

## FALL 2010

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## GREETINGS FROM THE CHAIR

**Bob Smidt**

Hello again. From the culmination of the department's five-year program review to the budget crisis that led to faculty and staff furloughs, 2009-2010 has been an interesting academic year. But through it all, and most importantly, we proudly graduated 18 students with well-earned bachelor's degrees in statistics.

We feel that the five-year review went quite well. The report of the team of three reviewers (Brian Jersky, Dean, School of Science, St. Mary's College of California; Jessica Utts, Professor, Statistics Dept., UC Irvine; and Louise Berner, Professor, Food Science and Nutrition Dept., Cal Poly) included statements like "the Cal Poly Statistics program is very strong. Indeed, it is known both nationally and internationally as a model of good statistical instruction." "It was a great pleasure to observe a disparate group of talented individuals working so collegially and effectively towards known and agreed-on common goals. In a way that was noticeable, the team members share the department's goals and aspirations, and are able to achieve their individual success within the group. Naturally, this leads to an excellent, innovative and well-recognized program, and a large group of happy and satisfied students," "very impressed with the high quality of the whole range of faculty in the department," "we are convinced that the quality of research emanating from Cal Poly's Statistics department as a whole is outstanding in any terms," and "It was clear that the faculty loved teaching in this department, and the students loved learning in it. It is difficult to imagine a more positive environment." I could go on. I am always proud of the faculty and staff of the department, but it is nice that their wonderful qualities are recognized by others publicly. (A lot of the credit for the positive review should go to Beth Chance. The previous year, the department submitted a self-study report; the most crucial part of the report concerned assessment. Beth has been our assessment guru and wrote that important portion of the self-study and did so quite clearly and well.)

In line with the pride described in the preceding paragraph, I was happy with the manner in which the department faculty, permanent and part-time, handled the difficult furlough situation. The effects on the students were minimized and we somehow managed to

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## Robert Smidt Greetings (*Cont.*)

teach about the same number of students as during 2008-2009 academic year. But, quite frankly, it was exhausting and at the end of the year, I swear I could hear a collective sigh of relief from down the hall. I know that sounds strange; after all, we were forced to work fewer days (yeah, right). To accomplish the same results as previous years with less time to do so was a daunting task, but the faculty somehow managed to do it. Quite a group!

On a different note, I would like to express gratitude to two of our faculty members who are teaching under the Faculty Early Retirement Program (FERP), **Jim Daly** and **Kent Smith**, for teaching last fall. Due to a confluence of events including sabbaticals and extraordinary high tides, we were desperately short of faculty members. Jim, who had planned to retire after the preceding year, and Kent, who requested a winter/spring FERP schedule, munificently agreed to put their preferences aside and teach. Their generosity really saved our bacon.

As I mentioned would happen in last year's *Musings*, in December **Roxy Peck** stepped down as associate dean for the College of Science and retired. I would say she will be missed, but there are enough "Roxy sightings" that I doubt that will be the case. She will be missed in the classroom however, as an advocate for our department and support for our students. See the article on page five about her retirement fete.

We have 19 students entering the program this Fall. It certainly has changed from previous decades. During the first part of my stay at Cal Poly, a typical entering class would have many fewer students, almost always single-digits in numbers. I ascribe the change to the Advanced Placement Statistics classes in high schools that lets students know about this exciting field of study. The applicant pool to the program has increased dramatically and produces a critical mass of students that helps keep the program vibrant (and a bit noisy at times).

Thanks to all of you who have supported the department financially this last year—because of the budget problems, your generosity was especially appreciated. Your funds were used to sustain student and faculty activities that would not have happened without your support.

One last thing. To use some phrases that **Allan Rossman** used in his opening speech as the Chief Reader of the AP Statistics grading, we are very, very, very, very interested in what you are doing and would really, really, really, really like to have you send us an update about what has been going on in your life. So please consider spending a few minutes writing to us about what you have been up to—we will print it in next year's *Musings*—your old friends and fellow majors will appreciate it.

Have a great year!

Bob Smidt, Department Chair

# WHAT I HAVE BEEN DOING

By Robert Smidt

## *This has been an interesting year for me!*

My younger son, Luke, finished his senior year and graduated from high school. He will be attending Cal Poly this Fall as a Computer Science major. As I write this, I am in LA with him and 11 of his friends attending the "Anime Expo." (Think of a Star Trek or Star Wars convention with much stranger costumes.) It actually is interesting and fun—lots of imagination goes into the films and animations. It is, however, sobering for me to realize how out of it I am—I did not understand a single "in" reference. So it goes.

My older son, Jesse, is a second-year business major at Cal Poly. This past winter and spring, he was an exchange student attending the Copenhagen Business School. I had been in Europe only once before, 37 years earlier, and as luck would have it, I had spent most



Jesse & Bob Smidt

of my time on that visit in Copenhagen. Anyway, I decided it was time for another trip and spent three weeks in Europe, mostly to spend time with Jesse, but when he was in class I did some traveling by myself. My grandparents on my father's side had emigrated from Czechoslovakia and I had always wanted to visit Prague. It is an exciting city, with beautiful castles, bridges, and churches, friendly people who were all happy to talk with you, vestiges of Communism and Nazi occupation that gives a reminder of their tough recent history. One interesting event: I was staying off the beaten track outside the tourist areas. Next door

was a small, non-fancy, eight-table restaurant. One night I dropped in and a six-piece band (stand-up bass, banjo, saxophone, trumpet, and a Czech wind instrument and Czech string instrument I did not recognize) occupied two of the tables and played a non-stop (except for occasional sips of beer and bites of the food the other tables sent over) variety of music for the other six tables. A patron pulled out a harmonica and the other six played around the harmonica's lead. It was a great evening. Then I went to Italy, visiting Rome, Florence, and Venice. It rained most of the time that I was in Rome, but it was still possible to get a feel for the grandeur of the city. Other than the ruins and the Vatican, I visited the Villa Borghese, an ab-



solutely gorgeous art museum. Florence was an open-air art museum. There were so many beautiful statues that seeing the David on the last part of the trip was almost anti-climatic. Venice was very interesting, I had a good time getting lost in the labyrinth of streets and touring the Grand Canal. Then an incredibly difficult day flying from Venice back to Copenhagen via Dusseldorf (a 20-minute story of the events at the Dusseldorf airport). Then Jesse and I took trips to Malmo and Oslo, and finished our perambulations around Copenhagen. I think I won't wait another 37 years to return to Europe.

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## What I Have Been Doing (*Cont.*)

By Robert Smidt

Besides Europe, I did a lot of traveling around the U.S. In June, I flew to Daytona Beach with Allan Rossman, Beth Chance, Roxy Peck, Karen McGaughey, and John Walker to help grade the Advanced Placement Statistics exam. Dan Quinn, a Cal Poly Stat grad, now a high school department chair, was also there and we were able to catch up and exchange lies. From there I flew to Plainfield, Illinois to lead an AP Stat workshop. I held three more workshops during July, one at Rice University in Houston, another at Pacific Lutheran University in Tacoma, and the last at the University of Arkansas in Fayetteville. It is fun to have classes where all the students want to be there and get a lot out of the experience.



I have moved back to Los Osos, purchasing a house from Ed and Mary Mortlock (Mary was a lecturer for us for several years and is still good friends with many of us). I enjoy being near Montana de Oro, and there are some nice hiking trails that start just a few blocks from my new home. And, not being a warm weather person, I like the fog that rolls in off the Pacific when it gets hot inland. There is enough room for Luke and Jesse when they want to visit, and there is even a small guest house in the yard. It's a great place for me.

\*



## RETIREMENT PARTY FOR ROXY PECK

By Jimmy Doi and Karen McGaughey



Roxy with Hopi Kachina Dolls she received from the Stat Department.

In January of this year we hosted a party in honor of Roxy Peck's retirement from Cal Poly. In attendance were members of the department, university, and Roxy's good friends – some of whom drove in from out of town. The event was catered with lots of wonderful Mexican food including enchiladas and burritos. We also had a fantastic selection of delectable desserts that did not last long on the serving table!

In the middle of the party, we all gathered in the back yard to have a presentation ceremony for Roxy. But first, our fearless leader, Bob Smidt, had some opening remarks and then read from a list we all contributed to called "The Top 10 Things We Will Miss About Roxy." After Bob was finished with his remarks, he presented Roxy with our retirement gift. Roxy is an avid collector of Native American art and so the department members and friends chipped in to purchase two beautiful

hand-carved and painted Hopi Kachina dolls.

We all had a wonderful time at the event and it was great to catch up with some friends we haven't seen in a long time. We were very happy to host this party for Roxy and we wish her the very best. We hope Roxy knows how much she will be missed by all of us!

In preparing this article, we had the opportunity to have a Q&A session with Roxy that we'd like to share below. But first, let's provide some background on Roxy's impressive career:

Roxy was a faculty member of the Statistics Department for 30 years. Nationally known in the area of statistics education, she became a Fellow of the American Statistical Association in 1998 and in 2003 received the American Statistical Association's Founders Award in recognition of her contributions to K-12 and undergraduate statistics education. In 2009, she received the USCOTS Lifetime Achievement Award in Statistics Education. In addition to co-authoring the textbooks "Introduction to Statistics" and "Data Analysis and Statistics: The Exploration and Analysis of Data," she is also editor of "Statistics: A Guide to the Unknown", a collection of expository papers that showcase applications of statistical methods. Roxy served from 1999 to 2003 as the Chief Faculty Consultant for the Advanced Placement Statistics exam and she is a past chair of the joint ASA/NCTM Committee on Curriculum in Statistics and Probability for Grades K-12 and of the ASA Section on Statistics Education.

Q: When did you start at Cal Poly and what has been your career path?

A: *I started at Cal Poly in 1979 as an Assistant Professor in the Department of Computer Science and Statistics. I became Department Chair of the Statistics Department in 1990, and served as Chair for 6 years. In 1996 I took the Associate Dean position and held that position until I retired.*

Q: What is your favorite memory as a member of our department?

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## RETIREMENT PARTY FOR ROXY PECK (CONT.)

