

## SILVER STATE-ISTICS



**NEVADA Chapter of American Statistical Association** 

Nevada Chapter News Letter

Vol. 4 No. 1-2

### Dear Nevada ASA Members and Friends,

Read on for information on what our Chapter has been up to and what we are planning for the future. Please keep an eye on our website for more details on future events.

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## & Future Events &

Be on the lookout for announcements of future NV-ASA events:

- Sixth Annual meeting in Reno, mid-October, in conjunction with a Career Day aimed at college students and high school AP students.
- Symposium in Las Vegas, early November.
- Fall Kick-off meeting at UNLV come meet the new Statistics faculty.
- International Science and Engineering Fair, Reno, May 2009.
- And more, including ...
- Elections

### Message from the President জ্ঞুচন্ড্ৰুড়্ড্ৰড়্ড্ৰুড়্ড্ৰ

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Charles B. Davis

The NV-ASA is reaching a turning point. 2007 is its sixth year of existence, and it has done some amazing things in terms of number and variety of activities for the benefit of its members and for the promotion of statistical practice, the latter particularly through conducting the annual K-12 Poster Competition. As stated elsewhere, it is pretty remarkable that so much has occurred in such a geographically spread-out chapter as ours, as recorded in the "Past Events" section of our website.

There is a challenge before us, though. Some of our most dedicated volunteers have been serving in their positions continuously for many years, most notably Treasurer Paul Nakayu and Chapter Representative Hokwon Cho, who have served diligently and faithfully for all six years. It's time to give these folks (and others who have contributed almost as much) a rest, which they will welcome.

So a call will go out in the next few weeks for nominations for various positions, for terms beginning January 2008. The open positions are Chapter Representative (3-year term), Northern Vice President (2-year term), Treasurer (3-year term, to get back on the schedule specified in our Constitution), Secretary (2-year term), and President (2-year term). Only the Southern Vice President's term does not expire this year! By our Constitution, the President cannot be re-elected; rather, the President automatically becomes Past President and remains on the Executive Committee for the next two years.

So when you get the call to volunteer, or to nominate someone who you know is interested and capable, please respond promptly and enthusiastically. ❖

# Pre-Legislative Session Stats Luncheon in Carson City

A New Year's pizza lunch celebration was held in Carson City January 12, at the Nevada Department of Corrections (NDOC) Stewart Facility. Alicia Hansen, our Northern Vice-President, introduced the Chapter to eleven participants. Speakers were invited to discuss how they use statistics during legislative sessions.

Bill Anderson. Chief Economist for the Department of Employment, Training and Rehabilitation (DETR), explained how he analyzes employment statistics along with other economic indicators to determine the health of the economy in Nevada. The Research and Analysis Bureau within DETR maintains data on employment and wages, local area unemployment statistics, layoffs, the unemployment trust fund, etc. The bureau also performs occupational/workforce projections. Bill indicated that Nevada's economy has been very stable and unemployment rates have been fairly healthy relative to other states (and lower than the national average) and have not been negatively impacted by the housing slump. All of this information is applicable during legislative sessions given that policy changes can affect given sectors of the economy.

Alejandra Livingston, NV-ASA Secretary Economist III with NDOC, discussed two main applications of statistics during legislative sessions. Alejandra monitors all requests for fiscal notes for Bill Draft Requests (BDRs). Chapter 218.272 of NRS provides requirements on Fiscal Notes dictating that any change in legislation that could have a possible fiscal impact in cost of \$2,000 or more must be reported, and also when a bill or resolution provides for a term of imprisonment in the state prison. Alejandra derives projections by conducting a thorough analysis of the proposed law and researching the inmate population characteristics. Another application of statistics is the development of long-term capital improvement projects for the correctional system. This legislative session is expected to bring a number of bills in regards to laws intended prevent the manufacturing to methamphetamines, and sentence enhancements related to possession and trafficking thereof. Another application of statistics is the development of long-term capital improvement projects for the correctional system. An inmate population forecast is applied to a simulation model to derive the need for future physical capacity and prison planning. The prison population is expected to increase at an average rate of 5% per year which will require significant construction projects. The legislature must approve these plans which eventually are used to prepare budget proposals for the department.

