensity Score
- Speaker:** Arne Uhlendorff, IZA Institute for the Study of Labor, Bonn
- Discussant:** Julia Lane, National Opinion Research Center at the University of Chicago
- Chair:** Linda Atkinson, Economic Research Service, USDA
- Date/Time:** Thursday, December 6, 2007 / 12:30 – 2:00 p.m.
- Location:** Bureau of Labor Statistics Conference Center. To be placed on the seminar attendance list at the Bureau of Labor Statistics you need to e-mail your name, affiliation, and seminar name to [wss\\_seminar@bls.gov](mailto:wss_seminar@bls.gov) (underscore after `wss`) by noon at least 2 days in advance of the seminar or call 202-691-7524 and leave a message. Bring a photo ID to the seminar. BLS is located at 2 Massachusetts Avenue, NE. Take the Red Line to Union Station.
- Sponsor:** WSS Economics Section
- Abstract:** This paper assesses the dynamics of treatment effects arising from variation in the duration of training. We use German administrative data that have the extraordinary feature that the amount of treatment varies continuously from 1 day to 720 days (i.e. 2 years). This feature allows us to estimate a continuous dose-response function that relates each value of the dose, i.e. days of training, to the individual post-treatment employment probability (the response). The dose-response function is estimated after adjusting for covariate imbalance using the generalized propensity score, a recently developed method for covariate adjustment under continuous treatment regimes. Our results indicate an increasing dose-response function for treatments of up to 360 days, and a similarly steady decline afterwards.

## Program Announcement

- Title:** Disparate Modes of Survey Data Collection
- Speaker:** Mark Pierzchala, Senior Fellow, Mathematica Policy Research, Inc.
- Discussant:** Brad Edwards, Vice President, Westat
- Chair:** Carl Pierchala, Mathematical Statistician, National Highway Traffic Safety Administration
- Date/Time:** Friday, December 7, 2007 / 12:30 - 2:00 p.m.
- Location:** Bureau of Labor Statistics Conference Center, Room 9. Bring a photo ID to the seminar. BLS is located at 2 Massachusetts Avenue, NE. Take the Red Line to Union Station.
- Sponsor:** WSS Data Collection Methods
- Abstract:** Multimode surveys are increasingly fielded in an effort to reduce costs, increase response rates, and accelerate data collection. However the essential survey-taking process of posing a question, formulating an answer, and communicating and recording a response occurs differently in each mode. For example in Web and paper modes the survey presentation is visual and the respondent is solely responsible for understanding the question and providing an answer. On the other hand, in CAPI and CATI modes, the survey presentation is aural and providing an answer involves an interviewer.

This seminar reviews the concept of disparate modes. Survey modes are disparate for a survey item when they result in a different optimal question form in each mode. The intrinsic aspects of each mode are reviewed for their influence on disparity taking into account the specific kinds of items the survey uses.

This presentation uses examples of multimode surveys conducted by Mathematica Policy Research, Inc. It reviews the methods used to investigate this topic, where and why disparity occurs, and how some kinds of items are more prone to disparate presentation across modes. It also notes that different question forms for an item across modes can be the result of the survey design and survey operations environment rather than due to intrinsic disparity. Much of this material was presented at the International Statistical Institute conference in August 2007 in Lisbon, Portugal.

## Announcement

### INTRODUCTION TO SURVEY SAMPLING

A two-day short course sponsored by the Joint Program in Survey Methodology

DECEMBER 13-14, 2007

Presented at the Hyatt Regency Bethesda, MD

COLM O'MUIRCHEARTAIGH

Senior Fellow, NORC and Professor, Harris School, University of Chicago

JAMES M. LEPKOWSKI

University of Michigan, Joint Program in Survey Methodology, University of Maryland

### COURSE OBJECTIVES

This is a foundation course in sample survey methods and principles.

The instructors will present, in a non-technical manner, basic sampling techniques such as simple random sampling, systematic sampling, stratification, and cluster sampling. The instructors will provide opportunities to implement sampling techniques in a series of exercises that accompany each topic. Group work is an integral part of the course. Participants will be allocated arbitrarily to four-person groups who will collaborate on the solution of course exercises. All participants must bring a calculator that includes at least a square root function in order to complete group exercises. Participants should not expect to obtain sufficient background in this course to master survey sampling, but they can expect to become familiar with basic techniques well enough to converse with sampling statisticians more easily about sample design.

