As the University literally fell off the proverbial fiscal cliff these last few years, my mission was to position us as a central ingredient to maintaining, and in fact growing, the research infrastructure. As we know, Mathematics and Statistics are the bridges, the means of communication, the foundation for scientific exploration across the University. This vision came to fruition last year as the University instituted a hiring plan through “Areas of Excellence”, allocating our precious budgetary resources towards select pillars of strength where we could become trailblazers and national leaders. Our Department faculty met the call, leading 8 of 28 proposals. Climate and Sustainability Studies and the Viral Information Institute were selected as two of four AoEs funded, the Department now searching for faculty members in climate mathematics and biomathematics to support these areas. And the STEM Learning initiative was selected as one of eight AoE finalists, allowing the College to leverage our excellence in Mathematics Education towards a strategic hire in the area. The Department was also awarded one of only fourteen positions University-wide in 2012, hiring Professor Chris Curtis to our renowned Dynamical Systems group, and is searching this year for a harmonic analyst. We are also playing a key role in a learning analytics initiative on campus. As part of a grant from the CSU Chancellor’s office, Department faculty and students are applying educational data mining tools to study student success and STEM recruitment/retention as part of mathematics and statistics bottleneck courses.

We are not out of the woods yet. The “good” news going around campus is that our budget is flat this year, as opposed to the devastating cuts we have endured for the last 5+ years! California made the first step last year, investing in education with Proposition 30. But we continue to be on the brink of disaster, not just at the CSU but the education system state-wide. I continue to implore you to voice your opinion on the critical need to place education as a priority, and funding of mathematics as the foundation of the sciences and of society. Without such prioritization, our children cannot compete in this global economy, cannot thrive in this new “flat world”. And if you were savvy enough to take advantage of Wall Street’s volatility, please see the last page of the newsletter for other ways to help us!

We have much more to share, as our students and faculty hop around the globe sharing their passion for mathematics and statistics. Enjoy reading up on some of our exploits herein as well as at our Department website. And please do share your news with the SDSU Math/Stat family.

Rich Levine, Chair
Department of Mathematics & Statistics

Meet our amazing new GTA’s... and there’s lots more fabulous friendly faces on page 3
Welcome new faculty

Christopher Curtis, Assistant Professor of Mathematics

Chris is an applied mathematician working in the area of nonlinear waves. In particular, he focuses on nonlinear phenomena in fluids, optics and low-temperature physics. His work incorporates various techniques from analysis and numerical simulation. Currently, he is most interested in the role nonlinearity plays in the field of honeycomb optical lattices, and in particular, the role of nonlinearity in the propagation of topologically protected edge modes.

General Information
Contact Info
Experience
Education
Professional Activities
Teaching
Publications

New Promos

Barb Bailey and Jianwei Chen promoted to Associate Professor.
Peter Blomgren and Diana Verzi (IVC) promoted to Professor.

Emeriti... where are they now?

My retirement plans include keeping busy teaching in the Fall semesters this year and in the following four years. I still enjoy teaching Calculus, Advanced Calculus and Complex Analysis. The fact that I am using my own material to teach these courses makes teaching even more enjoyable. Even though I do not coordinate Calculus anymore, I intend to keep in touch with my colleagues who teach Calculus, hoping that my younger colleagues will benefit from my lengthy experience in that area, both as a teacher and writer. I also intend to devote most of my free time in springs and summers to polishing my Advanced Calculus and Complex Analysis lecture notes and publish them as books. This activity will continue even when I go to full retirement mode about five years from now. I will visit my Mother in Turkey for at least one month each year, of course.

Lee is shown here with his fellow Math Emeriti hikers at Sloan Canyon. Pictured (L) are Don Lutz, Frank Holmes, David Macky, David Lesley, Lee, Al Shenk, John Elwin, Vladimir Rotar and his son (who is not a Math Emeritus).
Meet our amazing new GTA’s…continued from page 1

Some MATH & STATS TA Profiles
Candidate, degree objective, teaching course, and goal.

NANEH APKARIAN: Ph.D., Math 210, Ph.D. program
PETER CALHOUN: Ph.D, STAT119A, sports statistician
ANTONIO DIPACE: Ph.D, Computational Science, Math 141, aerospace engineer
CHARLES GAMBLE: MA Teaching Service, Math 150, community college teacher
SAENAL KIM: MA Teaching Service, Math 150, community college teacher
RAYMOND LA ROCHELLE: Ph.D, Math 210, math education
TYLER LEVASSEUR: MA Math, Math 121, Ph.D. program
SHELBI MAYO: MS Appl. Math, Communication Sys., Math 105, 150, community college teacher
KEITH SHERER: MA Teaching Service, Stats 311; community college teacher
PETER WANG: MS Statistics, Stat 119A, Ph.D. program
YIFAN ZHU: MS Statistics, Stat 119, data analyst or statistical consultant.
Ricardo Carretero traveled to China this Summer to visit China Jiliang University in Hangzhou, Zhejiang province, and East China Normal University in Shanghai. Dr. Carretero has an ongoing collaboration with Prof. Manjun Ma from China Jiliang University. Prof. Manjun Ma was a postdoc at SDSU in 2007-2008 with Prof. Carretero. As part of the visit Carretero imparted an intensive course on “Dynamics of Coherent Structures in the Nonlinear Schroedinger Equation” (see photo) at China Jiliang University and gave an invited public lecture on “Vortex pairs in Bose-Einstein condensates: from the quantum Spirograph to symmetry breaking bifurcation” at East China Normal University.