By Jimmy Doi and Karen McGaughey

A: My favorite (not very distant) memory of the stat department was being able to see the department evolve from a good statistics program to one that is now nationally and even internationally recognized in the area of undergraduate statistics education. The statistics department faculty are an amazing group of people--both professionally and personally--and having the opportunity to spend my career in their company has been a highlight. And of course, the students in the department are what have made the job worth doing. It has also been wonderful to see the number of students majoring in statistics grow, nearly tripling in number, since my first days at Cal Poly.

Q: What is your favorite memory as Associate Dean?

A: I am hoping that my favorite memory as Associate Dean is still to come--that will be the grand opening of the Center for Science and Mathematics. Much of my time over the last 10 years has been devoted to the planning and design of that building. It has been a very challenging and rewarding project. I have learned way more about chemistry labs, fume hoods and vacuum systems than I would have ever imagined! With construction delayed due to state budget problems, it will be a highlight for me when we finally break ground later this year.

Q: Did you enjoy yourself at the retirement party? How did you like our gift?

A: The college hosted a lovely on-campus reception for me, but of course it couldn't compare to the great retirement party with the stat department at Jimmy and Karen's home. It was great fun for me (of course I didn't have to clean up) and it was wonderful to see so many old and new friends there. The gifts from the Stat Department (Hopi kachina dolls) are now on display in my living room at home. It was clear that the department took my love of southwest and Native American art to heart when choosing a gift, and that meant a lot to me. I was also touched by Beth Chance making my favorite dessert--Mangos and Sticky Rice. It is not an easy dish to make, and it is hard to find mangos in January!

Q: What are your plans in the coming years?

A: I plan to continue to work on my textbooks and have a new writing project in the works. I have also gotten involved in an interesting project with the Carnegie Foundation for the Advancement of Teaching that is looking at developmental mathematics and statistics instruction at community colleges. And I hope to be able to spend more time in Sedona, although that hasn't happened so far!



Bob reads from the "Top 10 Things We'll Miss About Roxy" list.



Roxy with a cherished retirement gift: a 2 liter bottle of Diet Pepsi



Dean Phil Bailey offering some parting words of advice!

## REPORT ON COLLEGE BASED FEES

By Carol Morris

**College-Based Fee (CBF)** funds continue to enhance statistics majors' educational experiences at Cal Poly. During the 2009/2010 academic year and in the summer of 2010 some of the items funded with these fees were:

### Student Support

During February of 2010 students went to the **Statistics Careers Day** in Duarte, California. Careers in Government, Consulting, Academia, Healthcare, Risk Assessment, and Pharmaceuticals were discussed. Questions about what statisticians do in these fields were explored and answered. Travel expenses were paid for by CBF.

Also in February four students went to a symposium on **Advances in Bioinformatics and Genomics** at Stanford, California. The symposium explored cutting-edge advances in bioinformatics/genomics research and software development. Travel expenses were paid by CBF.

Six students prepared for and took the **SAS certification exam**; CBF paid for their exams.

### Summer Research Projects

This summer six students and four faculty worked on research projects, all of which helped meet the research needs of the greater Cal Poly community. CBF partially funded this work.

### Course Offerings

The remainder of the money went to fund course offerings.

## JOYCE CURRY-DALY SCHOLARSHIP Statistics Department Scholarship

By Jim Daly



The Joyce Curry-Daly Scholarship is named in recognition of Joyce Curry-Daly, a graduate of the Cal Poly Mathematics Department and a lecturer in Statistics at Cal Poly from 1970 until her death in September of 1997. During her time at Cal Poly she was very active as the supervisor of department tutors and worked for many years with the SMART program, a School of Science and Mathematics program intended to encourage underprivileged students to develop a strong interest in mathematics and the sciences in junior high with the goal that they will have the interest and knowledge to pursue these subjects at the college level.

The scholarship fund was started shortly after her death with the idea of supporting her strong commitment to education. It is an endowment, with approximately 3% to 4% used each year to support the academic pursuits of worthy statistics majors. At the present time two to three students are selected each year to receive a proportion of the allocated amount. As new contributions increase the size of the scholarship fund, we hope to increase the number of students who receive financial support.

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## FOCUS ON FACULTY

### Matt Carlton



After taking sabbatical for part of 2009, I returned to full-time teaching this year. One of my long-term professional projects is finally complete: an educational video series I've been co-writing for several years will be available to high school and community college statistics teachers this September. At the same time, writing a business statistics textbook has re-emerged from the back burner, now with two co-authors: Jay Devore and Heather Smith.

I was fortunate enough to participate in two large-scale statistical studies at Cal Poly this year. In the first, freshmen who got on academic probation were randomly assigned to one of two "treatments" to see which intervention was more effective in helping them return to good academic standing. In the second, we built a predictive model for which incoming students are the least likely to succeed at Cal Poly, so that those students can receive targeted messaging and support. Both projects involved a lot of data clean-up and analysis by some of our Statistics majors: Alex Herrington, Huey Dodson, and Tempus Fugitt. Thanks, students!

My summer 2010 travels included a two-week trip to Eastern Europe. I was one of several faculty attending ICOTS 8 in Ljubljana, Slovenia, after which I traveled south through Croatia, Bosnia, and Montenegro with my sister and brother-in-law (who are currently stationed there with the Air Force).

Finally, I've been fortunate enough to earn promotion to full professor as of the beginning of the 2010-11 academic year.

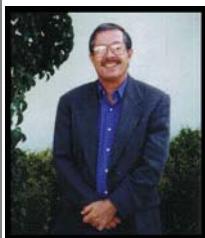
### Beth Chance

I will be taking a year-long sabbatical starting in the fall. I plan to work in two main areas: technology and assessment, hoping to improve my skills in these areas to better improve the resources I provide to students, as well as my background knowledge to continue the program level assessment being continually undertaken by our department. Not wanting to leave or move my energetic four-year-old son, I plan brief visits to University of Minnesota and North Carolina State University. Maybe we will even end up with some software tools that work on both Macs and PCs!





### Jay Devore



I finished my fourth year of teaching in the Faculty Early Retirement Program (FERP) (in winter quarter). I have one additional year of eligibility, but may decide to throw in the towel and end my Cal Poly career. I will return to Columbia University this coming summer (2010) to teach a six week course out of the first book I wrote, the same course I taught last summer. Meanwhile, I am revising that first book to get an 8th edition; it has been in print since 1982! I am also an Associate Editor for Reviews for both *The American Statistician* and *JASA*.

On the personal side, my wife and I traveled to Italy last fall. Unfortunately I fell while there and ruptured my quadriceps tendon, requiring surgery which has kept me off the tennis court for awhile. We are hoping to go to Spain in the fall. And we are proud grandparents of Philip, who turned one year old on March 1 -- since he and his parents live in New York City, we spend as much time there as we can.

### Jimmy Doi



This past year was my seventh year of employment at Cal Poly. In the fall term I had a chance to teach Stat 150 once again with Dr. Rossman. As in my previous experience, we had a great time interacting with a strong group of freshmen and transfer students. Dr. Rossman is stepping away from the class to allow other faculty to teach the course and next year I look forward to teaching the class with Dr. Soma Roy. This past winter quarter I taught the categorical data analysis class for the second time and once again it was a very rewarding experience. It has quickly become one of my favorite classes to teach!

On the professional activities front, I continue to work as a statistical consultant on a couple of research projects. A new project I am working on is with my former professor and advisor Dr. Mark Schilling from CSU Northridge. We are working on a paper based on the coverage probability function for the one sample binomial confidence interval problem. It has been such a joy and such a satisfying experience to work with the person who first introduced me to the world of statistics. We are uncovering some interesting results and we hope to submit our work to a journal soon!

On the personal end of things, this past year has been filled with wonderful 'firsts'! Last summer I took my first trip to Hawaii (Maui) and it was the best vacation of my life! I enjoyed snorkeling and scuba diving for the first time ever and I instantly fell in love. I'm already looking forward to my next trip there where I will be sure to log in many more hours in the beautiful ocean waters. And this winter I discovered the joys of snowboarding for the first time and I am 100% addicted! I've already purchased my own gear (including a new snowboard) and I'm hoping it won't be too long before I can get back on the slopes.



## Focus on Faculty (Cont.)

### Samuel Frame



Last summer I was fortunate to attend the NSF Integrating Computing into the Statistics Curricula workshop at UC Berkeley with Professor Andrew Schaffner. He and Professor Matt Carlton had attended the workshop the previous summers (see Professor Schaffner's article in the Fall 2009 Newsletter). Using concepts and data I obtained at the workshop, I re-developed large aspects of my STAT 430 (Statistical Computing II) curricula to emphasize data acquisition, management, and visualization.

The department decided it was time to officially update and redevelop STAT 430 into a new required course called STAT 331: Statistical Computing with R. With Professor Schaffner on sabbatical for most of the year, I was given the task to lead the restructuring of the course. This included attending/leading meetings, developing the new ECO, and assisting in the development of the course proposal packet for consideration by the COSAM Curriculum Committee and Academic Senate Curriculum Committee. STAT 331 is the first course I have helped to develop, and it was a great learning opportunity. In the Fall of 2010, I will be teaching STAT 430 for the third time.

During the Winter and Spring of 2010, I was the COSAM representative on the Academic Senate General Education Task Force. The mission of the task force was to make a recommendation to the Academic Senate regarding the governance structure of the General Education Program. This was a great opportunity to learn about the current structure of the General Education Program, the Academic Senate, and the historic 'GE Wars' that had taken place during the previous restructuring of GE. I really enjoyed interacting with various talented administration personnel and faculty.

My Ph.D. dissertation and most of my research program has focused on computational statistics with applications in engineering and computer science. When I joined the faculty at Cal Poly, I began to study problems in computational finance and econometrics working with Professor Cyrus Ramezani (Professor and Chair, Finance Area, Orfalea College of Business). I have discovered a new research program in computational finance and econometrics, developing computational statistics methods for jump-diffusion processes, portfolio management, and portfolio optimization.