### WHO SHOULD ATTEND

Individuals in government, universities, business, and nonprofit organizations interested in understanding survey sampling methods and applying them in practice. Introductory course work in statistical methods is strongly recommended. Participants should be familiar with descriptive statistics, the normal and binomial distributions, chance selection, expected values, standard error, and confidence intervals.

If you are uncertain whether you have adequate background, examine methods contained in *Statistics, 2nd Edition*, by Freedman, Pisani, Purves, and Adhikari (W.W. Norton & Company, New York, 1991), Chapters 3-6 and 13-16. Those wishing to have a brief introduction to some of the material in the course will find it useful to read Chapters 1-8 in the monograph *Introduction to Survey Sampling*, by Graham Kalton (Sage Publications, California, 1987).

### THE INSTRUCTORS

COLM O'MUIRCHEARTAIGH is Senior Fellow in the National Opinion Research Center and Professor in the Irving B. Harris Graduate School of Public Policy Studies, at the University of Chicago. He was formerly at the London School of Economics and Political Science (LSE), where he had been a faculty member in the Department of Statistics since 1971. He was the first director of The Methodology Institute, the LSE center for research and training in social science methodology. He selected his first national sample in 1968 (a probability sample of manufacturing establishments in Ireland). Together with Vijay Verma and Christopher Scott, he was responsible for the sample designs for the World Fertility Survey (1976-84), and was a member of the Sampling Advisory Group for the UK Office of Population Censuses and Surveys. He was Sampling Coordinator for two cross-national studies by the International Association for Educational Assessment (IEA) (1988-94 and 1997-2001) and for the OECD Network C cross-national study (1994-6). Since joining NORC in 1998, he has been responsible for the re-design of the national



sampling frame and the introduction and evaluation of list-based sampling for national and local probability samples of households. His research encompasses measurement errors in surveys, cognitive aspects of question wording, and latent variable models for nonresponse. He has served as a consultant to a wide range of public and commercial organizations, including the BBC World Service, AGB, British Household Panel Survey, and the U.S. Bureaus of Labor Statistics and the Census.

JAMES M. LEPKOWSKI is Research Professor at the Institute for Social Research, University of Michigan, where he directs the Michigan Program in Survey Methodology. He is Professor of Biostatistics at Michigan and Research Professor in the Joint Program in Survey Methodology at the University of Maryland. His research encompasses telephone sampling design, analysis of complex sample survey data, methods for compensating for missing data in surveys, and the behavior of interviewers and respondents in survey interviews. He has served as a consultant for public and private organizations, including the U.S. Bureaus of Labor Statistics and the Census, the National Center for Health Statistics, the Bureau of Justice Statistics, and the National Center for Education Statistics.

### CALCULATOR

Please bring a calculator to class. The calculator should include at least a square root function in order to complete the group exercises.

### TENTATIVE SCHEDULE

#### THURSDAY, DECEMBER 13, 2007

|               |   |
|---------------|---|
| 8:00 - 9:00   | Check-in and Continental Breakfast  |
| 9:00 - 10:00  | Background: Course introduction,<br>Simple random sampling methods<br>Exercise 1. The sampling distribution   |
| 10:00 - 10:15 | Coffee break  |
| 10:15 - 12:00 | Element sampling: A brief history of surveysampling<br>Estimation of population means and proportions<br>Sampling variance<br>Sample size determination<br>Exercise 2 |
| 12:00 - 1:00  | Lunch   |
| 1:00 - 2:45   | Element sampling: Systematic sampling<br>Exercise 3<br>Cluster sampling: Equal sized clusters   |
| 2:45 - 3:00   | Coffee break  |
| 3:00 - 5:00   | Cluster sampling (continued): Subsampling<br>Design effects and intracluster homogeneity<br>Exercise 4  |
| 5:00          | Adjourn   |

#### FRIDAY, DECEMBER 14, 2007

|               |  |
|---------------|--|
| 7:30 - 8:30   | Check-in and Continental Breakfast   |
| 8:30 - 10:00  | Cluster sampling (continued): Sampling unequal sized clusters<br>Probability proportionate to size selection<br>Exercise 5 |
| 10:00 - 10:15 | Coffee break   |
| 10:15 - 12:00 | Stratification: Purpose of stratification<br>Stratified sampling estimates<br>Determining sample allocation<br>Exercise 6  |
| 12:00 - 1:00  | Lunch  |
| 1:00 - 2:45   | Sampling problems: Frame problems  |

|             |  |
|-------------|--|
|             | Objective respondent selection                       |
|             | Weighting: unequal probabilities of selection        |
|             | Exercise 7   |
| 2:45 - 3:00 | Coffee break   |
| 3:00 - 4:30 | Sampling problems (continued):                       |
|             | Weights for unit non-response and poststratification |
|             | General issues in variance estimation                |
|             | Concluding exercises                                 |
| 4:30        | Adjourn  |

### COURSE MATERIALS

Registrants will be provided with a course pack containing course notes.

