

Bios

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Biology Dept., see www.csun.edu/biology

California State University, Northridge

Biology Department Adds Two New Tenure-track Faculty Members

Dr. Liu investigates Bioluminescence

Dr. Liyun Liu arrived at CSUN in July, and he is eager to start working with CSUN students. This semester he is teaching Recombinant DNA Techniques, a course that emphasizes methods widely used in both basic biomedical sciences and the biotechnology industry.

Liu finished his high school education on a farm in southern China. By day, he worked in soybean fields, and by night he studied academic subjects. After passing the national college admission exam, he was assigned to go to Hunan Teachers' College in Changsha to study biology. At the time biology was his least favorite subject.

"During that period in China, being accepted into a four-year college was a bigger deal for a farmer's child than you might think. We had only two routes for establishing a legal residence in cities and landing a government job: to be admitted into a college or to be selected to serve in the armed forces. I was very happy to be accepted into college, even though I was not allowed to choose a subject I wanted to major in," says Liu.

Gradually, however, as Liu learned more about biology he became interested in it. In his sophomore year he took a Plant Taxonomy course, taught by a Dr. Shaobing Wan. "The students collected plants from mountains, ponds, and roadsides and Dr. Wan showed us how to identify them. His teaching was full of passion and patience," says Liu, "two traits I am striving for now as I teach my own classes."

By the time he graduated, Liu wanted to be a researcher specializing in plant genetic engineering. He had not forgotten going to bed with a stomach half full during his teenage years and was hoping to produce high-yield crops. He got into the graduate school of Nankai University, located in Tianjin south-east of Beijing, where he received his master's degree after completing a thesis entitled, "A comparative study of early embryogenesis in legume species." In the subsequent three years, Liu

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Dr. Stein studies Intracellular Trafficking

Dr. Mary-Pat Stein comes to us from Yale University's School of Medicine where she did a three-year post-doc.

Her research at Yale was on how the bacterium that causes Legionnaire's disease subverts host cell functions to create a replicative niche. When asked how she became interested in the topic, she responded, "I worked on the plague and before that on anthrax.

I'm basically interested in how bugs use us—how they get into human cells, how they evade the immune system and how they take over our cellular functions."

More specifically, Stein is working out how *Legionella* recruits vesicles from the host cell. Vesicles bud off from the endoplasmic reticulum and normally are transported to the Golgi. *Legionella* gains control of those vesicles to remodel the intracellular vacuole in which it lives. Recruitment of host cell vesicles to the *Legionella*-containing vacuole appears to make use of the host cell's SNARE proteins that allows vesicles to bind and fuse with one another. "My research strives to identify and characterize *Legionella* effector proteins that bind to the host's SNARE proteins."

Before Yale, Stein was at the University of New Mexico for ten years doing her Ph.D. work and her first post-doc, during which she identified a binding partner of Rab-7, a small GTPase critical for endocytic transport. Endocytic transport is a means by which cells take up foreign materials and transport them to lysosomes where they are broken down for use as cellular metabolites. This is in contrast to the work with *Legionella*, which is primarily concerned with exocytic trafficking, the process whereby cellular components (such as proteins, carbohydrates and lipids) are synthesized and transported to their appropriate cellular destinations. For her Ph.D. dissertation Stein studied C-reactive protein (CRP), an important molecule in the

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New Publications by Biology Faculty and Their Students*

Dr. **Tim Karels** has two new papers. “Threats to avifauna on oceanic islands” by H. S. Trevino, A. L. Skibiell, Karels, and F. S. Dobson is in *Conservation Biology*. “Social structure and facultative mating systems of hoary marmots” by C. J. Kyle, Karels, C. S. Davis, S. Mebs, B. Clark, C. Strobeck, and D. S. Hik is in *Molecular Ecology*.

Dr. **Cindy Malone**, students, and colleagues have two new papers. “B29 gene silencing in pituitary cells is regulated by its 3' enhancer” is in *Journal of Molecular Biology*, by Malone, A. I. Kurashy, F. M. Fike, CSUN students **R. G. Loya** and **M. R. Mikkili**, M. A. Teitell, and R. Wall. “Pir51, a Rad51-interacting protein with high expression in aggressive lymphoma, controls mitomycin C sensitivity and prevents chromosomal breaks” is in *Mutation Research* by S. E. Henson, S. C. Tsai, Malone, S. V. Soghomonian, Y. Ouyang, R. Wall, Y. Marahrens, and M. A. Teitell.

The *Journal of Insect Science* is publishing “Phototactic responses to ultraviolet and white light in various species of Collembola, including the eyeless species *Folsomia candida*” by **Gregory L. Fox**, **Catherine A. Coyle-Thompson**, the late **Peter F. Bellinger**, and **Randy W. Cohen**.

There are five new publications from Nearshore Marine Fish Research Program, i.e., Drs. **Larry Allen** and **Mark Steele**, and their students. “Observations on the mating behavior of captive spotted sand bass” by **E. F. Miller**, and Allen; and “The fish assemblages inside and outside of a marine reserve at Santa Catalina Island” by **J. T. Froeschke**, Allen and D. J. Pondella II are in the *Bulletin of the Southern California Academy of Sciences*. “Captive breeding of spotted sand bass in southern California” by E. F. Miller, and Allen is in *California Fish and Game*. “Assessing the magnitude of intra- and interspecific competition in two coral-reef

fishes using a response surface experiment” by G. E. Forrester, B. Evans, Steele, and R. R. Vance is in *Oecologia*. “Sampling characteristics and biases of enclosure traps for sampling fishes in estuaries” by Steele, S. C. Schroeter, and H. M. Page is in *Estuaries and Coasts*.

The *Canadian Entomologist* has published a paper by **D. A. Gray**, P. Barnfield, M. Seifreid, and M. H. Richards, “Molecular divergence between *Gryllus rubens* and *Gryllus texensis*, sister species of field crickets.”

The cyanobacteria lab has a new paper. “Identification of *Nostoc punctiforme* akinete-expressed genes using differential display” by **C. Argueta**, **K. Yuksek**, **R. Patel**, and **M. L. Summers** has been published in *Molecular Microbiology*.

Integrative and Comparative Biology will be publishing a review that Dr. **Robert Espinoza** is a coauthor on: “The importance of physiology in conservation biology.”

There is a new paper out by **Aaron Christopher**, Dahniel Brandes, Stephen Kelly, and Thomas Minehan “Low-temperature butyllithium-induced rearrangement of allyl-dichlorovinyl ethers” in *Organic Letters*. Although the research was done in the Department of Chemistry and Biochemistry, Aaron Christopher majored in Biology (B.A. 06).