### Lina Ignatova



The past academic year was another exciting year in my young career at Cal Poly – full of teaching and learning. I enjoyed teaching the probability class Stat 425 for a second time as well as teaching two statistics classes for engineers (Stat 321, Stat 350). While these classes are challenging, they are also quite enjoyable. Further, to advance my statistical horizon, I also decided to sit in the Capstone statistics consulting class Stat 465 with our seniors (many thanks to Heather Smith and Ulric Lund for giving me this opportunity). It was not only a valuable experience for me personally, but also gave me the chance to get involved with two big projects on campus. In these projects, I was supervising Eva Klentos, Ryan Milhous and Alberto Reynoso, who did a great job on the Caltrans project in collaboration with Dr. Ashraf Rahim and his graduate student Reed Calkins. Currently Alberto Reynoso, Michelle Shaffer and I are working on the second project with learning disability specialist and graduate student Brittany Ianneo and the Center for Teaching and Learning. Last but not least, I attended the 2010 Joint Statistical Meetings in beautiful Vancouver, where I presented my research work to an international audience. The conference also enabled me to touch base with friends, collaborators and colleagues from the University of South Carolina. In this context, it would be great to stay in touch with all of you – our alumni! Please don't hesitate to join our Facebook group (see page 36).

**Interested in being a  
Statistics  
Colloquium guest  
speaker?**

**Contact Ulric Lund at**

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***Karen McGaughey***

## **Focus on Faculty (Cont.)**

### **Ulric Lund**



Fall quarter of 2009 was a chance for me to get some momentum going on several research projects that have been waiting for my attention for some time now. I was fortunate enough to receive a one-quarter sabbatical, during which I didn't have any teaching duties, and so I was free to focus my energy on these research ideas that have been percolating in my mind. One problem I worked on was related to the estimation of a best-fitting circle to a set of data. That project will continue this summer, when I can re-immense myself. During the sabbatical I also worked on a manuscript with a mosquito control biologist in the Florida Keys, who was interested in analyzing data he had collected in his study of mosquito abundance and its association with weather patterns. Of course there was some circular statistics involved! [I know, it's the Law of the Instrument: "It is tempting, if the only tool you have is a hammer, to treat everything as if it were a nail."] We are currently working on a revision to the manuscript and hope to have it accepted for publication by the end of spring. Sneak preview: don't stand downwind from mosquitoes. They will get you. That's not really a result of the paper, but maybe just a good idea anyway.

### **Karen McGaughey**

I have just completed my fifth year at Cal Poly. During the 2009/10 academic year I again taught STAT 423 *Advanced Design of Experiments*, and for the first time, taught STAT 313/513 *Applied Experimental Design and Regression* for undergraduates and graduate students. Both courses were challenging and fun! The STAT 513 course has led to my participation on two M.S. committees (Kinesiology and Agriculture, respectively). In addition, I worked with two statistics students on their senior projects. Beyond my teaching and service work, I served as the department consultant during the Winter quarter. As always, I had the opportunity to work with some great faculty and graduate student researchers on problems involving regression, split-plots and repeated measures (my personal favorite). And finally, I have ongoing collaborative research and consulting projects with colleagues in Engineering, Psychology, Mathematics, Kennedy Library, and the Applied Biotechnology Institute, which are keeping me extremely busy this summer. In the coming year I'm looking forward to teaching STAT 421 *Survey Sampling and Methodology* for the first time. This will be quite a challenge for me since my training is in design of experiments and not sampling.

Beyond Cal Poly and my professional duties, I did a fair bit of traveling this year with trips to the Florida Keys, Nashville, Daytona Beach, and Vancouver, British Columbia, Canada. I've continued my running, completing a half marathon (the Jungle Run) in Los Gatos, CA in July. If I can stay healthy, a marathon is scheduled for October in Long Beach, CA!

## Focus on Faculty (Cont.)

### Rebecca Ottesen



***Professor Rebecca Ottesen  
and new Son,  
Caio (KYE-oh)  
Alexander Lima was born  
on Friday 12/18/09 at 8:51  
am. He weighed in at a  
respectable 7 lbs 6 ounces,  
20 3/4 inches in length,  
and with a full head of  
dark brown hair.  
(husband Carlos not  
shown)***

I managed to outdo myself as this year has been my busiest by far. On the work front I continue to telecommute fulltime as a Biostatistician for the City of Hope, a cancer hospital in Southern California. My primary project is working on the National Comprehensive Cancer Network (NCCN) Breast Cancer Outcomes Database. I am responsible for analysis of data for conference presentations and peer reviewed manuscripts, as well as reporting to the NCCN Board of Directors. While my study specific disease site is Breast Cancer, I also get to assist with projects in the Non-Hodgkin's Lymphoma, Colon and Rectal Cancer, Ovarian Cancer, and Lung Cancer databases.

For Cal Poly I was able to teach the SAS programming course (Stat 330) in the Fall and SAS Certification course (Stat 440) in the Spring. These two are by far my favorite courses to teach as I can share the joy :) of SAS programming with unsuspecting Stat majors.

A new endeavor this year is that I am serving as the Academic Program Chair for the Western Users of SAS Software (yeah, their acronym is WUSS) 18th annual conference in San Diego in November 2010. This is an annual conference of ~400 SAS users in the Western region. We have three days of classes, workshops and presentations about SAS programming and analy-

sis. I have been to many of these conferences in the past as an attendee and volunteer, as well as an advisor to Cal Poly students that I have prodded into attending. There is always so much to learn and I hope to be able to bring a fresh crop of students down to San Diego this year as well.

On the home front my husband and I had our second child in December, and our daughter turned 4 this summer. If work isn't keeping us busy the kids definitely finish us off! We feel so fortunate to have such a wonderful family and to be able to stay in SLO. I also feel very lucky to have been able to keep my ties to the Cal Poly Stat Department faculty and students (past and present) for all these years.

### Steve Rein

During this last year I helped out in my ninth grade daughter's Math class two days per week at San Luis Obispo Classical Academy (a hybrid school with the kids in classes two days per week and homeschooled two days per week, located at the old Pacheco school site, on Grand Avenue just off campus). I was asked to help out with the Mathematics enrichment portion of the curriculum. As many of you know, high school Math (Algebra, Geometry, etc.) tends to be taught in a very rote, "drill-n-kill" fashion where students seem to never develop any understanding of the beauty of Mathematics but **some** develop a good mastery of the various techniques (like use of the quadratic equation).

There were three primary goals for Math enrichment this last year. First, to allow the students to see the development of Mathematics in its historical context. Second, to allow stu-

(Continued on page 13)



## Focus on Faculty (Cont.)

### Steve Rein (Cont.)

dents to develop insight into “real life” problem solving (i.e. word problems, but presented in the Cal Poly “learn by doing” fashion). Last, to allow students to see some more advanced mathematical concepts in a context where they can develop some understanding.

One invaluable resource in this process has been George Lewis (now emeritus faculty member of the Math Department), who has a greater knowledge of the history of Mathematics than anyone I know. Even so, he wasn’t able to provide a definitive answer to one of the questions the students came up with ... “Why is the solution to the equation  $f(x)=0$  called a ‘root’ of the function?” Several have suggested a good guess, that roots were typically used when finding the zeroes of functions because most functions could be approximated by polynomials and because roots were used when finding the zeroes of polynomials.

During class we were able to determine the speed of a marble leaving a slingshot based on how far it travelled and the angle (relative to the ground) when released. We discussed Zeno’s paradox and how the sum of an infinite number of terms can be finite. We discussed proofs and the students found proof by contradiction and proof by induction both to be “pretty cool.” (One of their other classes is in logic and rhetoric, but they hadn’t seen induction or contradiction presented in the way we do it in Mathematics.) We even tried the Babylonian method for finding the square root (outlined below) and discovered that for each additional iteration, one gains one digit of additional precision.

#### **Babylonian Method for finding the root of a number.**

Suppose you want to know the square root of a number, say 10.

1. Set an initial guess of the root,  $r_0$ .
2. Update your previous guess to be the average of your previous guess and  $S$  over your previous guess:  $r_i = (r_{i-1} + S/r_{i-1})/2$ .
3. Repeat until desired precision is achieved.

It was fun having the students starting off with different (and some really bad) initial guesses for the square root of 10 (one started with a guess of 20) and finding out that within 5 or 6 iterations all the students had the exact same answer.

In short, we had a blast with Mathematics. While not fully successful in achieving all goals, we did hit the target in two of the three and a few students who had previously said that they “hate Math” were able to provide some of the best insights to some of the more challenging problems. That is a “Math Win” if there ever was one!

(Continued on page 14)



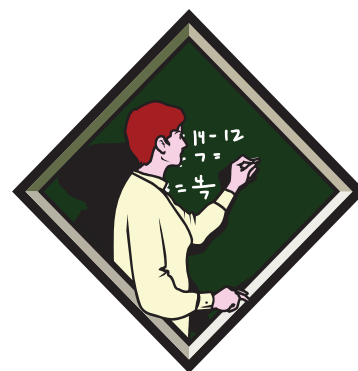
*“During class we were able to determine the speed of a marble leaving a slingshot based on how far it travelled and the angle when released.”*

## Focus on Faculty (Cont.)

### Steve Rein (Cont.)

By the end of the year, all of the students started to see Math as a process of puzzle solving where one makes conjectures then determines whether the conjectures are right or wrong via some sort of proof. They understood that a solution (a method to finding an answer) is far more important than the answer itself in any "real world" problem.

A partial (and somewhat disorganized) list of resources and topics presented in class can be found at: <http://statweb.calpoly.edu/srein/SLOCAMath/>. If any of you have ideas along these lines I would love some input, so please e-mail me at [srein@calpoly.edu](mailto:srein@calpoly.edu) ... after all, I've signed on to do this again during the 2010-2011 academic year ... and next year I'll have two kids in the class :-)



### Allan Rossman



This has been another busy and good year. The highlight was receiving a teaching award from the MAA in January, thanks to being nominated by Beth Chance and supported by other departmental friends and colleagues. The highlight of that experience was the opportunity to give a presentation with reflections and advice about teaching. I titled my remarks "Ask Good Questions," and if you are interested, you can find my comments at: <http://statweb.calpoly.edu/arossman/AskGoodQuestions.ppt>. Another exciting professional development is that I am now Chief Reader for the AP

Statistics program, which means that I have responsibility for the grading of 129,000 exams.