### MEALS

JPSM group continental breakfasts, lunches and refreshments are included in the course fee.

### SPONSOR AFFILIATE LIST:

<https://projects.isr.umich.edu/jpsm/sponsorlist.cfm>

### FEES

The registration fee for staff at sponsoring agencies and affiliates is \$600, \$600 for full-time university students, and \$810 for other participants. Payment by credit card is required. Post registration payment may be done online using the registration number or by calling (800) 937-9320. Payment is required by November 29, 2007.

### REGISTRATION

Online registration is required. Confirmation of acceptance will be sent after the registration form has been processed. Registration is not firm until you receive an acceptance email. The email will include directions to the course. The automatic web registration number is not an acceptance letter. Payment by credit card is required. Post registration payment may be done online using the web generated registration number or by calling (800) 937-9320. ***The registration deadline is November 29, 2007.***

### CANCELLATION

Please notify JPSM as soon as possible if you need to cancel your registration. Cancellation requests should be done online. You will be fully reimbursed if you cancel by November 29, 2007. Cancellation November 30-December 5, 2007 will require a \$100 administrative fee, the remainder will be reimbursed. Cancellation on or after December 6, 2007 is subject to the full fee amount.

### LOCATION

The course will be held at the Hyatt Regency Bethesda, One Bethesda Metro Center, at 7400 Wisconsin Avenue and Old Georgetown Road in Bethesda, Maryland. The hotel is in the heart of Maryland's high-tech corridor with convenient access to the Capital Beltway and the Metro subway system. The Hyatt is accessible via the Metro Red Line at the Bethesda Metro stop. For overnight room reservations, call the Hyatt Regency Bethesda at 301-657-1234. There is a parking garage located directly underneath the Hotel which offers both valet and self-parking.

The garage is not owned or operated by the Hyatt Regency.

<http://bethesda.hyatt.com/property/areaguide/maps/index.jhtml>

### FELLOWSHIPS

The Joint Program in Survey Methodology strives to increase the number of survey professionals from groups traditionally under-represented in the field. As part of the effort, a limited number of competitive fellowships are available for African-Americans, Hispanic Americans, Latinos, and Native American Indians for the short course. The registrant must be a US citizen or permanent resident.

Applicants should submit:

- (1) A 500-word essay describing their reasons for wanting to attend this short course, focusing on how their participation will enhance their chosen career path. The essay should indicate the applicant's background (i.e. African-American, Hispanic American, Latino, or Native American Indian).
- (2) A recommendation written by a person knowledgeable about the applicant's aptitude and interest in survey methodology.
- (3) The course online registration form.

If you are applying for a fellowship, please be certain to register early. Applications are due before November 15, 2007 JPSM will evaluate the applications and inform the successful applicants by November 22, 2007. The fellowship covers the registration fee for the course, including the cost of materials to be distributed during the course and the group lunch.

#### JPSM CITATION PROGRAMS

The citation programs are built around the JPSM short courses. The JPSM Citation in Introductory Survey Methodology is designed to provide the working professional and interested students with state-of-the-art knowledge about current principles and practices for conducting complex surveys combined with practical skills of day-to-day utility. The JPSM Citation in Introductory Economic Measurement is designed for professional staff requiring a grounding in the principles and practices of economic measurement. Completion of the citation programs involves taking a semester-length JPSM credit-bearing course and eight JPSM short courses, of which four are specified core courses. For information on the Certificate and Citation Programs visit the website at <http://www.jpsm.org> or call 301-314-7911.

#### INQUIRIES

Questions for this course should be directed to the JPSM Short Course, Institute for Social Research, University of Michigan, 426 Thompson Street, Room 4050, Ann Arbor, MI 48104-2321, Phone: (800) 937-9320, Fax: (734) 764-8263, Email: [jpsmshort@isr.umich.edu](mailto:jpsmshort@isr.umich.edu) .