Dr. **Steve Oppenheimer** had a review, “Cellular basis of cancer metastasis” published in *Acta Histochemica*. A second paper by the Oppenheimer lab was published in the same issue of *Acta*, “Microbead analysis of cell binding to immobilized lectin: an alternative to microarrays in the development of carbohydrate drugs and diagnostic tests.” This paper was co-authored by **Greg Zem** (a K-12 teacher), and students **Oliver Badali**, **Maria Gaytan**, **Hesam Hekmatjou** (now at Harvard), **Maribel Alvarez** (a RISE student), **Jennifer Nnoli** (a MARC student, at Harvard for a summer program), **Elena Katus**, and Oppenheimer. This work should be of great interest to drug companies because it provides a simple and inexpensive new approach to development of

drugs and tests. It also provides the most extensive listing developed to date of lectin binding inhibitors, a listing that will probably replace the less extensive lists that have been in the literature for decades. The judging of these papers was handled by the Editor-in-Chief of *Acta Histochemica*, since Oppenheimer is an editor for this journal.

Research Talks and Posters Presented at National Meetings

There have been many recent presentations by members of Dr. **Steve Dudgeon**'s lab. Dudgeon was invited to give seminars at the University of Liverpool, U.K., and the University of Groningen, Netherlands. At the 7th International Temperate Reef Symposium, Dudgeon and **Rebecca Kordas** (M.S. 06), showcased Becca's thesis research with back-to-back presentations. Immediately afterwards, Becca was offered a Ph.D. studentship in Ireland; however, she had already committed to a research assistantship at U.C. Davis where she plans to pursue her doctoral degree. **Stacy Krueger** (B.S. 06) presented her honors thesis research at the 20th Annual CSU Student Research Competition held at CSU Channel Islands. In August, Krueger also attended the 11th Scientific Meeting in the Phycology section of the German Botanical Society, held at the Marine Laboratory on the island of Helgoland in the Waaden Sea, as part of her summer internship (see Student Forum).

Also presenting at the International Temperate Reef Symposium were **Kylla Benes**, **Annaliese Hettinger**, and **Kathy Morrow**.

In the past few months, Dr. **Paula Schiffman** has given invited presentations about her grassland research to two community groups: the California Native Plant Society, and the Sierra Club. And at the San Joaquin Valley Natural Communities Conference, she gave a talk entitled “Analysis of 13 relict grassland floras in California: How typical is Carrizo?”

Dr. **Tim Karels** presented a poster entitled “Influence of sociality and environ-

* Readers will find full citations & often PDFs at www.csun.edu/biology/faculty.

ment on body temperatures in free-ranging hoary marmots” at the Physiological Ecology Meeting.

Dr. **Paul Wilson** gave talks this summer at the Evolution meetings and at the Botany meetings, both entitled, “Constrained lability in *Penstemon* flowers.” He illustrated how evolution is easy in one direction while hard in other directions.

Chris Rodriguez gave a talk to the Chino Valley Turtle and Tortoise Club: “Turtles and tortoises of western Mexico.”

Jessica Dooley attended the Stable Isotopes in Ecology conference held in Belfast, Northern Ireland.

Dr. **Michael Summer**’s students presented at the meeting of the American Society for Microbiology. **K. Murthy, C. Hwang, P. Holmquist, J. Aguilar,** and **M. L. Summers** were authors on “Molecular characterization of Crp regulated genes in *Synechocystis* PCC 6803.”

At the Experimental Biology meetings, Grad student **Dina Antonacci** presented “The characterization of CREB in neuroprotective mechanisms in the spastic *Han Wistar* rat.” Grad student **April Ochoa** presented “The pharmacological role of mGluR5 receptors in mediating neurodegeneration in the spastic *Han Wistar* rat.” Undergrad **Vernita Davis** presented “Neuroprotective effects of 17- β -estradiol in the spastic *Han Wistar* rats.” All are working with Dr. **Randy Cohen** and rats.

At those same Experimental Biology meetings, the lab of Dr. **Steve Oppenheimer** presented six posters with 40 student co-authors. The lead authors of each poster are noted:

- **Lily Welty**, “Rapid detection of lectin receptors on human cancer cells”
- **Greg Zem** (a K-12 teacher), “Most effective saccharide inhibitors of conavalin A-cell binding”
- **Oliver Badali**, “A microplate assay for quantitative analysis of developmental effects”
- **Ziba Razinia** (now at Yale), “Effects of sea urchin hyalin on gastrulation”
- **Pani Kiaei**, “HPLC isolation of putative sea urchin cell adhesion molecules”

• Dr. **Cathy Coyle Thompson**, “A novel model for studying adhesive interactions”

Along with Oppenheimer, Drs. **Mike Summers, Lisa Banner, Larry Baresi, Ed Carroll,** and **Stan Metzenberg** co-authored one poster each and Coyle Thompson co-authored four.

At the joint meetings of Ichthyologists and Herpetologists, the Near Shore Fish Lab gave three talks and two posters:

- Dr. **Mark A. Steele**, “Experimental evaluation of biases associated with sampling estuarine fishes with seines”
- **Bridgette Froeschke**, “Life history parameters of black perch within the southern California Bight”
- **Jonathan Williams**, “The relationship between El Niño/Southern Oscillation events and growth of juvenile white seabass”
- **Chris Chabot**, “Population genetics of the tope shark in response to California fishery pressure”

• **Jessica Tuharsky**, “Productivity comparison of young-of-the-year opaleye and their algal food source”

Also at the ichs and herps meeting: Dr. **Robert Espinoza** gave a talk, “Aggregation in Andean anurans: Why do high-elevation toads group?” coauthored by S. Quinteros; and graduate student **Raymond Hernandez** gave a presentation, coauthored by Espinoza, “Can omnivores be dietary specialists? Adaptability of gut form and function in an omnivorous lizard.” Hernandez received the Henri Seibert Award for Best Student Oral Presentation in Physiology/Morphology (\$200).

Many of the above students received travel funds from the Department of Biology, College of Science and Mathematics, and the Office of Graduate Studies that allowed them to attend these meetings.

Students Present for Sigma Xi

At the 2006 Sigma Xi Student Research Symposium, Biology students gave ten out of the 19 talks.

In the undergraduate division, **Stacy Krueger**’s talk was entitled “Morphological plasticity in the hydrozoan *Hydrac-*

tinia symbiolongicarpus”; it won second place. And **Araceli Vasquez** spoke on “Crp-regulation in inorganic carbon uptake in *Synechocystis* PCC 6803.”

In the grad student division, there was **Dina Antonacci** on “Characterization of the CREB and the gang in a model of neurodegenerative disorder”; **Jennifer Hedger** on “Testing bioinformatics predictions of gene regulation in *Synechocystis* PCC 6803”; **Annaliese Hettinger** on “Physical forcing of bottom-up processes in a shallow subtidal community” (which one first place among grad students); **Rebecca Kordas** on “Latitudinal variation in algae-barnacle interactions”; **Shehzaana Kureshi** on “Analysis of pro-inflammatory cytokines within the peripheral nervous system of diabetic mice”; **April Ochoa** on “The pharmacological role of mGluR5 receptors in mediating neurodegeneration in the cerebellum of the spastic *Han Wistar* rat”; **Karineh Petrossian** on “Effects of lectins on cultured human colon cell lines”; and **Amali Samarasinghe** on “Expression of neurotropic cytokines in the brain of the spastic *Han Wistar* rat.”

