

BIO SCI BRIEFS



A Newsletter for Alumni and Friends of the School of Biological Sciences

SPRING 2008



DEAN'S MESSAGE

We are nearing the end of another busy, but very exciting and eventful year for the School of Biological Sciences. Several new facilities and programs have come into being this year, and I'd like to highlight a few of them for you. In February, our newest building, Biological Sciences 3, opened. This is a \$56M, 80,000 square foot research and teaching building that houses a 400 seat auditorium, 18 open research laboratories and faculty offices, dark rooms, clean rooms, meeting rooms, equipment rooms, etc. Some faculty are beginning to get settled in their new space, with permanent occupancy in the Fall after the renovation project of Steinhaus Hall is complete (goodbye Cheese Grater look).

Another new facility, which will soon be fully operational for our use, is a research cottage in the Crystal Cove State Park Historic District, only a few miles from campus. The California State Parks & Recreation, in conjunction with the Crystal Cove Alliance, asked UCI to partner with them to create a marine research station in one of the restored Crystal Cove Cottages. Within this facility, we will be conducting water quality experiments, marine research, and environmental impact studies. This is the first partnership of its kind between an educational institution and any of the California State Parks, and we are very excited to be a part of this important project.

Speaking of environmental studies, UC Irvine has just announced the creation of a new research institute dedicated to the study of the environment and its impact on human society. The UC Irvine Environment Institute is a large-scale campus collaboration, involving researchers from almost all disciplines on campus, including the Schools of Engineering, Physical Sciences and Biological Sciences. Specific research topics may include studying how climate change will alter public health and welfare, how society will adapt to the living patterns of green cities, and the environmental impacts of new energy technologies. In addition to faculty currently on campus, UC Irvine is going to recruit eight new positions to the Institute over the next three years to broaden our base of expertise. The Institute will be led by Dr. Michael Prather, the Fred Kavli Chair and Professor of Earth System Science. Dr. Prather has an extensive environmental background, having written chapters on four Intergovernmental Panels on Climate Change assessments (1996, 1999, 2001 and 2007). The IPCC recently shared the Nobel Peace Prize with former Vice President Al Gore for its work on advancing climate change science. The Institute's governing board includes Susan Bryant, Vice Chancellor for Research; John Hemminger, Dean of the School of Physical Sciences; Nicolaos Alexopoulos, Dean of The Henry Samueli School of Engineering; and me.

Finally, I am very pleased to report that UC Irvine was awarded \$27.2 million from the California Institute for Regenerative Medicine to build a new stem cell research facility. This project will unify and strengthen UCI's fast-growing stem cell biology program and serve as a hub for research on regenerative medicine in Southern California. When completed, the three-story, 61,600-square-foot building will house the UC Irvine Sue and Bill Gross Stem Cell Research Center, as many as 26 laboratory-based and clinical researchers, a stem cell techniques course for young scientists, a master's program in biotechnology with an emphasis on stem cell research, and an array of programs and activities that involve and educate patients and the general public. Pending final University of California Board of Regents approval, construction is scheduled to begin in September and finish in July 2010.

Please feel free to follow up with me if you would like further information on any of these initiatives. I wish all of you a safe and relaxing summer.

Sincerely,

Al Bennett

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Ed Chang Wins Distinguished Alumnus Award

Ed Chang was honored in early May at the annual Alumni Association Lauds & Laurels Ceremony with a Distinguished Alumnus Award. When Ed went to the career center 26 years ago and responded to a posting for a summer internship, he could not have known that he was destined for a thriving career in the medical device industry. As a founding member of three successful companies, he has been instrumental in the development of a minimally invasive breast biopsy needle that reduces the need for open surgery used for the early detection of breast cancer, and a novel device to allow for total arthroscopic rotator cuff surgeries in sports medicine. He is an active supporter of the university and helped establish the School of Biological Sciences successful mentor program. He serves as a member of the Dean's Leadership Council, and he and his wife Maggie were the first financial donors to support the Sue and Bill Gross Stem Cell Research Center, in what they believe is the "next frontier of a major medical breakthrough." The School wishes to congratulate Ed on this well deserved honor.

photo courtesy of Laurel Hungerford



FACULTY SPOTLIGHT

Faculty Highlight: **Anthony A. James, Ph.D.**



Dr. Anthony James understands the meaning of a breakthrough. As the Distinguished Professor of Molecular Biology and Biochemistry in the School of Biological Sciences, and Distinguished Professor of Microbiology and Molecular Genetics in the School of Medicine, he is widely recognized as a pioneer in field of genetics for his work related to mosquito-borne infectious diseases. Many of Dr. James's discoveries are being used to understand and develop preventative measures to alleviate multiple diseases, including Dengue Fever and Malaria, which kill millions of individuals each year – mostly in developing regions of the world.