JPSM HOME PAGE: <http://www.jpsm.org> Click on "Short Courses".

COURSE LISTS, REGISTRATION, PAYMENT AND CANCELLATION:

<http://projects.isr.umich.edu/jpsm/>

SPONSOR AFFILIATE LIST:

<https://projects.isr.umich.edu/jpsm/sponsorlist.cfm>

Primary Funding for JPSM is from the Interagency Council.

## Students' Corner

This past October 13, I attended the 3rd Annual Shenandoah Undergraduate Mathematics and Statistics (SUMS) conference, a one-day conference promoting undergraduate research in mathematics, statistics, and their applications. It was held at James Madison University, and featured contributed research talks by undergraduate students, poster sessions with prizes.

There were also invited addresses by Dr. Ann Trenk of Wellesley College and Dr. Michael Krebs of California State University, Los Angeles. Both of these talks were delivered in a lively, informal manner, at a level appropriate for students. Dr. Trenk gave a talk on graph theory, while Dr. Krebs discussed some of the mathematics sudoku puzzles. (Interestingly, Dr. Krebs used some of the graph theory methods that Dr. Trenk had earlier discussed.) If only all technical talks were so fun! And the student presentations were surprisingly sophisticated. It was reassuring to see the students dealing with difficult topics with skill and verve.

I was of course especially interested in the statistical presentations, and I note that out of 28 talks, only four were statistical in nature, the rest being mathematical presentations. Similarly, out of about 32 posters, only about four were about statistics. The conference organizers would very much like to increase the representation of statistical presentations next year. So, if you are an undergraduate student, consider presenting a talk or poster on a statistical topic at next year's SUMS conference. Or, if you teach undergraduate students, please encourage them to attend and perhaps present at SUMS. With free registration, a complimentary lunch, and some travel support, this is an excellent opportunity for undergraduate students to show off their knowledge. If you're interested, I would suggest checking the SUMS website sometime around August 2008, to obtain early information on the conference. The website is:  
<http://www.math.jmu.edu/~brownet/SUMS>

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Mu Sigma Rho is a national honor society for students of statistics, both undergraduate and graduate. If you are a good student, you may be eligible to join. See this web page for eligibility requirements:  
<http://www.stat.sc.edu/~edwards/msr.membership.reqs.html>

The main page for Mu Sigma Rho is here:  
<http://www.stat.sc.edu/msrnatl.html>

If you are eligible to join the society and you are enrolled in a program in the greater Baltimore-Washington metropolitan area, the Washington Statistical Society will cover your initiation fee for the Mu Sigma Rho society. Contact me at [jmm97@georgetown.edu](mailto:jmm97@georgetown.edu) for further information.

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Earlier this month I received an email from Dr. Dale Atkinson of the Research and Development Division of the National Agricultural Statistics Service in USDA, asking me to circulate a job offer. His group would like to recruit new mathematical statisticians into the agency this year, and in particular are interested in hiring several masters-level people into their Research and Development Division in Fairfax, Virginia. There are also on-going opportunities to start in one of their 45 Field Offices around the country, which is very attractive to some students. You can find the flyer here:  
[http://bist.pbwiki.com/f/Math\\_Stat\\_Recruitment\\_Flyer.pdf](http://bist.pbwiki.com/f/Math_Stat_Recruitment_Flyer.pdf)

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Dr. Carol Blumberg of the Department of Energy recently made available to me her list of contacts for possible internships and jobs. You can find it here: <http://bist.pbwiki.com/f/contactpublic.pdf>

Some of these contacts may be obsolete, but there are many possibilities here. We hope that if you're looking for ideas for internships or jobs, you might mine this extensive list for useful leads.

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Last month, I presented B.'s problem, which involved an extension of the Gaussian log-likelihood function to time-series analysis. Yang's solution to B.'s problem can be found here: <http://bist.pbwiki.com/f/solution0001.pdf>

My friend, Steven J. Fromm of Bethesda, MD, came up with essentially the same solution, and noted that it amounts to completing the square. (Exponents sum when terms are multiplied; the completion of the square is performed on the exponents.)