Students and Faculty Receive Grants and Scholarships

The SCORE Program of the National Institutes of Health funded major research to be done by Drs. **Maria Elena de Bellard, Steve Dudgeon, Steve Oppenheimer, Mike Summers,** and **Gini Vandergon**. For the grant as a whole, the Program Director is Dr. **Maria Elena Zavala**. Along with funding a great deal of research to be done in the Biology Department over the next four years, the grant also funds the research of several faculty members in other departments, a total of \$7 million campus-wide.

Oppenheimer, whose part approximates \$400,000 to study sea urchins, answers the question, “Why does the NIH care about sea urchins?” He cites numerous breakthroughs in molecular physiology that have been developed in the sea urchin

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The Students' Forum

This space is used for students to report on exciting or unusual activities related to the Biology major. In this issue we feature an interview with Stacy Krueger and an article by Tamara Johnson. Both spent their summer doing research, Johnson at Johns Hopkins University, Maryland, Krueger at the Universität zu Köln (Cologne), Germany. Krueger is now in the Master's program; Johnson, a senior in the Biotechnology Option, is a MARC fellow. Other students who would like to tell their stories are invited to contact the editor.

A Kölner Summer

Bios: How did you end up going to Germany?

Krueger: Janet [Dr. Kübler] sent me an email about an opening in a lab to study algae for a summer in Köln. I learned about it just days before the application was due and rushed it off. Several months later I received the acceptance letter, and then I was on my way to Europe.

Bios: What was the program?

Krueger: It's called Research Internships in Science and Engineering, through the DAAD. It's a program geared for American and Canadian undergrads to assist a German Ph.D. student in science or engineering, learn new techniques, and live immersed in German culture.

Bios: You were working for a Ph.D. student who studies algae?

Krueger: Yes, Sabina was a great mentor and we instantly got along. I had the time of my life. We were working in the lab, trying to create a cDNA library. She is doing this for multiple species, but I had my own independent project working with *Chara vulgaris*. Monday through Friday I shadowed her in the lab when not working on my own project. Unfortunately, we have so far been unsuccessful with the first strand cDNA synthesis, but we were able to get mRNA. So, there are a few other avenues to pursue to get cDNA. In addition to my project, I was able to assist Sabina with *in situ* hybridization.

Bios: And you got paid?

Krueger: The German government pays half of the stipend, and then for mine the German Botanical Society paid the other half. That covered my rent and some of my food. I bought my plane ticket out of pocket, and I spent some more money shopping and touring around.

Bios: So, it wasn't all lab work?

Krueger: I was really fortunate. Sabina had a whole itinerary of things and places to show me on the weekends. We went for a trip along the Rhine (there were lots of fairytale castles—it was beautiful), and we spent time in Luxembourg, Trier, Hamburg, Hannover, Bremerhaven, Hameln, Bonn, and Bielefeld, her hometown. My birthday present from Sabina was a trip to Berlin at the end of the internship, but I broke my foot in Helgoland, so I had to take a rain check. I also went to Heidelberg to meet with the other DAAD scholars. Finally, Sabina's advisor, Dr. Becker, arranged for me to attend the German Botanical Society Phycology Section conference in Helgoland, a tiny island in the middle of the North Sea.

Bios: Oh, what was that like?

Krueger: It was very small but beautiful. I chose the intertidal excursion and was able to tromp around in areas where tourists can't go, especially near the Lange Anna. It is a famous, 130-foot-high, red sandstone cliff. We went to talks during the day and there was an event every night. One night was a plenary speaker and another was a buffet in the aquarium.

Bios: This was a small group?

Krueger: Oh yeah, compared to WSN [Western Society of Naturalists, not exactly a stadium-sized group] it was really small, maybe 15 professors and 40 students.

Bios: The talks were in German?

Krueger: There were two, I think, in English and most of the slides and abstracts were in English, so I could get a lot out of it. And everyone could speak English, not just at the meeting but also in Köln. That was my biggest concern before

I left, but it really wasn't a problem.

Bios: And in Köln you lived in a flat by yourself?

Krueger: Yeah, my first time away from home. The flat was abysmal and about the size of a cruise ship cabin. However, it did have a balcony that looked out over the Kölner Dom.

Bios: Kölner Dom?

Krueger: The Köln Cathedral. It's huge. When flying into the airport, it's the first thing you see. If I remember correctly the first stone was laid in the 1200s. It was not finished until the 19th century when the Romantics renewed interest in it. Currently, they are trying to clean the exterior to take away years of grime and soot. It is one of the only buildings to survive the Allied bombing during World War II. At every touristy shop, there are tons of postcards with pictures of the destruction and the Dom still standing.

Bios: And Köln?

Krueger: Köln was not like any city I've ever been to. There really aren't words to describe the city, the people, or my experience. The rapid transit is great, and I could go to the city center in 10 minutes. This was a novel experience for a native of southern California. And you can sit in cafes until the wee hours of the morning. And it's totally safe—there are dangerous places, but in the center I felt very safe even late at night. When the locals find out you speak English, they all want to try out their English. They're so open and friendly. We walked everywhere so the first couple weeks my feet were sore. I've never walked like that. And the food . . . from döner kebab sandwiches to schnitzel, it was great!

Bios: Was it nice studying away from CSUN?

Krueger: It was a rewarding experience to study with people completely different from myself. I learned a lot that I doubt I would have learned at CSUN, plus being in a group of new and such supportive people was refreshing. The work I helped with was on EST's [expressed sequence tags] of different freshwater green algae. And I went to

colloquium a lot—all the colloquiums and mini-symposia were in English—and I learned a little bit about a lot of other things. It was broadening for me scientifically and personally. Everything the German government endeavored to provide for each scholar—to do research and learn techniques, establish connections with German scientists, to see Germany, and live immersed in the culture—was achieved and beyond. I'm really sad the whole experience went so quickly.

Bios: Is this something that might be good for other students?

Krueger: Yes, they can visit the website [www.daad.de/rise/en/1.html]. I think other students should consider applying. It was one of the most rewarding experiences I have been part of.

A Summer at Johns Hopkins

—by Tamara Johnson

I spent my summer in a research internship program in the Department of Biochemistry and Molecular Biology at The Johns Hopkins Bloomberg School of Public Health. While there I studied viral oncoproteins (cancer-causing proteins) under the direction of Dr. Leslyn Hanakahi.

The oncoprotein I studied is produced by an adenovirus, one of a group of viruses that cause respiratory illnesses—from the common cold to pneumonia to bronchitis—in humans. Such viruses produce many proteins that influence antiviral defense mechanisms, such as apoptosis (cell death), in a variety of host cells.

Adenovirus type 5, the virus I studied, produces a protein that promotes viral replication, inhibits DNA repair, and prevents apoptosis of the host cell. Although the protein is known to be encoded by "early region 4 open reading frame 6" (E4orf6), the mechanisms by which it regulates viral structure and replication are still to be worked out.