Anthony James grew up in Southern California as the second of ten children born to parents of mixed ethnicity. His father received a degree in Mathematics, and his mother in English; both parents highly encouraged their children to pursue college, and moved to Southern California from Michigan for better schools and a more tolerant racial environment.

While his father continued to build a long career in aerospace, Anthony entered UCI as an 'undeclared' freshman. He took coursework in various topics until his junior year when, as a work study-student, he joined a Drosophila lab washing dishes. The very first day, he asked two Postdoctoral researchers about their work, and they proceeded to tell him in detail. The next day, they asked Anthony to work for them and, as he says, "I've never left the laboratory since."

Anthony James went on to finish his undergraduate degree at UCI with the help of the Dean, Dr. Howard Schneiderman, who provided financial support for him during the final two years. He then was a graduate student with Peter J. Bryant, also at UCI. He went to Boston for postdoctoral work and got his first faculty position at the Harvard School of Public Health. In 1989, Dr. James returned to his alma mater, and has stayed with the university to the present.

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GK-12, Innovating Graduate and K-12 Education in Biological Sciences

The GK-12 Program, funded by the National Science Foundation, in the School of Biological Sciences is designed to bring innovation to graduate and K-12 education by integrating investigation and experimentation conducted by UCI faculty and graduate students with teaching of biology/life sciences in grades 7-12 at partner schools in Santa Ana, Montebello and Westside of Newport-Mesa Unified School Districts. GK-12 graduate students improve communication, teaching and team-building skills as they act as partners and mentors to support and serve as resources for teachers to enrich learning for K-12 students.

The objective of the NSF GK-12 program is to prepare the next generation of scientists to attain leadership roles in promoting public understanding of current issues and developments in science, the nature of scientific inquiry and discovery, and the contributions of science to society.

The project's components include orientation sessions for graduate students and teachers to learn about the project, training on methods of teaching science in secondary schools, seminars for graduate students to review and discuss new developments and experiences, workshops and summer institutes where faculty, graduate students and teachers prepare inquiry-based lessons and laboratories to be presented to 7th-12th grade students. In addition, there is an annual symposium where graduate students get together to present their experiences and developed materials to their colleagues and partnering teachers.

In March of this year, Chancellor Drake had the opportunity to witness the innovative nature of this project first hand. During the visit, Chancellor Drake interacted with students and helped with their science projects, which included setting up worm bins to study the natural process of soil decomposition and nutrient cycling. He was accompanied by Miguel Pulido, Santa Ana mayor; Dan Salcedo, Santa Ana High School principal; Luis Mota-Bravo, Outreach, Research Training and Minority Science Programs director; and other GK-12 staff members.



Chancellor Michael Drake, Luis Mota-Bravo (Director of MSP and PI of NSF-GK-12), Miguel Pulido (Santa Ana Mayor), Michael Mulligan (Associate Dean of Bio Sci Graduate Studies and Co-PI of NSF-GK-12) and Dan Salcedo (Santa Ana High School Principal).

EXTERNAL RELATIONS UPDATE

Leadership Scholars Program

The School of Biological Sciences provides a strong academic foundation for about 5,000 undergraduate and graduate students and is the second largest School on the UCI campus. We are nationally recognized as a leader in cutting-edge research, and the majority of undergraduate students participate in laboratory projects that promise breakthroughs in areas such as: aging, neurodegenerative diseases (MS, Parkinson's, ALS), cancer, regenerative medicine, and global climate change.

Our Future Need

As our School continues to increase its stature and reputation among the best research institutions in the nation, the cost of educating, recruiting and retaining the best and brightest students continues to increase.

The University of California is no longer primarily financially supported by the State. It is more accurate to say that it is now a state assisted school, with only 16% of its budget provided by the State of California. Because of rising costs, student fees have risen 226% over the last five years. While student fees now make up 22% of the university's budget, more than half (59%) of the University's financial needs are expected to come from outside support.

Unfortunately, next year will be even more challenging. The State of California will have to enact severe budget cuts to the entire UC system, including UCI and all of its schools, including Biological Sciences. These will result in a further increase in student fees, and a decrease in overall scholarship support starting in the 2008-2009 year.

In response to this impending challenge, Dean Bennett has created the **Leadership Scholars Fund** as a way for the School of Biological Sciences to assist in the recruitment of gifted young biologists.

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FACULTY IN THE NEWS



Peter Donovan

Professor, Developmental & Cell Biology, and his colleagues have discovered a dramatically improved method for genetically manipulating human embryonic stem cells, making it easier for scientists to study and potentially treat thousands of disorders ranging from Huntington's disease to muscular dystrophy and diabetes.