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J.P. is a graduate student in the Interdisciplinary Neuroscience Program at Georgetown University, and recently threw a methods question at me. He is developing an experiment that will examine brain activations associated with keyboard typing, and wants to compare typists of two different skill levels: a high-skill group and a low-skill group. Previous studies have determined that one can discern dissociable performance effects between groups of typists if and only if there is least a 30 word-per-minute (WPM) difference between them, and the standard deviation does not exceed 30 WPM. E.g. one group may have a mean of 55 WPM and the other may have a mean of 85. Note that J.P.'s experimental measurement is not WPM, but brain activity as measured by brain scans. He intends to maximize differences in brain activity between two groups by manipulating the skill levels of the two groups.

So, J.P.'s question is, is there a way to optimally select subjects based on their WPM rate such that after the collection of 32 subjects there are 16 subjects in each group, where there is at least a 30 WPM mean difference between the groups and a maximum of 30 WPM standard deviation within each group? Is it possible to design an algorithm which takes as input the WPM of each subject as they are collected, and then suggests the best WPM for the next subject or set of subjects? For example, after collecting 15 subjects the algorithm might suggest that the next subject or set of subjects collected should have a WPM of 75 or less.

The problem is that the variance of the WPM's of the student population is unknown, at least at the outset. Would it be best to first obtain measurements on 16 subjects, use this as an estimate of the population variance, and then collect the next 16 subjects by weighting towards the upper and lower bounds of the original 16? Or could subject recruitment be performed continuously as data is acquired, use the spread of WPM's acquired thus far to estimate the population variance? From this estimate, perhaps incoming subject selection could be skewed to the highest or lowest 1/3 WPM of the sample acquired thus far.

Or perhaps J.P. should simply ask only people who consider themselves either very good typists or very poor typists to participate.

The problem seems to me to be similar to problems in early clinical trials where one develops algorithms to terminate a study early if too many subjects are experiencing serious adverse effects. Perhaps a Bayesian approach may be applicable, or perhaps a method based on Markov Chains. What do you think?

If you would like to offer some ideas on J.P.'s Problem, join the discussion at: <http://groups.google.com/group/jps-problem/topics>

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The latest issue of STATS magazine arrived in my mailbox last week. The cover story is about optimizing a paper helicopter! Let me take this opportunity to again recommend, if you're a student of statistics, that you obtain student membership in the ASA, if you haven't already, if only just to receive this magazine. Join online here:

<https://www.amstat.org/membership/index.cfm?fuseaction=onlineapp>

Scroll down to the section entitled "STUDENT". It's only \$10!

Also consider student membership in the local chapter of the ASA, the Washington Statistical Society. You can join online at: <http://wss.scs.gmu.edu/~wss/join.html>.

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That's all for this month. If you have any feedback on this column or ideas for future topics, please email me at [jmm97@georgetown.edu](mailto:jmm97@georgetown.edu). Your thoughts will be greatly appreciated.

Joe Maisog

Georgetown University / Medical Numerics

## Announcement

The Department of Statistics, George Mason University (website <http://statistics.gmu.edu>) is accepting applications for its masters and doctoral programs for Fall 2008. The Department also announces the following graduate course offerings in Spring 2008. All graduate courses require 3 semesters of calculus.

|          |  |                               |
|----------|--|-------------------------------|
| STAT 544 | W 4:30-7:10 p.m.                         | Prof Bell                     |
|          | Applied Probability                      | Prereq: STAT 344              |
| STAT 554 | R 7:20-10:00 p.m..                       | Prof. Sutton                  |
|          | Applied Statistics                       | Prereq: STAT 344              |
| STAT 652 | T 7:20-10:00 p.m.                        | Prof. Diao                    |
|          | Statistical Inference                    | Prereq: STAT 544              |
| STAT 655 | Th 7:20-10:00 p.m.                       | Prof. Miller                  |
|          | Analysis of Variance                     | Prereq: STAT 554 and SAS      |
| STAT 660 | Th 4:30-7:10 p.m.                        | Prof. Tang                    |
|          | Biostatistical Methods                   | Prereq: STAT 535 or 554       |
| STAT 674 | Th 7:20-10:00 p.m.                       | Dr. Jang                      |
|          | Survey Sampling II                       | Prereq: STAT 554, 574 and SAS |
| STAT 789 | M 7:20-10:00 p.m.                        | Prof. Habib                   |
|          | Computational Intelligence               | Prereq: STAT 554              |
| STAT 875 | W 4:30-7:20 p.m.                         | Prof. Carr                    |
|          | Scientific and Statistical Visualization | Prereq: STAT 654              |
| STAT 971 | W 4:30-7:10 p.m.                         | Prof. Rosenberger             |
|          | Probability Theory                       | Prereq: MATH 315, STAT544     |
| STAT 973 | M 4:30-7:10 p.m.                         | Prof. Gentle                  |
|          | Mathematical Statistics II               | Prereq: STAT 972              |