In particular, I looked at how recombinant E4orf6 protein is expressed in the bacterium *Escherichia coli*. Using a western blot to

visualize our results, we found that recombinant E4orf6 forms ordered homo-oligomers of approximately 150, 270, and 340 kDa, that is putative dimer, tetramer, and hexamers. Although such molecules are often associated with hydrophobic membrane proteins, E4orf6 has not been identified as a membrane protein. Additional studies may help us understand how E4orf6 works and may even lead to new ways of treating and controlling adenovirus infections.

My summer ended by writing an abstract and presenting a poster entitled "Self-self interactions of a viral oncoprotein" for the internship program at Johns Hopkins. I also presented my work at a Leadership Alliance Symposium along with many other students who participated in similar internship programs at 60 top research institutions.

I found the summer to be very rewarding and enriching, and I learned a lot. I encourage other students who are interested in research careers to apply to these summer internship programs. Before this experience I had never considered a school of public health as a place to receive a Ph.D., but they are great places to conduct research in health-related problems such as malaria, cancer, and AIDS.

CSUN Science Popularized

The press has picked up on research done by **Jennifer Lancaster** as her master's thesis on why banded geckos group. It has been covered by the BCC, and on KPCC, L.A.'s public radio affiliate (this segment of the Loh Down on Science is at http://www.publicradio.org/tools/media/player/kpcc/news/features/2006/09/20060920_features16.smil).

The Ocean Channel did a segment on the coral reef work being done by CSUN faculty and students. Dr. **Peter Edmunds** tells about how the health of the reef is being monitored on a generational time scale and how research is being done to understand the mechanisms behind change (you can watch a clip at <http://www.ocean.com/film.asp?resourceid=5784&catid=&locationid=1>).

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system and that were later found to be fundamental to understanding human health and disease: "maternal mRNA, transcription and protein synthesis rates, pronuclear fusion at fertilization, gene expression in embryonic development, gene regulatory networks, cyclins, metabolic activation at fertilization, mechanisms of sperm activation, biochemistry of flagellar motility, sperm-egg recognition, cytoskeleton analysis, centriole structure and function, guanylate cyclase function, cyclic ADP ribose function, beta catenin function in embryos and cancer, exocytosis and endocytosis mechanisms in synaptic function, diabetes, immune function and viral infection. Major discoveries come from non-human systems."

Each year the University has a competition for minigrants (about \$5000 each) to fund faculty research. This year, Biology had eight professors who were funded: Drs. **Robert Carpenter, Randy Cohen, Maria Elena de Bellard, Peter Edmunds, Fritz Hertel, Tim Karels, Cindy Malone,** and **Stan Metzenberg**. Remarkably, all of them will be using their money to support students, buy supplies and pay for travel to field sites.

Dr. **Cindy Malone** received a Faculty Curriculum Development Grant for Community Service Learning. The grant will improve BIOL 360 Genetics by adding a service-learning component that integrates foundational principles of genetics and working with people who have a genetic syndrome. Dr. **Gini Vandergon** received a grant from the same source for "Tomorrow's Scientists."

Dr. **Larry G. Allen** received \$95,663 from the California Department of Fish and Game to continue a now-12-year research program on the distribution of juvenile white sea bass off the coast of southern California.

Drs. **Gini Vandergon, Steve Oppenheimer** and **Gerry Simila** (Geology) received \$35,511 more from the Regents of the University of California for their

program, “The San Fernando Valley Science Project,” which brings K-12 teachers up to date. The three directed workshops for the teachers this summer.

Dr. **Gini Vandergon** received \$18,000 for the SCALE/QED program.

Drs. **Gini Vandergon, Simila,** and **Kellie Evans** (Math) received a \$499,940 grant from the National Science Foundation to recruit and train science and math majors to teach high school. See description elsewhere under “Noyce Scholarships.”

Dr. **Maria Elena de Bellard** got a SOMAS (NSF) award of \$9,000 that will fund her and undergrad **Lisa Renee Correa** to do research and present it at the Society for Neuroscience.

Undergraduate **Daniel Green** and graduates **Nomiki Kolettis** and **Stacy Krueger** received Sally Casanova California Pre-Doctoral Scholarships.

April Ochoa was awarded \$2000 from a Graduate Equity grant to allow her to finish her thesis project. Ochoa also was funded to do research this summer at Caltech.

Ronik Khatchatoorian, an undergrad interested in genetics and cancer, received a \$3,000 CSUN University scholarship.

Mairead Maheigan received \$1,000 from the PADI Foundation for her research entitled “The functional significance of morphological variation of the Pacific coral *Pocillopora verrucosa* for physiological processes driven by boundary layer dimensions.”

Hollie Putnam received a \$2,000 Marine Technology Student Scholarship from the Marine Technology Society.

Rebecca Kordas was accepted into the AAAS/Science Program of Excellence.

Graduate student **José W. Monzón** received a CSUN Graduate Equity Fellowship for \$3,000.

Sequencing Facility Improved

The DNA sequencing facility has been upgraded to include two capillary sequencers, a real-time PCR machine, and three standard PCR machines. This equipment has proven extremely useful for research on such

things as population genetics of sharks and crickets, analysis of cyanobacterium gene function, and studies of the molecular basis of rare inherited disorders such as chondrodysplasia punctata. The sequencer facility is located in MG 4108.

Students Earn Awards

Biology Department Awards—Last year’s Biology Prize for Outstanding Graduating Senior was shared by **Kelly Baxter** and **Rebecca Moores**. The Outstanding Biology Graduate Student Award went to **Jose Limon**. The Outstanding Graduate Research Award was shared by **Robin Elahi** and **Rebecca Kordas**. The Outstanding Graduate Teaching Award was shared by **Jolene Pucci** and **Amali Samarasinghe**. The Bennett-Bickford Award, given to a student who displays extraordinary promise as a teacher, went to **Christopher Walheim**. Finally, the Hugo and Irma Oppenheimer Award was shared by **Thiago Halmer** and **Stacy Krueger**.

College of Science and Math Awards—At the college level several awards last year were given to Biology majors. The Heald Outstanding Junior Award went to **Jessica Beach**. The Outstanding Junior Award went to **Kenneth Ikei**. The Outstanding Undergraduate Research Award went to **Aaron Christopher**. The Student Services Center/EOP Outstanding Graduating Senior Award went to **Wilber Escorcía**.

University Awards—At the University level, the Outstanding Graduating Senior Award was given to **Bina Pai**. And **Laura Nary** won the Association of Retired Faculty Memorial Award for her Graduate Research.