On the personal side my wife Eileen and I have done lots of traveling, including a trip to Kauai in December and several trips to Sedona, Arizona. One sad thing is that our beloved cat Cosette passed away last fall. She lived life to the fullest for her 14 years and gave us much happiness. Our cat Eponine is still going (somewhat) strong at age 19, and we now have a young male cat named Puti, who is full of energy and fun.

***"The highlight was receiving a teaching award from the MAA in January."***

*Allan Rossman*

## Focus on Faculty (Cont.)

### Soma Roy



This last year went by so fast that when I look back, it's just a blur of sights and sounds. At school, I got to teach a few new classes and a few that I had taught before. I continue to learn by doing. Also, I continue to be a Stat Club co-advisor, along with Dr. Jeff Sklar. On the research side, I have been involved with the STRIDE project, headed by Dr. Ann McDermott in the Kinesiology department, and am also collaborating with a few other professors from other departments.

Last year, amidst my busy schedule, I managed to get back to reading, and after discovering the used-books store and the thrift stores in town, have managed to amass a huge collection of books I have read before, and those that I intend to read in the near future. Now I have to buy bookshelves. I continue to watch Family Guy and The Office, and have added Glee to the list.

I also did a fair bit of traveling, and saw some beautiful sights and sounds. I went on a cruise for the first time (thanks to Frank and Beth Chance!), saw Alaska, saw whales in the open ocean, saw glaciers, and was struck (again!) by how beautiful our planet is. Of course, you don't have to travel that far to realize that. If you live in San Luis Obispo, you are pretty much always in awe of how beautiful nature is. Among other places/sights, I got to see Yosemite National Park, Washington, D.C. (yes, I had never been to D.C. before this year), and the wildflowers by Shell Creek Road – some natural beauty, and some old-time beauty in museums.

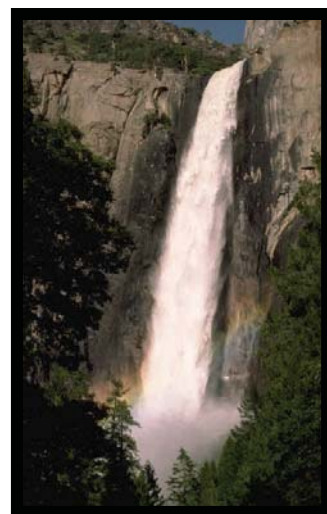
For over a year now, I have been a reader for a low vision person. I help him with reading his mail, paying bills, and such. Even though I am the one supposed to be doing the "helping," I think, without knowing, he is the one who helps me. It is a humbling experience to see how he has embraced his adversities, and goes about with life with great enthusiasm. Reading for him only takes me a couple of hours over the weekend, but makes me realize how fortunate I have been in life.

As my second year at Cal Poly comes to an end, it is a time for reflection and planning, for being grateful for all the opportunities I have had to grow as a person and as an educator, and for looking forward to the many opportunities to come.

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***"Among other places/sights, I got to see Yosemite National Park, Washington, D.C. (yes, I had never been to D.C. before this year), and the wildflowers by Shell Creek Road – some natural beauty, and some old-time beauty in museums."***

***Soma Roy***



## Focus on Faculty (Cont.)

### Andrew Schaffner



Andrew Schaffner

According to the digital sage *Wikipedia*, the origin of the sabbatical concept appears in the Bible where there is a commandment to “desist from working the fields in the seventh year.” Farmers have been using this wisdom for years to extend the fertility of their land and maintain crop yields. And, thanks to the theories of our father (non-biblical reference, but rather to R. A. Fisher), the crop yield benefits of resting the field every seven years can actually be tested!

Well, fertile crops ahead for me. My figurative fields have rested and new plantings have begun. I recently returned from a two-quarter sabbatical during which I joined Jeff Witmer (Oberlin College) as a co-author of the fourth edition of *Statistics for the Life Sciences*. I’ve used the second and third editions of this text since I started teaching our bio-oriented intro to statistics class (STAT 218) in 1997 and have frequently thought, “Gee, this is a pretty good book, but I have some ideas I’d like to try out.” At first, I was going to attempt to write my own book, but then reality sank in. I’ve never written a book. I could use a seasoned veteran to hold my hand; ergo, Jeff Witmer. (Jeff has been a pleasure to work with. Since we were both on sabbatical for this project, we kept each other on task writing. I’m not sure if I would have kept to the editors’ deadlines if it weren’t for having a partner who was as dedicated a worker as Jeff.)

While some of the chapters have only incurred minor changes, I have substantially re-written the ANOVA and regression material to reflect a more modern conceptual approach, which deemphasizes formulae and pays extra attention to the benefits of design, interpretation, communication, and limitations of results. I’m really excited to use the text with these chapters with my students next year.

Another major revision (thanks to the influence of Allan Rossman and Beth Chance) is our book now begins motivating inference right away in the introductory chapter by presenting randomization tests right from the start. Many new books are taking this approach and introduce the t-test as an approximation to the randomization test. When preparing this material, Jeff and I ran many simulations comparing t-tests, permutation tests, and other nonparametric tests such as the Wilcoxon-Mann-Whitney. We started to wonder ourselves why we even bother with t-tests anymore. Computing power these days makes distribution-free tests so simple, free from normality constraints, and they appear to be as powerful as t-tests under normality. Our main reasons for not making this leap in this edition were (1) tradition - who teaches intro stats without a t-test and t-interval; and, (2) confidence intervals - while tests can be inverted to produce intervals, it’s not an intuitive method.

Thinking about each concept, the pedagogy, changing technology, changing students, changing demands led to a very exciting project. Every sentence we wrote seemed to lead to philosophical and/or pedagogical discussion. (Many of which ended with, “Oh, when everyone is a Bayesian we can finally teach it this sensible way.”)

If you are reading this and wondering, “Why isn’t this article about poop like it has been for the past few years?” rest assured, I’ll fill you in. I’m still working on poop: the Pismo Pier Pigeon Poop Project is nearly complete as our final results are due at the end of this summer. And, I am still an active consultant with the Morro Bay National Estuary Program helping them with their monitoring of fecal (and other) contamination of the Morro Bay Watershed. The best part...there are several poop examples in the new book!



## Focus on Faculty (Cont.)

### Jeff Sklar



After three years in the works, I finally taught the inaugural Survival Analysis Methods (STAT 417) course in the winter quarter. The course emphasizes methods and techniques to analyze survival data, also generally referred to as time-to-event data. Survival data are the time durations until a specific event occurs, for example time until death after being diagnosed with cancer. The course emphasized theoretical and applied aspects of the methods, as well as implementation of the techniques using Minitab and R statistical software.

Real data from a variety of disciplines including education, psychology, and sociology were used in examples and exercises throughout the course. In-class experiments investigating chocolate chip melting times provided students with additional entertaining opportunities to explore survival analysis techniques. In future versions of the course, I hope to implement more survival data collection activities, as well as inclusion of additional current studies that utilize survival analysis techniques.

In other department news, I continued as co-advisor of the Statistics Club with Dr. Roy. At the end of the year we selected the following nine outstanding students for membership into Mu Sigma Rho, the National Statistics Honor Society:

**Ryan Michael Allison**  
**Megan Jane Evans**  
**Neal Steven Grantham**  
**Jongyoon (Jewels) Lee**  
**Christopher Ling**  
**Ryan Hartman Milhous**  
**Tiffany Brienne Russell**  
**Diana A. Shealy**  
**Brad D. Vancho**

These junior and senior students met very rigorous academic standards in their statistics courses and have now been officially recognized for their achievements.

### Jeff, Maria and Yazmin Sklar

On a personal note, January 26<sup>th</sup> of this year our first child Yazmin Malia Sklar was born. She weighed 8 pounds 8 ounces and was 21.5 inches tall. As first-time parents, we are enjoying the rewards and challenges of raising our daughter. It is unbelievable just how much energy she has, and how much energy is required to keep up with her! We're also amazed at how fast she has grown in just the last few months. See the photo of Jeff, Yazmin (approximately 3 months), and mom (Maria).



## Focus on Faculty (*Cont.*)

### Kent Smith



Things come and go. I have been retired now for two years. I still teach half time which means I teach two classes for each of two of the three quarters. I don't know how much longer I will teach. I'm only allowed to teach three more years under the Faculty Early Retirement Program. There are so many things to do when you have the freedom and financial freedom to do so. Teaching part time affords both of these.

Academically, the group of authors of which I am a member just published the eighth edition of the business statistics text that we author. It is quite an effort to produce a new edition. I know it would seem to be an easy task. It may seem that all you have to do is to search through the old edition and make a few corrections and that would be the end of it. That has not been my experience. All four of the authors are constantly searching through statistical materials. They make suggestions to change the content, the presentation, the examples, the order of the material, and the exercises. We meet at least once a year and discuss these issues, more often as the publish date approaches. Usually, the various issues are assigned to individuals and then the flurry of work and emails begins.

Fortunately, we are in a lull right now. So that gives me time to do things for which I usually just don't have time. Recently, I had an occasion to go into the bookstore. It has been some time since I was in El Corral. As I wandered through the store, it came upon me to go downstairs in the text section to see which texts were being used in the various statistics courses. I was unprepared for what I discovered. I'm fairly sure, that many of our alumnae will be too; perhaps not at the same level, but none the less, unprepared. Of the 20 texts used in statistics courses during Spring Quarter, I could only see seven of which I was familiar, i.e., had used, or had contemplated using, for the text in a class I taught. I don't think that you would need my assistance, but for completeness, that indicates that sixty-five percent of the texts being used were not familiar to me. Oh, I know most of the authors, but what I'm saying is that I had only used, or contemplated using, thirty-five percent of the books now being used in statistics courses.

As if that was not enough punishment for me, I looked at the shelf labels to see which faculty were teaching the individual classes – bad idea! Daly, Devore, Groves, Maksoudian, Peck, Rodgers, Smidt, Smith, and Wu were the tenure track faculty when I arrived at Cal Poly. Only one of these faculty members is still a tenure track faculty member: Bob Smidt, our current department chair.