## Employment

As a service to local statisticians, *WSS News* provides notification of employment opportunities and description of those seeking employment here in the Washington, DC, area. Readers are encouraged to take advantage of this feature of the newsletter. The deadline for inserting notices is five (5) weeks before the publication date. Those interested should email or call Anne Peterson, at [apeterson@insightpolicyresearch.com](mailto:apeterson@insightpolicyresearch.com) or (703) 373-6645.

### **CLINICAL TRIAL BIOSTATISTICIANS M.S. and Ph.D. Level Positions**

With an opportunity for substantial leadership responsibility in studies of international public health import.

The Biostatistics Center of The George Washington University, founded in 1972, is a leader in the statistical coordination of clinical trials conducted by the National Institutes of Health. We enjoy over \$45 million per year of NIH research funding for major studies in cardiovascular disease, diabetes, maternal/fetal medicine, osteoporosis, urology, and the genetic basis for various diseases. The center has a staff of over 100 with 27 biostatisticians/epidemiologists, including 10 faculty. We are recruiting M.S. and Ph.D. level staff to participate in these and future studies. Please visit our web site (below).

**Master's Level Research Positions:** These positions require a Master's in Biostatistics or Statistics and 1-5 years experience in analysis, supervision of data management and study design for biomedical applications. Good written and oral communication skills, and detailed knowledge of SAS required. Send CV to address below.

**Assistant to Full Research Professorial Positions** are available immediately to serve as Co-Investigator or Principal Investigator (Project Director) and to provide statistical direction of the design, conduct and analysis of studies and the conduct of methodologic research to meet the projects needs. We are seeking individuals who want to join a highly competent team of academic biostatisticians and epidemiologists; who desire to contribute to the design and analysis of major medical studies, seek substantive scientific and statistical responsibility, enjoy interacting with medical investigators; take pride contributing to the publication of major papers in leading medical journals, and desire to make an impact on the public health. Our faculty also participate in graduate programs in biostatistics, epidemiology and statistics which afford opportunities for teaching at the graduate level. The research projects also provide an environment rich in methodological problems, with opportunities for collaboration with research active Center faculty and graduate students.

**Minimum Position Requirements:** Doctorate in Biostatistics, Statistics or Epidemiology, or alternatively an M.D. or Ph.D. in Biological Science, Physical Science or Computer Science with a Masters in Biostatistics or Statistics, 1-5 years' experience with clinical trials, especially study design and statistical analysis of study results using SAS, excellent oral and written English communication skills, and supervisory experience.

**Application Procedures:** Applicants must send a Curriculum Vitae and three letters of reference; a letter to include a synopsis of their role in collaborative medical research that has led to medical scientific presentation or publication and a statement of career purpose indicating their career goals and how this position can help you achieve those goals; and applicants for Assistant Research Professor positions must send an Official Transcript of graduate coursework leading to the doctoral degree to: Sarah Fowler, Research Professor and Director, The George Washington University Biostatistics Center, 6110 Executive Blvd., Suite 750, Rockville, MD 20852.



HTTP://WWW.BSC.GWU.EDU

Review of applications is ongoing until the positions are filled. Rank/position title and salary commensurate with experience and qualifications. Tuition benefits for employees (including Ph.D. in Statistics, Biostatistics and Epidemiology) and for spouse and dependent children.

All research and regular faculty at the rank of Assistant Professor in Biostatistics or Statistics may apply for the Samuel W. Greenhouse Biostatistics Research Enhancement Award. For a period of 1 year, the award will provide 20% effort for methodological research and a discretionary fund to support professional activities, travel to professional meetings, supplies and equipment. Applicants for the research faculty position may also apply for the Greenhouse Award while their faculty application is being considered. For complete information including Award Application Materials Requirements, please visit our website at: [www.bsc.gwu.edu](http://www.bsc.gwu.edu).