Honors Theses—Five students graduated with honors last year:

- **Thiago Halmer**, whose Honors thesis was entitled “Pharmacological manipulation of oxidative stress pathways in the spastic *Han Wistar* rat”

- **Stacy Krueger**, “Phenotypic plasticity in the hydrozoan, *Hydractinia symbiolongicarpus*”

- **Patricia Lopez**, “Role of protein

kinase C isoforms in hydrogen peroxide-evoked apoptosis of human keratinocytes”

- **Baharak Ghaffarzafgdegan**, “Parameters influencing yeast binding to immobilized concanavalin A”

- **Shmuel Samoha**, “Binding of immobilized concanavalin A to cells: effects of ion concentrations”

Freshman Math Enrichment

A math enrichment program was held this summer for selected incoming freshmen who participated in intensive math study, all day for three weeks. The program, organized by Dr. **Steve Oppenheimer** and taught by Dr. **Ali Zakeri** (Math), was part of the new NIH RISE program directed by Dr. **Maria Elena Zavala**.

The program is aimed at helping students pass the ELM exam (Entry Level Math) and at helping students qualify for higher level math courses. It also provided a sense of camaraderie with trips to the Science Center, the Getty Museum, and Medtronic. Oppenheimer provided workshops on Success in College and “What you can do with a Ph.D.”

Correspondence to Nature

Very soon *Nature*, the premier British journal of science, will bring lessons learned during the Northridge quake to scientists worldwide via a correspondence from Dr. **Steve Oppenheimer**. Among the points made are: (1) Keep important data both at home and in the lab; (2) If possible keep all expensive equipment off the floor to prevent water damage; (3) When not in use, cover all equipment with plastic sheeting to protect it from water coming through the ceiling; (4) Secure all table-top equipment so it cannot be jostled to the floor; (5) Install shelf lips and cabinet locks to prevent chemicals from falling. Truly amazing!

Biology Honors Program

The Biology Honors Program is a great way for undergrads to obtain

research experience that will enhance their academic careers and better prepare them for graduate and professional schools. Students in the program do a senior thesis project under the direction of a faculty member and submit the thesis to the Honors Committee.

Biology Honors students have a notation added to their transcripts and at a Biology Department ceremony during commencement week receive certificates acknowledging participation in the Honors program.

To be considered for admission to the program, an applicant must have completed 90 units of college work, hold a G.P.A. of 3.50 both in the major and overall, and have a faculty mentor. If interested, contact Dr. **Rheem Medh** at 677-3338 or email her at rheem.medh@csun.edu.

Noyce Scholarships: Future Teachers Encouraged to Apply

As graduation approaches, students often reflect on the question, “What am I going to do with my life, now that I’m almost done with my Biology degree?” If you are such a student, have you considered teaching high school? If so, you can apply for a scholarship to help you achieve that goal.

New funding from the National Science Foundation will pay for “The Robert Noyce Scholarships” beginning spring 2007. Qualified junior or senior who want to get a single subject California State Teaching Credential in science or math are being sought.

The program offers scholarships for the credential program on campus and a seminar course that will provide opportunities to talk with in-service teachers and professors and provide support for your endeavors. If interested, contact virginia.vandergon@csun.edu.

Biology—Ecology & Evolution Reading (BEER) Club

The purpose of the BEER Club is to provide students and faculty a forum for discussing the literature and project ideas in the fields of ecology and evolution. Through such interactions, students hone

their critical thinking and reading skills and become familiar with the literature.

The BEER Club meets Fridays at 3:30 p.m. in Live Oak 1322. Pizza and soda are available at the meetings for a small charge. Proceeds from these sales are used to fund BEER Club events. All students and faculty are encouraged to attend.

This fall **José Monzón** was elected President of the BEER Club. Vice President is **Lisa Zung**; **Christine Bruno** will serve as Treasurer. Dr. **Robert Espinoza** is the Club’s faculty advisor.

For more information or to be added to the email list, contact Monzón (jose.monzon@csun.edu or call 677-5737).

Fare thee well

Former M.S. students starting Ph.D. programs this fall include: **Diana Andres**, University of New Mexico (Advisor: Dr. Espinoza); **Robin Elahi**, University of Washington (Dr. Edmunds); **Annaliese Hettinger**, UC Davis, and **Kathy Morrow**, Auburn University (Dr. Carpenter); **Jorge Iniguez**, UC Irvine (Dr. Cohen); **Julia Martin**, University of Illinois Champaign–Urbana (Dr. Baresi); **Jolene Pucci**, UCLA (Dr. Schiffman); **Ziba Razinia**, Yale University (Dr. Oppenheimer); **Leslie Tirado**, University of Wisconsin, Madison (Dr. Zavala); **John T. Froeschke**, Texas A&M University (Dr. Allen).

Three recent Biology graduates have been accepted into training programs leading to California licensure as Clinical Laboratory Scientists. The graduates and their respective programs are **Kevin Bergeron**, Cottage Hospital of Santa Barbara; **Robert Elazegui**, University of California, Irvine; and **Armando Hernandez**, San Jose State University. It is estimated that California will need nearly 700 clinical laboratory specialists per year for the next five years as current workers retire. Existing educational programs are expected to graduate just 225 students per year.

Tests performed by licensed CLS personnel represent an ever-increasing range and

sophistication of analyses performed in diagnostic laboratories in hospitals, independent laboratories, universities/colleges, and the biotech industry. Robert Elazegui reports, “I have been so, so busy that I have nothing else to do but study and then go back to training, but I love every minute of it. They told us that due to the overall age of the laboratory personnel, the program director is altering the program to train us as supervisors to replace the present supervisors in the future.”

Former M.S. students **Mukta Shiwalkar** and **Kumuda Saraff** have started working at Amgen with the titles of Senior Scientist and Senior Research Associate, respectively.

Research Opportunities

Professors in Biology typically collaborate with students on research projects. These range from just allowing a student to get her/his feet wet (literarily and figuratively) to paid part-time jobs. Below are some of the projects waiting for students. If interested, we suggest that you (a) read the professor’s web page and an article or two, (b) ask for an appointment via email, and (c) arrive on time to your appointment to listen to the professor tell you about what is happening in the lab. Many professors are able to cope with drop-ins and drop-outs, but you might find everything runs more smoothly if you get off on the right footing.

Dr. **Paul Wilson** is looking for students who would like to draw/photograph mosses. The pictures will be used to aid in identification. Pictures from last semester have even been submitted for publication to illustrate an article written by grad student **Tarja Sagar**. For students who want to make more of a commitment, Wilson also has opportunities in pollination biology, including a paid internship with the National Park Service.

The Nearshore Marine Fish Research Program needs field help. NMFRRP contracts require student help with extensive fieldwork, an opportunity for valuable research experience for undergrads. Inter-

ested? Contact Dr. **Mark Steele**.

Dr. **Steve Dudgeon** has funding to support a grad student and one or two undergrads right away. The work regards phenotypic plasticity, hydrozoans, and the morphological development of colonial animals

Dr. **Larry Baresi** seeks students to do research on methanogenic bacteria or their viruses.

Students interested in a research experience in the areas of cancer, development, or diagnostic tests for cancer have many opportunities in the basement lab of Dr. **Steve Oppenheimer**. The lab has major funding at present.

Dr. **Cheryl Hogue** is looking for a student to assist her with her research on parasites of fishes.