It's a humbling experience to see your academic basis diminish right in front of you as you browse through the hallowed shelves of El Corral. As I reflected upon this, I realized it wasn't just the texts or colleagues that were fading away in front of my eyes. The courses had changed. The calculators were unrecognizable. Computers were diminishing; being replaced by an "i something" or other. To top all this off, they've even moved the New York Times' best sellers to the rear of the store. It was darned depressing. I turned and walked toward the bookstore's front door, the nostalgia hanging over me.



## Focus on Faculty (*Cont.*)

### John Walker

I continue to do a lot of statistical consulting work on campus. In the past year, I've worked on a few projects with faculty at the Dairy Products Technology Center. I also submitted a paper on detecting learning disabilities and attention-deficit hyperactive disorder with an educational psychologist. Karen McGaughey, Heather Smith, and I have also worked with the Applied Biotechnology Institute, a private company on campus that studies plants with biotechnology uses. After a two-year break, I will return to teaching our STAT 465 (Statistical Communication and Consulting) course in Spring 2011.

Last year, I was in charge of organizing all of our department's course and degree requirement changes for 2011-2013. Those changes are discussed elsewhere in the newsletter.

In June, I worked as a grader (or "reader") of the AP Statistics Exam for the first time. I joined 570 other college and high-school statistics instructors in Daytona Beach, FL, to grade 170,000 AP Statistics exams. I had plenty of company from Cal Poly. Allan Rossman was Chief Reader of the exam. Beth Chance was Assistant Chief Reader. Roxy Peck was in charge of the overseas version of the exam. Bob Smidt was in charge of one of the exam questions. Karen McGaughey was a reader, like me. You wouldn't think that grading statistics exams from 8am to 5pm for 6 days would be fun, but it was—thanks to the great people involved and the nice location.

Finally, in August, I presented a paper at the Joint Statistical Meetings in an even nicer location, Vancouver, Canada. The paper, co-authored by Jimmy Doi and Statistics graduate Hongyan Wang, was based on work from Hongyan's senior project.



**Statistics Faculty 2010:** (left to right)

Soma Roy, Jeff Sklar, Bob Smidt, Lina Ignatova, Jimmy Doi, Steve Rein, Andrew Schaffner, Matt Carlton, Karen McGaughey, Beth Chance, John Walker, Heather Smith, Samuel Frame, Allan Rossman, Ulric Lund.

## COLLOQUIUM SPEAKERS SOUGHT INDUSTRY INPUT SOUGHT

By Ulric Lund

**Colloquium speakers sought:** We were fortunate to have a number of speakers visit the department in the past year and we thank them for their time and effort.

We are always interested in hearing back from our alumni. If you would like to share your experience in industry or academia with our faculty and students, please feel free to contact me to schedule a visit and seminar (ulund@calpoly.edu).

**Industry input sought:** We are continually evaluating our curriculum, adding and removing courses we offer, and altering course content. Some of you, as statisticians working in industry, are hiring individuals such as our graduates and we would greatly appreciate any input you may have in terms of the courses we offer and their content. Visit our current course listings at the department's home page at (<http://www.calpoly.edu/~stat/courses.html>). If you have any comments or suggestions, kindly direct them to Department Chair, Bob Smidt at [rsmidt@calpoly.edu](mailto:rsmidt@calpoly.edu).

## JAY DEVORE INVITES YOU TO CONTRIBUTE AND WILL MATCH YOUR GIFT

By Rosey Parks and Jay Devore

Jay (Professor Emeritus and past Chair) and Carol Devore set up an endowment to benefit the Statistics Department: The Devore Endowment for Statistics Collections. Administered through the Kennedy Library, this endowment was developed to help acquire statistical materials and information resources for the department. "It is difficult to keep up with the cost of new materials, and we want to provide those materials to our students and faculty."

As Jay and Carol add to their gift, they invite you to do the same – and they'll match your donation! Any contributions made, up to a total of \$1000, will be matched by Jay and Carol. We ask you to help us support the Statistics Department by contributing. To make a donation, contact Rosey Parks, Director of Library Advancement at [rparks@calpoly.edu](mailto:rparks@calpoly.edu) or (805) 756-7367 for more information. Or donate online at:

[https://giving.calpoly.edu/donations/ccdonation\\_s3.asp?col=11&dpt=Devore+Endowment+for+Statistics+Collections+\(3909\)&amt=0](https://giving.calpoly.edu/donations/ccdonation_s3.asp?col=11&dpt=Devore+Endowment+for+Statistics+Collections+(3909)&amt=0)

## MU SIGMA RHO AWARDS FOR 2010-2011

**Mu Sigma Rho is the National Honorary Society for Statistics**

Ryan Allison  
Megan J. Evans  
Neal S. Grantham  
Jewels Lee

Christopher Ling  
Ryan H. Milhous  
Tiffany B. Russell  
Diana Shealy

Brad D. Vancho



## COLLEGE OF SCIENCE AND MATHEMATICS AWARDS BANQUET

By Jimmy Doi



On May 5<sup>th</sup> the College of Science and Mathematics (COSAM) honored its best and brightest students at the annual COSAM Awards Banquet held at the Madonna Inn. On this evening, each of the departments had the privilege of recognizing their top students in the area of academic excellence and university service. We also honored the hard work and dedication of the many clubs within our college. **Katrina Jackson** was recognized for her service as president of the Stat Club.

**Brian Verbaken was selected** as the recipient of the Department Award for Outstanding Major in Academic Achievement. He achieved the highest GPA among our seniors and exhibited a high level of excellence throughout his academic career.



I was invited as Brian's faculty guest this year and I had the honor of introducing him at the banquet. I had Brian in my Stat 418 class (categorical data analysis) and he did an outstanding job. Although the class is mainly an applied course, there is a fair bit of theory that I include in the course and this tends to make this a challenging class. Brian was one of the handful of students who excelled at both the applied and theoretical aspects of the course. I had heard that Brian was a very strong student, and so it was of no surprise at all that he finished at the top of my class.

Based on Brian's strong performance, I had invited him to join a research project I had been working on with Dr. Louise Berner from the Department of Food Science and Nutrition. In this project, we are studying protein intake patterns in adults and also looking at associations of protein intake with anthropometric and physical functioning measures. The data source is the most-recently available National Health and Nutrition Examination Survey (NHANES). The data from NHANES is very complex and we needed to enlist the talents of a student who was savvy with SAS and also a capable data analyst. Brian was a perfect fit for the position and has been doing a fantastic job.

It has been my pleasure knowing and working with Brian over the past two years. He is an outstanding student and we are all very proud of him! We are also very excited about his future as he heads off to UCLA where he will be pursuing his master's degree in statistics.

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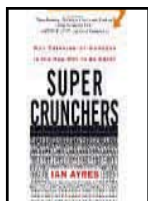
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## STATISTICAL PLEASURE READING

By Allan Rossman

I really enjoy reading non-technical books that touch on statistics and data analysis in some way, in part for my own edification and in part to find examples of interesting studies and data that I can use with my students. I'm especially interested in books that touch on issues of how people make decisions, especially in the face of uncertainty. In the hope that readers of this newsletter might find some of these books to be enjoyable. I'll describe a dozen of my favorites.

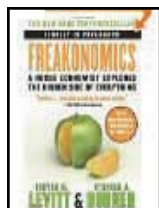
1. ***Super Crunchers***, by Ian Ayres. The sub-title of this book is very revealing: ***Why Thinking-by-Numbers is the New Way to be Smart***. The author describes how the ability to base predictions and decisions on the analysis of huge amounts of data is a tremendous asset in this age of information. One example is how Ayres chose the title of this very book: by conducting a randomized experiment in which some viewers of web pages saw an ad with one title, while others saw an ad with a different title. Ayres went with the title that enticed a higher percentage of viewers to click on the ad to learn more about the book. Other examples include models for predicting the box office revenue of movies and predicting how Supreme Court justices will rule on a case, in both cases based on just a few objective predictor variables rather than on subjective judgment or expert opinion. Jimmy Doi and I used this book in the STAT 150 course that we taught in Fall 2009 for students new to the statistics major.



2. ***The Ghost Map***, by Stephen Johnson. This book tells the story of the famous cholera epidemic that gripped London in 1854. What does that have to do with statistics? One of the heroes who determined the cause of the epidemic was Dr. John Snow, whose work in this case is considered by many to be the birth of the field of epidemiology. Snow collected and graphed data about those who developed cholera in order to determine the source, and he eventually convinced many skeptics of the validity of his methods and inferences. Johnson makes the story entertaining and even exciting. Dr. Doi and I used this book in the STAT 150 course in Fall 2008.



3. ***Freakonomics***, by Steven Levitt and Stephen Dubner. This book has achieved considerable popularity and even a cult following. It abounds with fascinating examples from economics and public policy of how data analysis is a powerful tool that can lead to surprising conclusions. My favorite example in the book concerns the issue of whether cheating to lose occurs in sumo wrestling. The authors present data showing that sumo wrestlers who enter the last day of a tournament with a 7-7 record do amazingly well against those who enter the last day with an 8-6 record. In fact, the 7-7 wrestlers won 79.6% of those matches, and they even won 73.4% against those with a 9-5 record. Why? The authors argue that having a winning record leads to many benefits, so an 8-7 record is much better than 7-8, whereas an 8-7 record is not that much worse than 9-6.

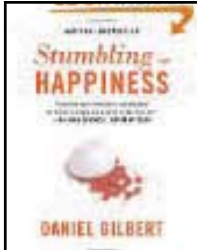


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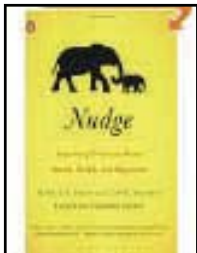
## STATISTICAL PLEASURE READING (CONT.)

By Allan Rossman

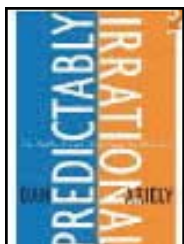
4. ***Stumbling into Happiness***, by Daniel Gilbert. First understand that this is not a "how to" book about leading a happy life. It is a serious, but very readable and even entertaining, review of research findings in psychology and cognitive science about factors that influence our feelings of happiness and other emotions. In one study some volunteers held their hand in ice water for 60 seconds, while another group of volunteers held their hand in ice water for 60 seconds and then in slightly warmer ice water for an additional 30 seconds. The latter group experienced more pain but actually reported a less unpleasant overall experience than the former group.