Unfortunately, Northern Nevada was hit with the big snowstorm at the time, limiting participation to those in the immediate Carson City area. Nonetheless, the participants and NV-ASA are exited about this event, and hope to conduct similar events in the future. Our thanks go to Alejandra and Alicia for organizing this event and to the speakers for their unselfish participation.

# Spring Dinner Meeting in LV – Environmental Geostatistics

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Evan Englund, PhD, of the U.S. EPA's National Exposure Research Laboratory in Las Vegas, presented "Environmental Geostatistics – Geo-EAS and Beyond" May 7 at Marie Callender's in Las Vegas. Evan's background before joining the EPA was in mining geostatistics. At the EPA he was instrumental in the development of the venerable Geo-EAS statistical program in the late 1980s (in MS-DOS – remember that?) that made geostatistical analysis capabilities affordable for many of us and also, particularly, for people in Federal and State regulatory agencies. Evan is a recipient of the Distinguished Achievement Medal from the National ASA Section on Statistics and the Environment.

Evan described the origin and development of Geo-EAS (he characterized his remarks as a "brief, unexpurgated history"). He then went on to present some thoughts on the applicability of the basic geostatistical model (the regionalized random variable) as a conceptual framework for understanding spatial variation in the environment. He presented examples and discussion involving the use of such analyses in evaluating clean-up attainment at remediation sites.

Critical to the understanding of environmental spatial variation in soil (as opposed to water or air, where significant mixing and homogenization occur) is the particulate or even fractal nature of the constituents of concern. Evan illustrated this first with photos of ore deposits, in which the materials of commercial interest occupy a very small portion of the surrounding matrix. In this setting one must deal with highly skewed distributions of measurements made on heterogeneous materials; the geostatistical analyses allow one to do so, taking into account inherent spatial autocorrelations. There is one saving factor in mining – one is interested in estimating the mean (and its uncertainty), for the mean completely describes the commercial potential of a prospective ore deposit.

Applying these concepts to the evaluation of contaminated sites and clean-up strategies involves a

significant difference in approach from that appropriate in the mining scenario. If one is interested only in the mean concentration of a toxic contaminant, and thereby ignores the spatial variation, one might be tempted to average over large areas, implicitly employing the "dilution is the solution to pollution" strategy that is anathema to the EPA. On the other hand, if one insists on looking at very small bits of soil, one must deal with the inescapable heterogeneity of the materials involved. (In the limit, a single molecule of a toxic substance is 100% toxic.)

Hence, in environmental geostatistics related to clean-up one must in, an appropriate and politically acceptable way, decide on the "support" of the project – just how big an area or volume is involved in any individual decision unit. Evan presented these ideas, which lead to lively discussion. He argued that once a decision unit is specified, one can rarely justify doing other than talk about the mean for that decision unit, since the mean is in principle unaffected by heterogeneities of scale, whereas other metrics (such as upper percentiles) depend highly on the sampling unit. This is contrary to some attitudes, policies and perhaps even regulations, which seem to want to ensure that "all" of an affected area should be below a regulatory threshold after clean-up or before deciding that no further action is required.

Our thanks go to Evan Englund for his highly informative and entertaining discussion, and to Andy Chance, Southern VP of NV-ASA, for organizing the event. ♥

# NV-ASA ís Fíve Years Old!

The Nevada Chapter of the American Statistical Association (NV-ASA) held its first Kick-Off meeting May 3, 2002, in the Bamboo Room of Hamburger Mary's near UNLV in Las Vegas. So we are now over five years old! Here are a few photos from that event; whom do you recognize?













The Chapter's first Annual Meeting and Career Day took place October 5, 2002 at UNLV. Guest speakers were Richard Scheaffer (U of Florida) and June Morita (U of Washington). There was a Career Day panel, undergraduate and graduate student poster competitions, and of course lunch. Here are a couple of photos; for more photos and an article about the event, go to our website and follow the links under "Past Events".

Our Chapter Representative, Hokwon Cho, reports that when he talks with members of other chapters at the annual Joint Statistical Meetings and elsewhere, they often express amazement that an active chapter can exist in such a geographically diverse setting as Nevada, with hundreds of miles separating population centers. It does strain the imagination to see how this can continue, but we have managed so far and plan to continue.