The George Washington University is an Equal Opportunity/Affirmative Action employer

### **Survey Sampling Statistician**

#### **WESTAT: AN EMPLOYEE-OWNED RESEARCH CORPORATION**

Westat is an employee-owned corporation headquartered in the suburbs of Washington, DC (Rockville, Maryland). We provide statistical consulting and survey research to the agencies of the U.S. Government and to a broad range of business and institutional clients. With a strong technical and managerial staff and a long record of quality research, Westat has become one of the leading survey research and statistical consulting organizations in the United States.

Our company was founded in 1961 by three statisticians. The current staff of more than 1,800 includes over 60 statisticians, as well as research, technical, and administrative staff. In addition, our professional staff is supported by data collection and processing personnel situated locally and in field sites around the country. The work atmosphere is open, progressive, and highly conducive to professional growth.

Our statistical efforts continue to expand in areas such as the environment, energy, health, education, and human resources. Westat statisticians are actively involved in teaching graduate-level courses in statistical methods and survey methodology in collaborative arrangements with area colleges and universities.

We are currently recruiting for the following statistical position:

Survey Sampling Statistician (Job Code WSS/DRM/7001)

Three or more years of relevant experience in sample design and selection, frames development, weighting, imputation, and variance estimation. Must have a master's or doctoral degree in statistics and have excellent writing skills. Coursework in sample survey design is highly desirable.

Westat offers excellent growth opportunities and an outstanding benefits package including life and health insurance, an Employee Stock Ownership Plan (ESOP), a 401(k) plan, flexible spending accounts, professional development, and tuition assistance. For immediate consideration, please send your cover letter, indicating the Westat Job Code, and resume by one of the following methods to:

Job Code is REQUIRED to apply.

Westat • Attn: Resume System • 1650 Research Boulevard • Rockville, MD 20850-3195

Email: [resume@westat.com](mailto:resume@westat.com) • FAX: (888) 201-1452

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## Senior Researcher

**Position:** Senior Researcher, A08

**Division:** Applied Research Center

**Location:** Washington, DC

### About IFES:

IFES is an international, nonprofit organization that supports the building of democratic societies. IFES provides targeted technical assistance to strengthen transitional democracies. Founded in 1987 as a nonpartisan, nonprofit organization, IFES has developed and implemented comprehensive, collaborative democracy solutions in more than 120 countries.

### Position Description:

This position represents the mid-career level professional classification in the Programs Job Family.

### Responsibilities:

- Management of research functions, with a particular focus on opinion research projects.
- Developing relationships with programmatic staff to design resource efficient research designs to further programmatic objectives.
- Working with program staff to develop research initiatives in opinion research and elections-related field for bilateral and multilateral funding agencies; writing and budgeting of project proposals.
- Management of a small team of mid-level and junior researchers.
- Designing survey and focus group projects including sample design and questionnaire construction.
- Selection and oversight of local contractors and consultants.
- Providing technical oversight, direction, and quality control of research activities including in-country training and monitoring.
- Quantitative data analysis and writing of analytical reports.
- Oral communication of research results to a variety of audiences.

### Qualifications:

- PhD with more than 4 years experience or Masters degree with more than 6 years experience in conducting survey research in an international setting. Experience in international development or related field a plus.
- Experience with management of all aspects of survey research projects.
- Data analysis skills.
- Proficiency in SPSS or related program.
- Experience with conflict resolution programming or analysis of conflicts a plus.
- Experience with research in elections management field a plus.
- Foreign Language skills a plus.
- Proficient with Microsoft Excel, PowerPoint and Word.

### Successful candidate will be able to demonstrate the following attributes:

- Skilled communicator, both verbally and in writing.
- Exacting attention to detail and highly organized.
- Collaborative, team oriented individual.
- Strong supervisory skills and abilities.
- Ability to give general direction to staff, prioritize, and handle multiple tasks under tight deadlines.

### Applying:

Applications will be accepted online only, through the IFES website. To apply visit our careers website at <http://www.ifes.org/careers.html>. Then follow the instructions on how to upload your

resume and answer prescreening questions. A cover letter is welcome and can be placed in the applicant notes section.

EEO/V/D/M/F  
#72-07

## **Chief Research Advisor Children's Defense Fund**

### **Mission Statement**

The mission of the Children's Defense Fund is to Leave No Child Behind and to ensure every child a Healthy Start, a Head Start, a Fair Start, a Safe Start and a Moral Start in life and successful passage to adulthood with the help of caring families and communities. CDF provides a strong, effective voice for all the children of America who cannot vote, lobby or speak for themselves. We pay particular attention to the needs of poor and minority children and those with disabilities. CDF educates the nation about the needs of children and encourages preventive investment before children get sick or into trouble, drop out of school, or suffer family breakdown.