Susan Nickerson enjoyed a one semester sabbatical consisting of an extended visit at the Mathematics Education Centre at Loughborough University in England, and to the Department of Mathematics at East China Normal University (ECNU) in Shanghai. While at Loughborough Univ., Susan learned of a successful initiative aimed at increasing and widening participation in Science, Technology, Engineering, and Mathematics (STEM). Prof. Croft shared research and evaluation on a project whose goal is to produce well-qualified mathematics graduates that report a positive experience in mathematics.

The School of Mathematics at Loughborough has a traditional UK 3 or 4-year undergraduate degree that emphasizes proof-based mathematics from the first year. The Peer Assisted Learning (PAL) intervention was focused on second-year Vector Spaces and then replicated in Complex Variables. The course met 3 hours per week—two hours of ‘lecture’ and one hour ‘tutorial.’ They recruited and trained students who were successful in the module and then these leaders led weekly 50-minute PAL sessions. The student leaders were not paid. Briefly, they found about two-thirds of the students took advantage of the PAL sessions. They found a positive correlation between students’ PAL attendance and their final grade, even after controlling for prior attainment and lecture attendance. This seems like a promising intervention to investigate.

SDSU contributes to sustainability in China

Eleven SDSU students participated in a 2-week study abroad program at Xiamen University in China. The Summer School on Climate Change is focused on global climate change and vulnerability of natural resources and was led by Sam Shen (mathematics) and Chun-Ta Lai (biology).

See report: http://www.math.sdsu.edu/sustainchina/
Ulm students participate in Summer School in China

Carina Mueller and Daniel Michaelis, our recent exchange graduate students from Ulm, Germany, attended interesting lectures on “Climate Change and Vulnerability of Natural Resources” held by Chinese as well as American professors. They learned how global warming emerges and what consequences we will face if we keep on emitting greenhouse gases. They looked at this in a global setting but also focused on the effects in Asia and especially in China. One lecture dealt with mangroves which grow in wet regions and serve as a natural protection against tsunamis. A field trip to a large mangrove field gave them even more insight. They enjoyed a beautiful landscape during another field trip to a dormant volcano. Besides the classes and field trips, they worked on a paper and a presentation. They enjoyed experiencing many cultural differences but they also observed many situations in common with the Chinese students. Carina and Daniel were grad students in Sam Shen’s Climate Research Lab.

Graduating GTA’s were interviewed shortly after Commencement…and comments they shared with us.

Jaime Marie Diamond, Ph.D.,

Jaime defended her dissertation titled, “Teachers’ Beliefs Regarding the Generalization of Students’ Learning and How to Support the Generalization of Students’ Learning.” Her dissertation chair was Joanne Lobato. Jaime has accepted a position as an Assistant Professor in the Dept. of Mathematics and Science Education at the University of Georgia in Athens. Jaime stated, “Education is not just about learning a subject. As one strives to make sense of a particular content area, one is transformed personally. One grows from someone who wonders about and questions personal abilities and capacities into someone who knows without question one can do anything. Education is about growth and striving to know and be more. I don’t think it ends with a degree, but it may start with one!”

Dov Zazkis, Ph.D.,

Dov defended his dissertation titled, “Calculus Students’ Representation Use in Group-Work and Individual Settings.” His dissertation chair was Chris Rasmussen. Dov has taken a position as a Postdoctoral Researcher in the Graduate School of Education at Rutgers University where he will be working with Keith Weber and Pablo Mejia Ramos.
I am currently working as a computational scientist at SPAWAR Systems Center Pacific in Point Loma CA. I was hired through the New Professionals program, which transitions recent graduates into the workforce. I hope to be involved in research that is related to what I did for my dissertation. My dissertation was titled “Computational and Mathematical Modeling of Coupled Superconducting Quantum Interference Devices”. I derived systems of equations that governed arrays of Superconducting Quantum Interference Devices (SQUIDs) and then used the computed output to design devices optimized for use as new type of antenna. The research included many different array designs and coupling schemes. Once specified designs were fabricated, experimental results were provided by the sponsor to compare against those obtained in the simulations.

Susan Berggren, Ph.D.

After successfully completing the doctoral program, Sara continued her work as a Scientist and Mathematician at SPAWAR Systems Center here in San Diego, CA, where she has worked since 2009. Sara’s current research: involves lung functionality modeling and prediction for patients with COPD (Chronic obstructive pulmonary disease). Asked about her future plans she replied, “I have already filed my final PhD research results as a Patent. For future I am planning to open my own Biomedical company and commercialize that patent. In addition I would like to stay active in research by working as a faculty in a University. The goal of my research was to create and develop a computational and mathematical model of a lung with Cystic Fibrosis (CF) that is clinically useful in diagnosing and treating CF patients.” My dissertation was titled, “Mathematical Modeling of Cystic Fibrosis.”