So Happy Fifth Birthday, NV-ASA! ◆

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The 2007 K-12 Poster Competition took place in late Winter. 319 posters were entered; 392 students were involved in preparing them. First, second, and third place prizes were awarded in each grade category (K-3, 4-6, 7-9, and 10-12), along with a number of Honorable Mentions. The winning posters can be viewed on the NV-ASA website www.nevada.edu/~nvasa/.

All recognized posters were sent on to the national ASA competition. One of our Honorable Mention posters in the 4-6 division also won Honorable Mention at the national level: "Funny Fins Fly Farther", prepared by Lizbeth Lopez, Maria Martinez, and Irwin Villanueva of J.T. McWilliams Elementary School in Las Vegas. Their teacher is Deborah Hollis and their advisor is Susan Owens.



"In God we trust; all others must bring data."

Hokwon Cho Chapter Representative

From July 28 to August 2, 2007, I attended the 2007 Joint Statistical Meeting (JSM) in Salt Lake City, Utah to give a presentation in a technical session and to participate in the Council of Chapters meetings. Compared to the previous cities in which the JSM were held, this city seemed much quieter. For the duration of the conference. I staved at the Red Lion Hotel, located several blocks south from the conference center. In order to commute within the boundaries of the Free Fare Zone. I took the train, which was very convenient. I also visited Temple Square, also known as the heart of Salt Lake City and the most visited place in the city, as well as the Museum of Natural History and the historic park. Another place I enjoyed was the Family History Library with the largest collection of genealogical records and family ancestries in the world. However, due to my tight schedule. I was unable to see Salk Lake and the resort areas that held the 2006 Winter Olympics.

As Chapter Representative, one of the most important aspects of my job is to represent our Nevada Chapter at the Council of Chapters (COC) Annual Business Meeting and the COC Workshop at JSM. In addition, my job also consists of bringing our chapter's current issues to the Council/Governing Board. The COC annual business meeting was from 7:00am to 9:30 am on July 31<sup>st</sup>, which consisted of the following: an approval the previous year's minutes (available by a request to me), reports from the Governing Board, Planning Committee,

etc., and discussions about council projects on the Science and Engineering Fair and Traveling course. The topic of the COC Workshop (specifically from 4:00 to 6:00, July 31<sup>st</sup>) was, "Expanding our Chapter Universe." The speaker was former ASA president, Dr. Fritz Scheuren, who visited our chapter in October of 2004. He gave a speech titled, "Getting more Involved," and after the speech, all the participants had a roundtable discussion on the review of Wikipedia (a continuation of last year's workshop), the marketing of chapter activities, and the use of webinars (the seminars over the web) to increase participation.

For further clarification, the organization of the ASA Regions and District Boundaries is as follows: with 77 chapters in the state, each chapter belongs to one of 6 Districts, depending on geographical location, with each region consisting of 2 districts. We as a chapter belong to District 6 in Region 3, containing 16 chapters in the Mountain West area. Dr. Tim Max (from the Oregon Chapter) has been serving as District Vice Chair for the last three years and his term will conclude at the end of this year. Our chapter thanks Tim for his excellent work and visiting us in 2005, giving us a seminar much appreciated. During the COC meeting of JSM 2007, I had the distinct honor and privilege of meeting Dr, Duane Steffy, the incoming District Vice Chair, who is the Practice Director of Exponent in Menlo Park, California

If you would like to know more details about the highlights and events of JSM 2007, please visit the website: <a href="www.amstat.org">www.amstat.org</a> and click "meetings & events." I would also like to remind you that the JSM 2008 will be taking place in Denver, Colorado from August 3-7. I hope all of you will be able to attend.

## A FILM FOR SCIENTISTS AND MATHEMATICIANS

Stranger Than Fiction stars Will Ferrell, Maggie Gyllenhaal, Dustin Hoffman, Queen Latifah, Emma Thompson, and Linda Hunt. The improbable premise is that the lead character Harold Crick (Ferrell) is living out a novel being written by Karen Eiffel (Gyllenhaal). He begins to hear and respond to the voice-over narration of the novel's text (his life), and the fun begins.