### **Position Summary**

The Children's Defense Fund has an opening for a Chief Research Advisor. This Chief Research Advisor is the veritable intellectual anchor of CDF's work, having primary responsibility for all of its research activities and statistical analyses. This includes its ongoing, year-to-year data processing and analysis of data provided to CDF as a recognized US Census Bureau Center of Excellence on research on children. As an integral member of the Policy Group management team, the Chief Research Advisor reports directly to the Vice President of Policy but also importantly serves as a technical resource for CDF overall, including its President.

The research and analyses conducted and findings disseminated directly by the Research Division that he leads support the policy, legislative, and coalition-based activities not only of the Policy Group but also, more broadly, the work of the CDF national and state offices. A core function is ensuring all staff timely access to the most current research and data on the well-being of children and their families, as measured by key indicators relating to poverty, health, early childhood care and development, education, child welfare and mental health, juvenile justice and gun violence, among others. To meet this function requires both conduct of primary research and analysis as well as synthesis of data and information generated by other entities.

The Chief Research Advisor directly supervises a Senior Research Specialist. His/Her crucial role within the organization, however, extends far beyond the Research Division given his/her core responsibility for training, mentoring and guiding the work of researchers assigned directly to the diverse Divisions of the Policy Group. All research and statistical analysis is carried out in close coordination with these other Policy Divisions including Child Health, Child Welfare and Mental Health, Education and Early Childhood Care and Development, and the Cradle to Prison Pipeline Initiative--all of which are working together to ensure that CDF's mission and goals are translated into concrete child and family policies, programs and outcomes. He/She also collaborates closely with other CDF Departments at the national level and its state offices.

### **Core Responsibilities:**

- Represent CDF at selected high level meetings of child and family researchers and statisticians; and serve as its official liaison to the US Census Bureau and other US federal and state government agencies that generate data on children and youth, e.g. National Center for Health Statistics, National Center for Education Statistics as well as other researchers/research groups within the child and family advocacy and related communities

- Oversee the activities of research staff within his own and other CDF divisions, to include formulation of the research and analysis protocols and methodologies to be followed by CDF staff in their conduct of all research and statistical work to ensure its timeliness, high quality and validity and efficient production
- Directly carry out core research and analyses and provide key statistical data needed for CDF preparation of major publications and communications, including reports, speeches, testimony, press releases; and review all major documents and publications prepared by others to ensure the accuracy of statistical data and research presented and to identify any potential risks associated with CDF use of specific data or information
- Coordinate inputs and oversee final production of major CDF products that encompass cross-thematic areas and, relatedly, draw from multiple data sources to, thus, ensure consistency and full documentation of all data used and the coherence of its presentation, such as CDF's "Moments" and Children in the States Report.
- Provide advice to senior management on the most cost-effective methods of presenting data to the public to facilitate the regular flow of information that is factual and easily understood by non-researchers, while at the same time, ensuring all CDF-released statistical data and research can withstand close scrutiny by other professional statisticians.
- Systematically identify and disseminate to CDF staff information on key sources of federal, state and local research and data of immediate and direct relevance and value to CDF's mission and, as appropriate, prepare syntheses of such data
- Serve as CDF historian in terms of compiling and maintaining a chronology of core documents reflecting the principal children's programs and issues on which it is focusing within specific time periods

**Qualifications:**

The incumbent should have:

- At least a Master's degree and preferably a PhD in statistics, economics, operations research or a related discipline
- 10 to 15 years of relevant work experience, to include successively more senior policy research and analysis positions
- Excellent research and analytical skills, and ability to synthesize extensive information and data into succinct, clear reports, briefs, etc
- Strong communication skills, consistent with the key advisory and liaison responsibilities of this position
- A proven track record of working well within teams both within and outside his own organization; and of effectively mentoring and developing the professional skills of more junior staff
- An ability to take initiative, set priorities, efficiently and effectively organize work, respond to an often rapidly evolving work program, and manage multiple tasks simultaneously.
- A demonstrated strong interest in and commitment to improving the well-being of children, youth and their families.

Salary commensurate with qualifications and experience.

Please apply online at:  
[www.childrensdefense.org](http://www.childrensdefense.org)

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