University Honors Dole with Distinguished Teaching Award

This past spring the faculty of the University bestowed upon Dr. **Jim Dole** a Distinguished Teacher award. The award, supported by students, former students and colleagues, honored Dole's lively and organized teaching style and acknowledged his contributions to several educational programs he has developed and directed over his 44 years at CSUN, among them a National Science Foundation-funded science training program for talented high school students (with former professor **Charles Spotts**) and an undergraduate research program at the Sepulveda V.A. Medical Center that, until the 1994 earthquake destroyed the Center's laboratory facilities involved more than 75 Biology undergraduates in biomedical research.

Dole is coauthor (with Drs. **Jennifer Matos** and **Randy Cohen**) of the BIOL 106 lab manual, *The diversity of life*, and (with Betty Rose, College of the Canyons) of two identification manuals to the *Shrubs and trees of the southern California*, one for deserts, a second for chaparral and mountains. Dole has served as major professor to many Master's students, several of whom went on to become college teachers, and was the Biology Department's Chair from 1998-2002.

REMINDERS FROM THE ADVISEMENT CENTER

Advisement Center hours

Students are invited to stop by the Biology Advisement Center EH 2133) to have academic questions answered. If you ask, for example, you'll discover that walking in commencement is not graduating. Faculty advisors Drs. **John Kontogiannis**, **Joyce Maxwell** and **Dan Odom** are assisted this semester by two graduate students, "Alex" **Lut Hang Li** and **Mohammed Nasser**. The Center is open for about 36 hours each week; hours are posted outside the door.

Biology advisement for spring

Before enrolling for spring semester 2007, all Biology students must seek advisement. Only then will SOLAR allow them to register. Students can avoid long lines by visiting the Advisement Center now to have proposed program approved and a green slip signed.

Upper-division Writing Exam required for graduation!

The Upper Division Writing Proficiency Exam must be attempted no later than the semester in which 90 units are com-

pleted. Students planning to graduate in spring 2007 must pass the exam no later than June 2, 2007. Those students expecting to graduate at the closing of the fall semester 2007 must take the exam no later than January 20, 2007. For more information call 677-3303.

Plan to graduate next year?

Undergraduates planning to graduate in fall 2007 must file a Graduation Evaluation (Grad Check) between December 1, 2006 and March 2, 2007. Grad checks are handled in the Advisement Center.

Accessing advisement info

An Advisement Handbook provides invaluable information on Biology requirements and course equivalencies. The free handbook can be obtained in the Advisement Center.

Career information available

Career sheets are available in the Advisement Center. Each sheet describes career opportunities associated with the various Biology options.

Matos is Faculty President

Dr. **Jennifer Matos** was elected president of the faculty for two years. In this role, she will preside over the faculty Senate and the Senate's executive committee. In general, she is responsible for taking the lead in faculty deliberations of all topics ethereal and otherwise.

Schiffman Invited to Join Carrizo Review Team

Often, government agencies that engage in conservation say that they strive to use "best available science" when making environmental management decisions. As part of an effort to have a genuinely science-based decision-making process, Carrizo Plain National Monument recently formulated a Science Review Team, and Dr. **Paula Schiffman** was invit-

ed to be one of its founding members.

The team is tasked to provide scientifically sound approaches to real-life environmental concerns at the Carrizo Plain, the largest remaining grassland in California. Schiffman and several other California ecologists will give scientific input about habitat management policies that involve endangered species concerns, problems caused by invasive non-native plants, livestock grazing impacts, and ecosystem restoration.

Flor y Ciencia Published

Dr. **Maria Elena Zavala** and nine coauthors have a new book out: *Flor y Ciencia: Chicanas in Math Science and Engineering*. The book is published by the American Association for the Advancement of Science.

—Liu, con't from p. 1—

studied self-incompatibility in mustards at the Institute of Botany, Chinese Academy of Sciences, Beijing, and was awarded a Doctor of Sciences degree.

Shortly after the Tiananmen incident, with just \$100 in his pocket, Liu came to the U.S. to pursue his Ph.D. at the University of Louisiana, Lafayette, on the molecular biology of myosins in monocots. Myosins, best known for their functions in muscle contraction in animals, belong to a class of proteins, called mechanoenzymes, that use ATP to power cellular movement. Although plants have no muscles, they do exhibit intracellular motilities such as cytoplasmic streaming. The presence of myosins in plants was unclear prior to Liu's work, which involved cloning and sequencing five myosin genes from corn, and identifying their expression as proteins in bacterial cells.

Liu then did a postdoc at Harvard University where he focused on marine bioluminescent dinoflagellates, a group of unicellular eukaryotic protists. "These organisms occur commonly in the waters around L.A. If you swim at night in the Pacific Ocean, you will likely see sparkling light as you splash in the water. These sparkles are bioluminescence from dinoflagellates." Liu will continue his investigations of bioluminescence at CSUN. In particular, he wants to learn how genes controlling light production are regulated and has hopes of isolating genes and proteins from other bioluminescent organisms.

The importance of Liu's work is clear, since past studies of bioluminescence have revolutionized biomedical research by providing tools for detecting molecules in the cells. For example, the green fluorescent protein (GFP), a protein involved in jellyfish bioluminescence that emits green light upon UV excitation, has become the most widely used cellular marker. It is used for everything from visualizing the dynamics of proteins to tracking cancer cells in vivo. Liu hopes that his work on bioluminescent organisms will uncover additional cellular

reporters.

Other research in Liu's laboratory will include the genomics of coral dinoflagellates, and the transcription of the apicoplast genome in malaria parasites. A common theme of the diverse projects Liu is pursuing is that they combine molecular, biochemical, cellular, and genomics tools.

Students interested in further information about Liu's teaching and research are encouraged to explore his website: <http://www.csun.edu/~ll656883>. His office is MG 4114 and his lab MG 4115. Stop by to introduce yourself.

—Stein, con't from p. 1—

innate immune system. She identified the receptors for CRP.

"I really loved New Mexico. I became an outdoors person. I got into hiking, biking, and roller-blading. I also started doing sprint distance triathlons: Swim 1/2 mile, bike 10-15 miles, run a 5K. For me, the goal is to first, get to the starting line, then to actually finish the race. I use it as a release, and it's good for me!"

When asked about the path she took prior to coming to CSUN, Stein responded, "I didn't know what I wanted to do when I graduated. I had been an English major studying pre-med at U Penn, just like my dad had been. But I just didn't want to be an M.D. I had worked in a lab during my junior and senior years and found that I was good with my hands, technically able. So I bumbled around a bit. I went to work in a contract lab that processed samples for the NIH. Then I worked for the Army, trying to understand the cell biology of anthrax in order to make better vaccines. Working for the Army, I learned a lot of molecular, cell and microbiology, and I got my master's studying the binding of anthrax toxins to cells. During this meandering path, I met all sorts of different people from all over the world." She smiles, "I think I'm sort of well-rounded for it. Teaching is the part of this job that's newest for me."