5. ***Nudge: Improving Decisions about Health, Wealth, and Happiness***, by Richard Thaler and Cass Sunstein. The authors are a behavioral economist and a law professor. Their thesis is that because considerable evidence shows that people make decisions based on part on the manner in which options are presented to them, government and businesses can present options in such a way to "nudge" people in a direction that benefits the greater good. One compelling example concerns organ donations: in many countries people are organ donors by default, unless they choose to opt out. In other countries people are not organ donors unless they choose to opt in. Not surprisingly, the differences in organ donor percentages between the two systems are quite dramatic.



6. ***Predictably Irrational***, by Dan Ariely. This is another book by a behavioral economist, who presents research studies about how many people make decisions that can reasonably be classified as irrational, but they do so in ways that are entirely predictable. As an example, the author conducted a study about procrastination on the part of college students. He was teaching three sections of a course, and students were required to write three substantial term papers. In one section, the instructor imposed three equally spaced deadlines for these papers, with a penalty for missing a deadline. In another section, no deadlines were imposed, other than having to turn in the three papers by the last day of class. In the third section, students chose deadlines for themselves, with the understanding that a penalty would result from missing a deadline. Students in this last section were perfectly free to make all three papers due on the last day of class, which would seem to be the rational choice because choosing earlier deadlines would open the door to the possibility of late penalties. Nevertheless, many students did impose earlier deadlines on themselves, presumably as an effort to counteract their own tendencies toward procrastination. The instructor then compared student performance across these three sections and found that the section with deadlines imposed on them earned significantly higher scores than the others. Students with no deadlines whatsoever had the lowest average scores, suggesting that their freedom from deadlines inspired procrastination that led to lower quality of work.

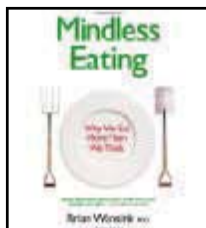


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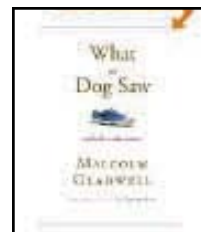
## STATISTICAL PLEASURE READING (CONT.)

By Allan Rossman

7. ***Mindless Eating***, by Brian Wansink. This author conducts fascinating studies about factors that subconsciously affect how much people eat. For example, his team of researchers invites guests at a party to scoop as much ice cream into a bowl as they'd like. Unknown to the party guests is that they have been randomly assigned to a certain size of spoon and a certain size of bowl, and the researchers then measure how much ice cream the guest helps him/herself to. As you would expect, those with bigger spoons and bigger bowls tend to take more than those with smaller spoons and bowls. Truth to be told, I enjoy reading about such studies because of my secret desire to participate in one of them.



8-11. ***The Tipping Point*, *Blink*, *Outliers...*, *What the Dog Saw***, by Malcolm Gladwell.



I've enjoyed all of Gladwell's books very much. One example from *Blink* has stuck in my mind because it is fascinating but also disturbing. This study involves giving an aptitude test to African-American students. Some of the students are randomly assigned to use a form that asks them to indicate their race, and the other half are not asked for this information. It turns out that those asked to indicate their race score significantly lower, on average, than those who are not asked about race. Presumably being asked about race reinforces the unfortunate negative stereotype that African-Americans are not as strong academically as other races, to the degree that this actually has an impact on the students' test performance. The premise of *Blink* is that such subconscious snap judgments have a profound impact on our lives.

12. ***The Drunkard's Walk***, by Leonard Mlodinow. This book contains great examples of how randomness permeates our everyday lives and how many people misunderstand basic ideas of probability. My favorite example involves showing a sequence of lights to people, with green randomly appearing  $\frac{3}{4}$  of the time and red showing up at random the other  $\frac{1}{4}$  of the time. When asked to predict what color will show up next, most people guess green about  $\frac{3}{4}$  of the time and guess red about  $\frac{1}{4}$  of the time. It's not hard to show that people using such a guessing strategy will be right about 62.5% of the time. (This probability can be calculated by the law of total probability:  $(\frac{3}{4})^2 + (\frac{1}{4})^2$ .) But when the same study is done with laboratory rats, with food pellets emerging from one chute  $\frac{3}{4}$  of the time and a different chute  $\frac{1}{4}$  of the time, where do you think the rats go? Exactly, to the  $\frac{3}{4}$  chute every time. You can see what that means: The rats are successful 75% of the time, which is considerably more than 62.5% of the time, which indicates that rats understand randomness better than most humans do!



## PARTNER SCHOOL

By Lina Ignatova

Each year high school students from different areas of California visit the Cal Poly campus and explore it for several days. The reason for their visit is to get a feel for the campus and the numerous possibilities of continuing their education after finishing high school. Every department in the College of Science and Mathematics organizes a learn-by-doing activity the main purpose of which is to demonstrate what each major is about and aid the students in their decision to select the major about which they feel the most passionate.

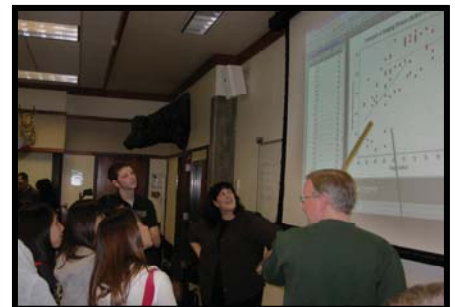
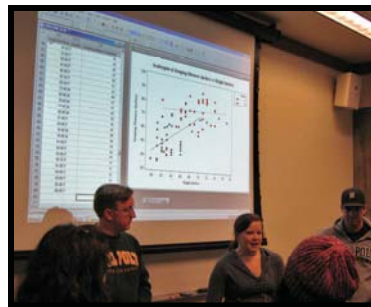
The statistics department activity was to assess whether height (inches) is associated with length of jump (inches); whether gender plays a role; and if there is an association between height and length of jump for the two genders, can we predict how far a person will jump on average if we know their height?

This year we had 10 groups of high school students, each consisting of six people. For each group we followed the steps of collecting the data, graphing it, analyzing it and interpreting the results.

Three Statistics students (Trina, Andy and Mat) shared their experience in the Statistics Department and were actively involved in the collection of the data.



Students were really excited about Cal Poly and the sciences. We hope that these learn-by-doing activities will make a difference and many will decide to continue their education.

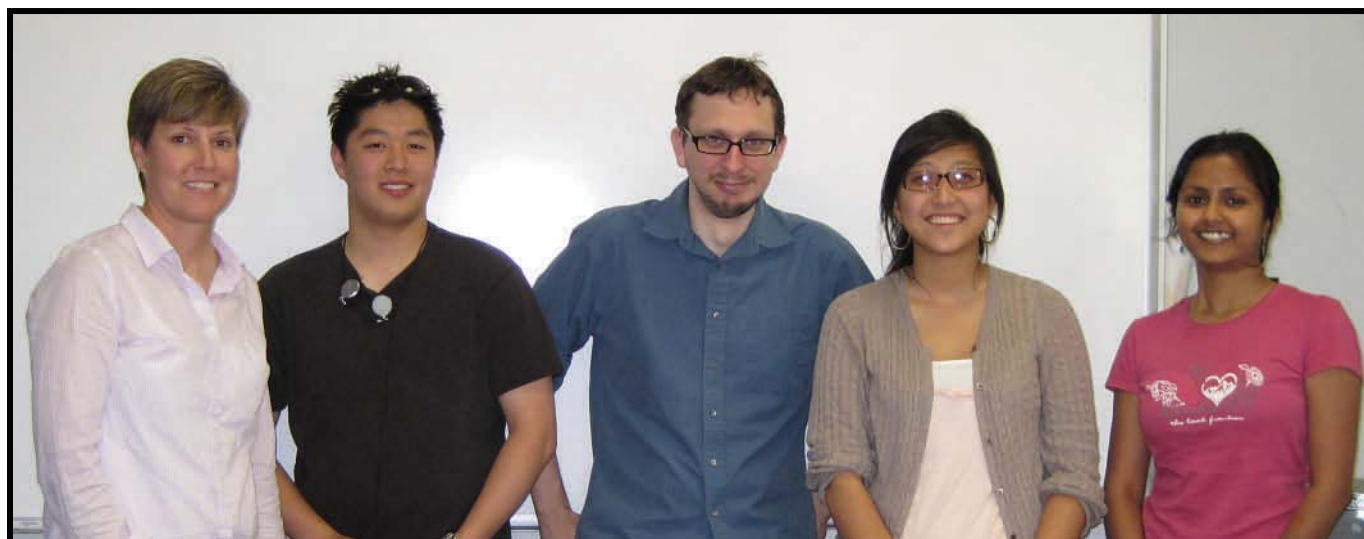


## THE COMPUTER EXPERIMENTS JOURNAL CLUB

By Soma Roy

The field of computer experiments is a relatively young area in statistics, and was my dissertation topic. For those not familiar with this area, computer experiments deal with collecting and analyzing data that are produced by expensive simulators, that simulate processes or systems from which it is impossible or infeasible to collect data. For example, to study the cost of damages incurred in car crashes, we would like to crash many cars to collect enough data. However, this would not be feasible – no manufacturer would let us crash the number of cars necessary for the experiment. We would then turn to car crash simulators and collect data from them. Computer experiments are a topic that is not covered in our curriculum so Dr. Karen McGaughey (who worked at AMD, and saw the industry applications of computer experiments) and I decided to offer students the opportunity to learn more about this area.

Last year, Dr. McGaughey and I started a Computer Experiments Journal Club. We met with the student members of the group once every two weeks and discussed journal articles about computer experiments. The students also played around with and wrote computer code to generate and modify designs that are widely used for computer experiments. The first four students in the journal club were Dave Evans, David Horn, Diana Shealy, and Jewels Lee. Winter quarter saw Chris Ling join the group, and Dave moved on to an internship opportunity. Dr. McGaughey and I hope to be able to offer this as a seminar class in the coming Fall quarter.