Half-way through the film, though, one begins to notice a certain familiarity in the names of people, places, and even the bus that plays a prominent role in the plot. Crick is, of course, one of the scientists who discovered the helix structure of DNA. Eiffel is the engineer who designed the tower in Paris. And on it goes.

So the challenge is the following. Rent the DVD, and see how many of these references you can detect without consulting an external source. Wikipedia reports eleven, some of which are really obscure – perhaps there are even more.

# Personal Profile: Debra K. Stiver

Deb is a founding member of NV-ASA. She has been active since the chapter's formation, and is currently completing her final year as Past President, having served as the Chapter's President in 2004 and 2005. Her original academic interests were in the fields of natural resource management and wildlife biology. In 1984, as a graduate student in the Department of Economics at the University of Nevada, Reno, she received a grant to study the economics of wildlife management in China. One of her committee professors served as her statistical mentor during that project and encouraged her to start teaching.



Since that original appointment, she has remained at the department and serves as a lecturer, statistics curriculum coordinator and undergraduate economics advisor. She was closely involved in the development of the NV-ASA mentoring program and has organized several successful northern Nevada Career Days. Because of her personal experiences, she encourages students to become statistically competent and open opportunities in employment and consulting.

Deb has partnered with a variety of agencies and businesses as a statistical consultant, performing research for Washoe Country and the State of Nevada, the gaming industry, and legal profession. One of her most satisfying positions is as Board member of International Development Missions, a non-profit organization involved in third-world development. She regularly

works in Kenya during the summer months where IDM supports clean water, medical, education, and economic projects. She's very proud of her two grown daughters who are graduate students in wildlife and veterinary science.

[Editor's note: I hope to include profiles of people who are active in the NV-ASA from time to time, to acknowledge their efforts on behalf of the Chapter, to allow readers to become better acquainted with them, and to further spread the word about the variety of activities and career paths that we find within this profession.]



Freakonomics: A Rogue Economist Explores the Hidden Side of Everything (by Steven D Levitt and Stephen J Dubner, William Morrow/HarperCollins Publishers, New York, Revised and Expanded Edition 2006); reviewed by Charles Davis.

This book was recommended by speaker Tom Carroll during our dinner meeting in April, 2006. So I read it, and was fascinated. Steven Levitt is a highly inventive and inquisitive economist and data analyst who delights in uncovering underlying structures that seem to drive decisions and patterns. He particularly enjoys finding parallels that one would never expect, such as those between schoolteachers and sumo wrestlers and those between drug distribution networks and the McDonald's corporate structure. One of his perhaps more startling (and controversial) arguments is the idea that decreases in crime in the U.S. in the 1990s have less to do with spending taxpayer money on law enforcement during that decade than on the success of Roe v Wade (1973) in reducing the numbers of unwanted children born during the 1970s.

But I haven't yet read the material added in the 2006 Edition, and am eager to do so. Here are the titles of the added articles, which give an excellent idea of the flavor and content of the book as a whole.

- The Probability that a Real-Estate Agent is Cheating You (and Other Riddles of Modern Life).
- > Up in Smoke: Whatever happened to crack cocaine?
- ➤ Does the Truth Lie Within? One professor's lifetime of self-experimentation.
- Curbing Your Dog: Can technology keep New York City scooped?
- ➤ Why Vote? There's no good economic rationale for going to the polls. So what is it that drives the democratic instinct?
- ➤ The Economy of Desire: Can fear of AIDS change sexual preference?

- ➤ Hoodwinked? Does it matter if an activist who exposes the inner workings of the Ku Klux Klan isn't open about how he got those secrets?
- Filling in the Tax Gap: Why Americans should be clamoring for the IRS to do more audits, not fewer.

I found this book being sold at a discount at a Smith's grocery store in a more affluent part of Las Vegas than mine. I wonder what Levitt would make of that. \*

"So long as algebra and statistics are still taught, there will be prayer on campus."

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President: Charles B. Davis
Past President: Debra Stiver
Southern Vice President: Andy Chance
Northern Vice President: Alicia Chancellor Hansen
Secretary: Alejandra Livingston

Treasurer: Paul Nakayu

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Silver State-istics welcomes news items and letters from members and friends of the NV-ASA on matters of interest to the Chapter and the profession. Manuscript or items can be sent as a Microsoft Word document, PDF, or within an e-mail.

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