Asked about her teaching, Stein says,

"I'm very visual. I like pictures. I remember things by what I've seen. Cell biology is like car mechanics. You look under the hood using microscopy to visualize the inside of the cell, and you try to figure out how it works using biochemistry and other little biological tricks. In lectures, I think reading text on slides is incredibly boring. And, in my field, many of the words are acronyms that don't have a lot of meaning to newcomers anyway. But, when I show pictures, it allows people to visualize the biological problems."

After a pause she adds, "Science for me is like puzzles. I love puzzles. Sudoku. Crossword puzzles. Jigsaw puzzles are some of my favorites. Cell biology and bacterial pathogenesis are my puzzles at work."

Stein is very enthusiastic about teaching. This fall she is teaching Cell Biology and a Serology Lab. By next semester, she hopes to have her lab functioning and is looking for a few good puzzle solvers to join in her research activities. "I'd love to talk to students interested in discussing my research interests," she says. Stein's office is LO 1226, her lab LO 1228.

Schiffman visits Mendel

Do biology professors ever really go on vacation? In her travels this past summer in eastern Europe, Dr. **Paula Schiffman** visited the Mendel Museum in Brno, Czech Republic. Located at the monastery where Mendel lived as a Augustinian monk and where he conducted his studies of genetic inheritance, the museum had displays of Mendel's plant specimens, research notes, books he read (by Linnaeus, Darwin, and others), and other interesting curiosities.

Schiffman found that the garden plot where Mendel did his groundbreaking experiments in the mid-1800s supported a living display of his favorite research plants (including peas, fuchsias, hawkweed). Photos of many of these things have been incorporated into her Evolutionary Biology lectures this semester.

Tropical Biology Semester, Spring Offerings and Other Classes

Tropical Biology Semester: Sign up NOW!

Spring semester the Biology Department offers a 16-unit package of upper-division courses that includes six weeks in Central America studying its major ecosystems—lowland rainforests, beaches and coastal forests, dry forests, and high elevation cloud forests.

Biology students are invited to join course instructors Drs. **Dave Gray** and **Fritz Hertel** for an experience of a lifetime in Costa Rica!

While in Costa Rica students will do individual and group projects dealing with plants and animals from these diverse habitats. The field experience will be augmented with pre- and post-trip on-campus studies. While in Costa Rica, participants will stay at world-renowned biological stations and national reserves (e.g., La Selva, Monteverde, Santa Rosa National Park).

More program information can be found at <http://www.csun.edu/biology/TBS/>. Space is limited, so interested students should contact Hertel (677-3353) or Gray (677-7653) a.s.a.p.

Spring Class Offerings

Dr. Cindy Malone is offering a resurrected “old” course: BIOL 589, **Cellular Immunology**. It will cover immunity to infectious diseases, immunodeficiencies, and autoimmunity.

Dr. Rheem D. Medh will be teaching a newly revamped BIOL 580/L, **Cell Physiology**. It is scheduled for MW mornings.

Several of the faculty will collectively offer a graduate seminar in **advanced topics in evolution** (BIOL 615F). Dr. Steve Dudgeon will serve as the coordinator of the course. Says Dudgeon, “This will be a team-taught course, updated from its previous incarnation, that combines lectures,

readings and discussions to examine recent developments of classical topics in evolutionary biology. The goal is to advance our students’ understanding of evolutionary biology beyond what they learn in 322 and to provide a bridge to the emerging trends in several areas of the field.” The class will meet Wednesday evenings.

Dr. Randy Cohen’s graduate seminar will examine the role of the nervous system in regulating animal behavior. Because this seminar is in the Cell and Molecular series (BIOL 655), it will **emphasize the brain** (i.e., the “cause”) and not the behavior (the “effect”). Topics will include: feeding, learning, reproduction, visual and sound communication, circadian regulation, motor systems, and the neural components of pain, pleasure and stress. The class is scheduled to meet Thursday evenings.

This spring’s Seminar in Ecology (BIOL 615C), to be taught by Dr. Robert Espinoza, will examine widespread and predictable patterns in biological data, often termed **biological rules**. A wide range of rules has been proposed describing phenomena as diverse as those occurring at the molecular level of genes to those that explain continental patterns of species richness. After a few weeks of readings and discussion, each participant will prepare a 40–50 min presentation on some aspect of biological rules. Topics might include testing the assumptions, validity, or generality of a particular rule or testing a rule for conditions, environments, or organisms not previously examined. It will be on Tuesday evenings.

Ecology & People—Now a Life-long Learning Course

As part of the new General Education package, Ecology and People (BIOL 327) can be used by Biology majors (as well as everyone else) to fulfill the Life-long Learning, Writing Intensive, and Information Competency requirements. The

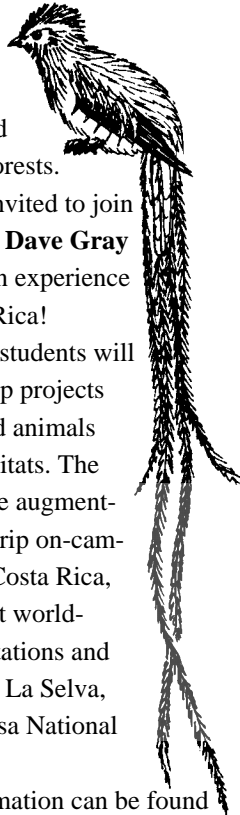
course will be offered next semester by Dr. **Tim Karels**, who promises, “The course will explore the inter-relationships between humans and natural biological and physical systems from local to global scales.”

Students in the class will investigate how natural systems function and the roles that humans play in ecological processes that are conducive to their health and well being as individuals, communities and societies. Major topics to be covered include human demography, population growth, and evolution, resource use and sustainable development, the value of biodiversity, and the natural and anthropogenic causes of climate change and its consequences to human society.

Biology of Cancer Class is Open to Public

Biology of Cancer (BIOL 285) is also available for Life-long Learning credit and is open to the public. The class, which meets 6:00-7:40 p.m. on Mondays in Eucalyptus Hall 2132, is currently running but extra seats are open to the public for the following lectures:

- Oct. 2, Cancer Genes, Cancer Cells, Dr. Oppenheimer
- Oct. 9, Cancer Prevention, Dr. Oppenheimer
- Oct. 23, Cancer Statistics, Epidemiology, Dr. Madison
- Oct. 30, Cancer Quackery, Helene Brown, UCLA
- Nov. 6, Cancer Pathology, Richard Gaynes
- Nov. 13, Breast Cancer, Eugene Gier-son, M.D.
- Nov. 20, Skin Cancer, Bernard Raskin, M.D.
- Nov. 27, Cancer Case Study, Richard Gaynes
- Dec. 11, Radon, Alex Tishbi



A Hydra Sabbatical

Dr. **Steve Dudgeon** has been on sabbatical leave since December and has been working in the laboratory of Dr. Rick Grosberg at UC Davis.

Says Dudgeon, “We are conducting mating experiments and field samplings of the colonial hydrozoan, *Hydractinia symbiolongicarpus*, in a population in Barnstable Harbor on Cape Cod to assess the heritability of colony form and the response to selection from intraspecific competition.”