Dr. Karen McGaughey

Chris Ling

David Horn

Jewels Lee

Dr. Soma Roy



## FALL 2011 CURRICULUM CHANGES

By John Walker

We have made several changes to the statistics curriculum that will take effect in Fall 2011. In the statistics major, STAT 430 (Statistical Computing II: R) is being replaced by a new course, STAT 331 (Statistical Computing with R). The original STAT 430 course was an elective course, but the new course will be required of all Statistics majors—just as STAT 330 (Statistical Computing with SAS) is now. This change came from a year-long study of our computing curriculum. R is becoming one of the most important software tools for academic statisticians so we felt that it was important that all statistics majors learn R. More of our upper-level courses and senior projects are using R, so we've also moved it into the junior year of our major, so that students learn it earlier than before. To make room for this new required course we have reduced the number of elective courses in mathematics and computer science from three to two.



To fulfill the need for a quality control course, we have also added IME 430 (Quality Engineering) from the Industrial and Manufacturing Engineering Department to the list of electives available to our majors. IME 430 covers the theory of statistical process control and introduces students to control charts and other methods of sample inspection.

The requirements for the Statistics Minor are changing too. Currently, students must take seven courses: two introductory statistics classes, two 300-level statistics classes, two 400-level statistics classes, plus one course outside the Statistics Department that uses statistics. For almost all statistics minors, the one course outside of statistics is a class in their own major that they must take anyway so we have eliminated that requirement. This change should have no significant impact on most students. We have also made the minor more flexible by allowing students to take almost any four 300-or-400-level elective courses they want.

Finally, the College of Science and Mathematics is adding a new actuarial preparation minor, which will be supervised by faculty in statistics, mathematics, and finance. The courses in this new minor will satisfy course requirements set by the actuarial societies and help students prepare to take several of the actuarial exams. Because all of the minor requirements are satisfied by existing courses, the minor will have no negative impact on our current course offerings. We anticipate that several students in the statistics major will enroll in the new minor each year.

## SEMINAR ON TEACHING STATISTICS

By Allan Rossman, Beth Chance, and Soma Roy

Seven students participated in a one-unit seminar this quarter on teaching statistics. The students, many of whom plan to teach statistics and mathematics themselves, read seminal articles on changes in content, pedagogy, assessment, and uses of technology in K-16 statistics education. After weekly discussions, students also submitted a journal of reflections. We very much enjoyed these conversations and hope you will send us any ideas or feedback you have on better preparing our graduates who want to teach statistics in the future!

## MY FOND MEMORIES OF STATISTICS

By Carol Morris

It is with the fondest of memories that I announce my retirement from the Statistics Department and Cal Poly. This has been the greatest department I have worked for during my 27 years on campus. The past five+ years have flown by in hard work, but with lots of joy and laughter and wonderful memories. The faculty here are the best to work with because they are more than work associates, they are friends. The hardest part of leaving statistics is leaving the wonderful love, energy, and strength that the statistics students have, and have been willing to share with me. They have been more than a gift; they are gifts to which I get very attached. At the same time it is an honor to watch them graduate and move on to exciting adventures in their lives. Their energy has made my life so much richer. Now I must take care of my elderly parents. It will also be a gift to have the time to take care of them. So with a heavy heart, but a sense of joy and gratitude, I bid farewell. I will always remember the statistics dept. I thank each of you and will always hold a place for you in my heart.

## END OF THE YEAR SOCIAL

By Carol Morris

Every June the Statistics Department organizes a fantastic End-of-the-Year Social. All faculty, their families, significant others, and statistics majors, minors and their guests are invited. This year the turn-out was excellent (70+ people). I think the turn-out is so good because everyone has so much fun together.

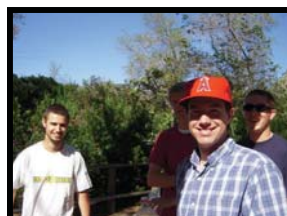
This year we went to Cuesta Park, just off campus for a B-B-Q and pot-luck that was fantastic. We have some great cooks in the statistics dept., and the stat students always bring wonderful food and deserts as well. Everyone went away stuffed and happy.

This year we want to thank Frank, Beth, and Ben Chance for getting the giant B-B-Q set up and ready for grilling.

It was fun to visit with families, and to get to know our faculty and students better, to see how the kids have grown since last year, and to enjoy one another's company. After dinner we had a student awards ceremony to honor our best students. We also had a funny faculty awards certificate presentation, which was put on by the students. They have a great sense of humor and great warmth. I was impressed with how hard the stat majors worked to make the End-of-the-Year Social so much fun.

The social is usually just before finals, and everyone needs a little relaxation and fun about that time of year.

*(more pictures continued on next page)*





## END OF THE YEAR SOCIAL (CONT.)



**Statistics Majors at the 2010 Social**



**Steve Rein B-B-Qing some great food for all**



**The Statistics MEN, ARG!**



**Friends, food, and fun at the 2010 Social**



**Awards and Recognition**



**Cuesta Park Social 2010**



## THANK YOU LETTER FROM AN ALUM

By Hunter Glanz (*Class of '09*)



I can't even begin to tell you all how grateful I am for the knowledge and experiences I gained throughout the program at Cal Poly. Few of you actually know what it's like to go on to graduate school after graduating from Cal Poly's Statistics program. I feel the transition this Fall into the graduate program in Statistics at Boston University was as successful as it was because of what I received from my professors and the program at Cal Poly.

In registering for my classes this Fall my adviser, Dr. Eric Kolaczyk, told me they did not want me taking anything I had definitely already seen or had. This led to his suggestion that I skip BU's Master's level probability theory and mathematical statistics classes (hopefully this was not a sign of weakness in BU's program). Consequently, I am currently enrolled in BU's Ph.D. level probability theory and estimation theory sequences. Unfortunately, Dr. Kolaczyk somewhat underestimated some of the other classes I'd taken at Cal Poly. Because a large number of the entering graduate statistics students have degrees in mathematics, Dr. Kolaczyk usually does not anticipate students' having as much applied experience as I had coming from Cal Poly. As a result the linear models class I am in (the first in a sequence of two), has so far been only a slightly more theoretical version of the Linear Regression class offered at Cal Poly (STAT 324). These three classes have been both challenging and within my reach because of the classes required of statistics majors at Cal Poly and the mathematics classes suggested by Poly's statistics professors such as Real Analysis and Linear Algebra.

It's said that you don't really know what you have until it's gone. As aware of the greatness of Cal Poly, and the Statistics Department especially, that we all are, this is still somewhat true. I loved my experience in the program at Poly I think as much as anyone could.



After being here at Boston University for only a few months, I realize even more how uniquely amazing Poly is. Maybe after a few years it will be different, but even now it's hard to feel the same kind of bond with BU's department that grew so quickly between me and Poly's Statistics Department. Right now everything here just seems so much more serious. In order for someone to attend graduate school that person must have a deep desire and motivation to continue their studies. Everyone here must have that desire. However, beyond this desire I believe Poly's statistics majors *enjoy* what they're doing and studying (at least more visibly so than those here). Things aren't just interesting, they're fun at Poly. Poly's faculty makes it so. I acknowledge that my classmates at Poly contributed to my experience as well, but I dream of returning to Poly regardless of their presence.

It's probably premature of me, but I can't imagine a happier future at this point in time other than rejoining Poly's Statistics Department to teach alongside some of the best professors I've ever had. Those of you who had me in a class know who you are. Each of you deserves special thanks for being the great teachers, mentors and role models you were for me. Ultimately though, everyone in the department makes it what it is. I want to thank everyone for making time for me whenever I had a question, needed advice about my future or wanted to know more about a particular subject. Thank you for always being there for me. The Cal Poly Statistics Department will forever be infused in any success I achieve.

Thank you,

Hunter Glanz



## FLASH PROJECT (STRIDE RESEARCH)

By Mat Adams, Katrina Jackson, and Andy Zbin

Last summer Professor Smith gave the three of us the opportunity to join a research team. We all thought it would be good experience and provide for some extra money during the summer. However, it turned into much more than a summer research job. We were hired to continue our work throughout the rest of the school year in which we made presentations, got hands on experience with real data, got to be consultants for a client, learned a lot about working with a team, gained invaluable computer skills and ended up with a great senior project.

Our project is the FLASH project brought about by STRIDE, a research division in the Kinesiology department. The project involved a survey and physical assessment given to students over the past two years. The survey asked questions about the students' perceived physical health measurements and their daily lifestyle habits. The physical assessment measured students' physical attributes such as height, weight, waist circumference, BMI and blood pressure. At first our job was simply to "crunch" the numbers and give our client the output. We soon learned what our client liked and what our client did not like; we have been constantly making improvements to the way that the output is presented in order to ensure complete understanding of the information presented as well as the ease of navigation throughout the pages and pages of requested analysis.

What we found to be the most interesting result in this data set so far is that as a student's year in school increases, so does the prevalence of obese and overweight students. We actually found this to be a significant relationship in that students in their third or fourth year of college are just over two times more likely than students in their first year of college to be overweight or obese. It was also interesting

to see the difference between a students' perceived health status and their actual health status. About 91% of those who responded said they were in good, very good, or excellent health. When you compare this to the fact that close to a third of those who responded were actually overweight or obese and thus not in good health, you can see that many of the students perceived their health to be better than it was.

Through our analysis we learned a lot about the process of designing questionnaires and were able to help a team of Kinesiology professors design a questionnaire that would help better ask the questions that they wanted answered. After a year of working together on this project we learned a lot about each other and more specifically how to work well with others even when you do not agree on things. We all learned to pick and choose our battles, and how to communicate more effectively with each other. We also learned how to communicate more effectively with our client. Our first memos were straight output from SAS, which is very rough and hard to really piece together if you do not know what you are looking at. Now, our memos are much more straightforward. We individually go through each frequency table to make sure it is formatted in a way that eases the understanding process. We have also devised a new way of presenting the results from the tests that we run—a simple table that gives the p-values for each test run, and if the p-value is significant it is highlighted. From there, the tests that were significant are then summarized in another table. Through this, we have minimized the amount of confusion over the topic of Logistic Regression.

Overall this project has been a great experience and we hope that more students get the opportunity to work in such a unique project and have similar positive experiences to ours.