Sara Zarei, Ph.D.

I’m working at a private research company as a Senior Research Scientist. I conduct research on the condensed matter physics, particularly of palladium hydride system. I’m looking for a possible energy source from hydrogen storage system. My dissertation was on Bose-Einstein condensates (BEC) and I studied the vortex dynamics of two-component BECs. By varying multiple parameters of the system, the motion of the vortices are investigated theoretically and computationally.

Eunsil Baik, Ph.D.

Lucie Sharpsten defended her dissertation on July 16, 2013. Dr. Sharpsten worked under the supervision of Professor Juanjuan Fan on developing random forest methods for predicting glaucomatous progression. She studied at SDSU as an ARCS Scholar. Her initial work will be published in the International Journal of Semantic Computing, with a series of manuscripts submitted for journal publication to follow in the remainder of the year. Dr. Sharpsten currently works as a Senior Statistician in the Department of Ophthalmology in the UCSD School of Medicine.

Photo: Drs. Levine, Fan, Sharpsten, Bailey, and Angus (CGU)
Jonathan Wilson, Ph.D., becomes the first official Computational Statistics graduate, having defended on February 25, 2013. Dr. Wilson worked under the supervision of Professor Kristin Duncan on opinion pooling, particularly developing methods to elicit individual beliefs, aggregate consensus opinions, and drawing forecasts for decision makers. He published in the journal Chance an application of his work to studying prediction markets. His pooling methodologies appear in an article in the journal Risk Analysis and a paper submitted for publication in the journal Information Sciences. Dr. Wilson currently works as Manager of Analytical Services at Petco Animal Supplies in San Diego.

In Fall 2012, SDSU Statistics students started the Society of Statisticians and Actuaries. As an official University organization, the Society aims to provide advice and networking for undergraduate students interested in actuarial and statistics careers. The Society hosts seminars and panel discussions by local experts in the field and serves as a central body for organizing study groups and review sessions for the actuarial (SOA) exams. Jenna Grantham (President) and Breanna Jo McArdle (Vice President) lead the effort to form the Society, along with Kieran Sprunk (Treasurer), front row third from left.
Joey Lin hosted the first official meeting of the Society of SAS Users at SDSU. Email contact for information on future meetings: sasusersdsu@gmail.com.

Mathematics Research Experience for Undergraduates
The SDSU Mathematics REU, under program director, Vadim Ponomarenko, enters its fifth year with a talented group of students, representing 12 outstanding institutions (including, of course, SDSU). These students are working on two problems from the general area of combinatorics, namely Group Testing and Hadamard Difference Sets. The program runs for eight weeks each summer, thanks to the support of the National Science Foundation. Outcomes typically include published papers, improved chances for graduate school, and high participant satisfaction. For more information: http://www.sci.sdsu.edu/math-reu/index.html

Important Units of Measurement and Mathematical Equations

- Ratio of an igloo’s circumference to its diameter = Eskimo Pi
- 2000 pounds of Chinese soup = Won ton
- 1 millionth of a mouthwash = 1 microscope
- Time between slipping on a peel and smacking the pavement = 1 bananosecond
- Weight an evangelist carries with God = 1 billigram
- Time it takes to sail 220 yards at 1 nautical mile per hour = Knot-furlong
- 365.25 days of drinking low-calorie beer because it’s less filling = 1 lite year
- 16.5 feet in the Twilight Zone = 1 Rod Serling
- Half of a large intestine = 1 semicolon
- 1000 aches = 1 kilohurtz
- Basic unit of laryngitis = 1 hoarsepower
- Shortest distance between two jokes = A straight line. (think about it for a moment)
- 453.6 graham crackers = 1 pound cake
- 1 million microphones = 1 megaphone
- 1 million bicycles = 2 megacycles
- 2000 mockingbirds = two kilomockingbirds (work on it.... :)
- 10 cards = 1 decacards
- 1 kilogram of falling figs = 1 Fig Newton
- 1000 cubic centimeters of wet German socks = 1 literhosen
- 1 millionth of a fish = 1 microfiche
- 1 trillion pins = 1 terrapin
- 10 rations = 1 decoration
- 100 rations = 1 C-ration
- 2 monograms = 1 diagram
- 8 nickels = 2 paradigms
- 3 statute miles of intravenous surgical tubing at Yale University Hospital = 1 I.V. League
- 100 Senators = Not 1 decision
- In Memorium -

Albert Raymond Harvey, Math Chair, 1952-55
1921-2013.

James Ross, Emeritus math faculty
1939-2013.

Dr. Arnold Lewis Villone, Emeritus math faculty
1934-2013

Full obituaries may be viewed here: http://www.math.sdsu.edu/people/obits/

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Trajectories & Tangents is published annually for friends of the SDSU Department of Mathematics & Statistics.

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Fare the Spear – Godspeed