“The project meshes well with my SCORE project, which is focused on the physiological regulation of plasticity in colony form. As a result of my sabbatical project, I should have a handle on heritability of vascular system morphology, its plasticity, the factors regulating plasticity, and the potential for plasticity to be inherited.”

On a completely different topic, Dudgeon was recently appointed to be an associate editor of ecology for the International Phycological Society.

Ferns grow for Kanno

Greenhouse keeper **Brenda Kanno** assisted at the Los Angeles International Fern Society Annual Show where two of her plants won first place ribbons and a third earned a divisional trophy.

Two Biology Faculty Honored Taxonomically

Names of new species can be derived from any source, but occasionally new species' names honor an individual. Two CSUN Biology faculty have recently been so recognized.

Dr. **Robert Espinoza**'s was honored when his name was given to a lizard, *Lio-laemus espinozai*, by a colleague (and former student research assistant) in Argentina. The lizard is endemic to an isolated patch of sand dunes in Catamarca province (northwestern Argentina) that has recently come under threat of a nearby quarry, which dumps its rock debris on the dunes. The species description was published in the *Revista Española de Herpetología*.

A new species of bacterium has been

named in honor of Professor emerita **Daisy A. Kuhn** who, although retired, continues to advise preprofessional students. The effective publication of the new species, *Conchiformibius kuhniae* sp. nov. Xie and Yokota 2005, has been validated in the *International Journal of Systematic and Evolutionary Microbiology*. A collection of strains from the oral cavities of cats was originally phenotypically characterized by Dr. Kuhn and her graduate student research team: **Michael D. Nyby**, BA, MS (1970, 74); **David A. Gregory**, BS, MS (1972, 75); **Christie L. Jenkins**, BA, MS (1971, 76); and **Gordon E. Buchanan, Jr.** MS (1976). Xie and Yokota (2005) determined the phylogeny of these cat strains based on 16SrRNA at the University of Tokyo, Japan and named this ecospecies. The type strain came from the mouth of a 13-year-old Angora cat in the San Fernando Valley. Nyby is Supervisor of Endocrinology Research, Sepulveda VA Medical Center; Gregory is a practicing dentist; Jenkins is a writer for educators; Buchanan is a retired UC Davis microbiologist.

Pre-health Professionals to Confer

Biology students are organizing a pre-health professionals conference for Saturday, November 4. There will be many guest speakers and everyone is welcome. For more information, check the conference website <http://csunconference.googlepages.com/home>.

Ashkenazi Genetics Conference

The Genetic Counseling Program is organizing a conference on Saturday, December 9 on genetic disorders in the Ashkenazi Jewish population. The conference is open to all, but space is limited. For more information, email genetic.counseling@csun.edu.

Frank Hovore, Naturalist, Passes

Doing what he loved most—collecting beetles—**Frank Hovore**, former student and long-time affiliate of the Biology Department, died in the wilds of

Ecuador. An former employee of the Los Angeles County Park System and Director of Placerita County Park, he was a much-in-demand, engaging speaker at natural history organizations and docent-training programs, well known to the nature-loving community. Even after retiring he remained an active participant in and advocate for all things natural.

When a student at CSUN Hovore's love of nature drew him to Biology's collections where he became a disciple of the late Professor **Peter Bellinger** and a habitue of the labs of Professors emeriti **George Fisler** and **Andrew Starrett**. Hovore credited Bellinger with teaching him insect taxonomy, Fisler and Starrett with nurturing his love of vertebrates. In his spare time, Hovore studied longhorned beetles and rain beetles, and became an expert on both groups. He authored over 50 articles on his favorite subjects, most collected on one of his many excursions to the American tropics, and authored or co-authored the description of nearly 100 species of beetles. The 20 plus taxa named after him bear testament to his contributions to our understanding of these groups.

A mutual love of the tropics caused Hovore, Professor **Jim Dole** and College of the Canyon's professor Betty Rose, to initiate CSUN's first tropical biology course. From 1987 until 2002 the two-week course exposed students to Costa Rica's exotic natural history. Largely because of Hovore's expertise and enthusiasm, several former students of the class have become entomologists or tropical biologists or both.

Hovore was a leader in entomological societies and mentored several local beetle enthusiasts and budding entomologists. He was active in the Lorquin Entomological Society and the Coleopterist Society, and he organized and hosted the annual Beetle Bash, a gathering of coleopterologists for a night of food, fun, and lively discourse on all things beetle. He will be remembered for his love of nature and his tremendous enthusiasm for insects—especially beetles.

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Bios:

The Biology Department Newsletter

Call for Submissions from K-12

With an approximately \$25,000 contribution by Los Angeles World Airports (Van Nuys), the *New Journal of Student Research Abstracts* was published in May. It includes the research of 339 K-12 students, is listed by the Library of Congress, and has been accepted for distribution in the approximately 70 branches of the Los Angeles Public Library system. Contact the editor, steven.oppenheimer@csun.edu, to learn how K-12 students can publish their research in this journal. Deadline for submissions for the next issue is June 1, 2007.

K-12 Poster Symposia

The May 2006 K-12 Student Poster Symposium, held at the USU Grand Salon at CSUN, was a great success. Hundreds of students, teachers and parents attended. Brief addresses were given by President Jolene Koester, Provost Harry Hellenbrand, Dr. Todd Ullah, Director of Secondary Science for the Los Angeles Unified School District, Norm Herr, Sci-

ence methods expert, and **Steve Oppenheimer**, Symposium Director and Organizer. Presenting students were awarded medals and certificates. Contact steven.oppenheimer@csun.edu if you know K-12 students or teachers who might be interested in presenting at the 2007 symposium.

Teachers Learn from SCALE

Last summer, five week-long science institutes were run at CSUN for 4th, 6th, 7th and 8th grade teachers from Los Angeles Unified School District (L.A.U.S.D.). The project, entitled "System wide change for all learners and educators" (SCALE), is a multimillion dollar project funded by the National Science Foundation and the United States Department of Education.

The project is collaborative, with three CSU campuses (Dominguez Hills, Los Angeles, and CSUN), the University of Wisconsin, Madison, and experts and classroom teachers of the science branch of the L.A.U.S.D. participating. Workshops were

team taught by representatives of participating players.

CSUN faculty members taking part in the summer institutes included Drs. **Michael Franklin** (Biology), **Norm Herr** (Secondary Education), **David Kretschmer** (Elementary Education), **Gerry Simila** (Geology), and **Gini Vandergon** (Biology). The summer programs provided a new professional development model of university science and education faculty teams working closely with L.A.U.S.D. science experts and classroom teachers, as well as quality-tested science immersion units for classroom teachers.

This collaborative effort within a large school district provides a national model for working together to provide quality science content (from the California State Science Standards) that will ultimately provide much needed support for science teachers and a strong working relationship among all parties involved. The ultimate return will be an increase in scientific knowledge for our school children.