## Statistics Career Day

By Megan Evans

In February I had the opportunity to travel down to the City of Hope for a Statistics Career Day hosted by the Southern California chapter of the American Statistical Association with a few fellow Statistics students. Most of us were graduating or had jobs on our mind. With the poor state of the economy, we were eager to take advantage of an opportunity like this! I was also excited to get to know my hotel roommates, Trina Jackson and Tempus Fuggitt. What great girls! We had so much fun getting to know each other on the trip.

The career day started with panel discussions regarding statistical careers in government, the private sector, and education. The discussions were very interesting and provided great perspective on possible career choices. Some of the companies represented at the career fair included Amgen, FICO, Kaiser Permanente, US Census Bureau, and Pacific Life. Representatives from UCLA Department of Statistics and USC Department of Biostatistics were also available at the fair.

At the time we visited the career fair, I was applying to countless actuarial internships, as I had passed the first actuarial exam in January. The process had been frustrating; I had received very few responses to my applications. However, at the career fair I was lucky enough to meet Kelly Dean from Pacific Life. From the beginning, an internship with Pacific Life was my number one goal. To make a long story short, after meeting Kelly and keeping in touch, I have secured the actuarial internship with Pacific Life for the summer. I am very excited to get started as an intern, and am grateful to our very own Statistics Department for providing us with this excellent opportunity!



## Congratulations to our 2010 Graduates!

**Saba Abuhay**

**Kyle Gasperik**

**Peter Osmena**

**Mathew Adams**

**Aaron Hardiek**

**Joseph Rolle**

**Audrey Bigelow**

**David Horn**

**Michelle Shaffer**

**Daniel Bragonier**

**William Judson**

**Lauren Sweeney**

**Huey Dodson**

**Andrew Kaplan**

**Brian Verbaken**

**David Evans**

**Ryan Milhous**

**Andrew Zbin**





## Keeping in Touch

### William T. Doyle (*Class of 1982*)

I graduated from Cal Poly in 1982, with a BS in Statistics. My favorite Professors were Drs Attala, Keller, and Devore.

I started my career with the US Navy and I served as a student intern from 1978-1980 at the Naval station in Port Hueneme, CA. From 1980-1986 I worked for a contractor programming a Management Information System for the Tri-Services in Southern California. In 1985 I accepted a civilian job with the Department of Army and was stationed at Fort Belvoir, VA. In 1986 I worked for the Army as a programmer at the Warrior Preparation Center, near Kaiserslautern, Germany. From 1993-1995 I transferred to Riyadh, Saudi Arabia and served as their senior automation advisor to the Saudi Arabian National Guard. From 1995-2008 I served as the Director of Information Management for Forts Drum, Campbell and Huachuca. In 2006, I volunteered for a six-month tour in Afghanistan working for the US Army Corps of Engineers and was stationed in Kabul. From 1999-2000 I attended the Naval War College in Newport, Rhode Island and obtained a Masters in National Security and Strategic Studies while stationed there. From 2008-2010, I served as a Regional Chief Information Officer for the 595th Transportation Brigade located in Kuwait with responsibility for IT port operations in Southwest Asia. I currently work for the US Army Corps of Engineers in San Francisco and have responsibility for IT operations in five western states.

In 1990-1993 I published a number of articles on how statistics are used in war game simulations.

I have been married to my wife, Heidi, for the last 33 years, Heidi graduated from the Natural Resources Management College at Cal Poly in 1979. She has been working for the California State Parks since 1980 and is currently the chief ranger at Lake Tahoe, CA. We have a year-round home on the North side of Lake Tahoe. We have three children

*(Continued next column)*

### William T. Doyle (*Cont.*)

Sarah (19), Corey (22), and Ben (27) and the eldest recently graduated from UC Berkeley.

I enjoy golfing, tennis, guitar, biking and sailing.

### Hunter Glanz (*Class of 2009*)

The first year of graduate classes went well at Boston University, especially because I got to skip two because Cal Poly's classes were so great! I passed my first of three qualifying exams and will be taking my remaining two this year. I spent my first year as a Teacher's Assistant and enjoyed it very much. For the year spanning June 1, 2010 to May 31, 2011, I was accepted onto a GK-12 grant here at Boston University nicknamed GLACIER. GLACIER stands for "GLObal Change Initiative - Education and Research." Essentially I am a Researcher's Assistant but with many other responsibilities and perks. As a GK-12 fellow I was paired up with a middle school science teacher in the Boston area. The grant administrators have put me and nine other GLACIER fellows through training and workshops in pedagogy this summer in preparation for two weeks spent at the end of the summer with our teacher partners. During these two weeks we'll be discussing how to teach science and develop scientific thinking, communicate our research to a younger audience and integrate the theme of global change into both our research as well as traditional middle school science curriculum. This school year, in addition to taking classes and doing research, I'll be spending at least 10 hours per week in my partner's classroom as a "co-teacher" with a very special skill set. I will sneakily try to foster an enthusiasm for statistics in these seventh and eighth graders. Hurray! Needless to say, it will be a very busy year, but I look forward to it. The research project I've decided to pursue with my statistics professor on the grant is the question of land-class classification from a functional data analysis perspective, using



*(Continued on page 34)*

## Keeping in Touch (*Cont.*)

### Hunter Glanz (*Cont.*) (*Class of 2009*)

geographic data obtained from satellites circling the Earth. While this will be a good way to at least get my feet wet, I have not yet decided on a research topic to pursue for the next four to five years. In addition to my classes this past year I had the pleasure of helping a few graduate students with some more serious statistics, utilizing many of the consulting skills I gained in Cal Poly's STAT 465. Until next time, thanks for everything Cal Poly Statistics Department.

### Tristan Grogan (*Class of 2009*)



I've just completed my second summer internship with the Gallo Winery in Modesto, CA. It was great to come back to the same company. The process of relocating is much smoother when you know what to expect and the faces are familiar. It was also great to have a fresh Cal Poly graduate, Andy Zbin, join me.

I should graduate this year with my MS in Applied Statistics from Cal State Long Beach. I've enjoyed the program there so far. I was very prepared after Cal Poly's rigorous program. I'm still not sure where I'll end up working, but will start the application process soon.

Working in the CSULB consulting center has been one of the most beneficial activities for me. I think courses are good for exposure to methods, but you really don't learn how to apply them until you work in consulting or with work experience. I would highly recommend consulting for any aspiring statistician.

Although I graduated from Cal Poly in Winter 2009, I've been back to visit a few times and can't wait to visit again. I love seeing where people are now and how the professors are doing. Many thanks to everyone in the department and my fellow alumni!



### Daniela Sakamoto (*Class of 2009*)

Life after Cal Poly has been full of new challenges and opportunities. Currently, I work at Amgen in the Information Systems department supporting the Biostatistics and Clinical Data Management departments. Amgen is the world's largest biotech company manufacturing human therapeutics. My work consists of many diverse aspects where I take on different roles. I am a project manager and business analyst for a handful of projects. One of these projects is enhancing a system that statisticians use to randomize patient to drug data in clinical trials. Some of my responsibilities include discussing with statisticians what they would like the new system to do, managing project timelines and budget, and making sure everything follows the correct protocol. I also continue to be heavily involved with SAS both on the programming side and on the backend side of things. I write SAS reports for the Clinical Data Management department and am involved in projects that involve SAS installations on UNIX in a variety of different fashions. Needless to say, I have been kept very busy and challenged over the past year.

Outside of work, I try to experience everything that Thousand Oaks and nearby Hollywood and Santa Monica have to offer by visiting beaches, going to concerts, and just enjoying the nightlife. I have made some very good friends (mostly from the college hire network at Amgen), which has made my transition from school to work fairly easy. My free time may be short-lived, however, since I am considering pursuing my dual masters in Biotechnology and an MBA program starting at the end of this year. My statistics degree has been a great help to me in the workplace, and I am thankful for all the opportunities and knowledge the Statistics Department offered me.

(*Continued on page 35*)

## Keeping in Touch *(Cont.)*

### Max Wise *(Class of 1999)*



I've been working for Educational Testing Service for ten months now, and it's going great! I work on a few different tests, and I am now the lead data analyst for some smaller test administrations. I am learning a lot about item response theory, a field of statistics I didn't know much about until I started work, and I am always utilizing my SAS skills. Having prior SAS experience and being SAS certified was a valuable attribute when trying to find employment, and I am very grateful that I was able to obtain those skills at Cal Poly.

Outside of work I am enjoying life in Monterey! Like in San Luis Obispo, there are tons of places to enjoy outdoors. I've been running a lot and finding new trails, and I'm looking forward to a 10K in a couple of weeks. Another great thing about Monterey is that I get to hang out with a couple of Cal Poly Stat buddies. Tyler Benz and I have been playing a lot of disc golf, and Lauren Olerich has been sharing many delicious desserts she creates! It's fun having people to talk with about Cal Poly and statistics.

I miss the Cal Poly Statistics Department quite a lot, but I am very happy with life after college!



## MEET THE NEW ADMINISTRATIVE COORDINATOR

By Melody Pietsch



John and Melody Pietsch

I am a native San Luis Obispo! I have worked at Cal Poly for about 16 years, beginning in 1985 with a 10-year break to home school my two youngest children. I came back to campus in 2005 in the same position I held 15 years earlier. How strange is that? I have a wonderful husband, who retired from the Cal Poly College of Education and is now working in the training field and programming. We have three children: Kari, Aimee and Michael. Kari and her husband, Isaac, have our two granddaughters, Mikayla (2 ½) and Callie (2 months) and live in Petaluma (too far away for grandma!), Aimee is attending Boyce College in Louisville, KY; and Michael is in his last year at Cal Poly in Political Science. We live in

Atascadero on about 2 acres with two dogs, 1 cat and many rodents!

I have varied interests of travelling, music, reading - mysteries, historical novels, really almost anything. My favorite past time is scrapbooking – writing my story and the stories of my family and friends.

I am looking forward to working in the STATS department with new faculty and students. I enjoy the academic environment and the 'learn-by-doing' philosophy. I will learn by doing when Carol leaves, but she has graciously said she will help me as I embark on this new adventure.





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### JULY 2009 – JUNE 2010

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