Brandon Gaut

Chair of the Department of Ecology & Evolutionary Biology, has been chosen as UC Irvine's Professor of the Year by the Academic Senate Council on Student Experience.

Jim McGaugh

Professor, Neurobiology & Behavior, was awarded the Norman Anderson Lifetime Achievement Award from the Society of Experimental Psychologists, which recognizes the lasting contributions of truly great psychologists.

Frank LaFerla

Professor, Neurobiology & Behavior, has been named a Chancellor's Professor, effective July 1. The title recognizes scholars who have demonstrated unusual academic merit and whose continued promise for scholarly achievement makes them of exceptional value to the university. LaFerla studies molecular changes associated with Alzheimer's disease.

Adam Martiny

Assistant Professor, Ecology & Evolutionary Biology, co-authored a perspectives article titled "News About Nitrogen" in the May 9 issue of Science magazine. The article is about the importance of bacteria and bacterial diversity for understanding the global nitrogen cycle and forecasting the impact of climate change.

Maike Sander

Associate Professor, Developmental & Cell Biology, was awarded the prestigious Grodsky Award from the Juvenile Diabetes Research Foundation for her outstanding scientific contributions to diabetes research.

Ian Parker

Professor, Neurobiology & Behavior, was elected a Fellow of the Royal Society for his tremendous contributions to calcium signaling, including path breaking exploitation of fluorescent microscopy using equipment of his own design and construction.

Katharine Suding

Assistant Professor, Ecology & Evolutionary Biology, received UC Irvine's Distinguished Assistant Professor Award for Research by the Academic Senate Council.

Kathleen Treseder

Associate Professor, Ecology & Evolutionary Biology, and David LeBauer, graduate student researcher of Earth System Science, find that excess nitrogen in tropical forests boosts plant growth by an average of 20 percent, countering the belief that such forests would not respond to nitrogen pollution. Results appeared in the February issue of Ecology.

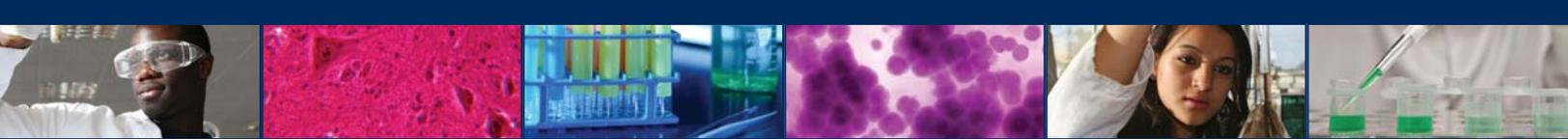
Sheryl Tsai

Assistant Professor, Molecular Biology and Biochemistry, and her team reported their breakthrough research findings on polyketide drug formation in the Proceedings of the National Academy of Sciences. Many top-selling drugs used to treat cancer and lower cholesterol are made from organic compounds called polyketides, which are found in nature but historically difficult for chemists to alter and reproduce in large quantities. For the first time, Tsai and her colleagues have discovered how polyketides form their ringlike shape, making it easier for chemists to manipulate them into new drugs.

Marcelo Wood

Assistant Professor, Neurobiology & Behavior, was recognized by the School of Biological Sciences for excellence in undergraduate teaching.





WHO'S NEW

The School of Biological Sciences would like to welcome the following faculty who joined us in the 2007-2008 academic year:

Steven Allison *Department of Ecology & Evolutionary Biology*

Steven Allison received a B.S. in Biology and minor in Chemistry from Pennsylvania State University. He earned his Ph.D. in Ecology from Stanford University, and was a NOAA Climate and Global Change postdoctoral fellow at UC Irvine. His research focuses on the interface between microbial ecology and ecosystem processes. In particular, he is interested in the extracellular enzymes that microbes use to break down dead organic material. He also studies how microbes and their enzymes respond to environmental change, such as global warming and nitrogen deposition.

Michael J. Buchmeier *Department of Molecular Biology and Biochemistry*

Michael J. Buchmeier received his BS and MS degrees in Microbiology at Washington State University, and his Ph.D. in virology and immunology from McMaster University in Hamilton, Ontario, Canada. He took additional postdoctoral training at Scripps Clinic and Research Foundation. Over the past three decades, Dr. Buchmeier has pursued research on a broad range of problems on virus-induced demyelinating and neurodegenerative diseases, and in viral pathogenesis focusing on emerging viral infections. He has been the recipient of an American Heart Association Established Investigator award, was elected a Fellow of the American Association for the Advancement of Science, and a Fellow of the American Academy of Microbiology, and has been honored as a Burroughs-Wellcome Professor in the Microbiological Sciences.

Kailen Mooney *Department of Ecology & Evolutionary Biology*

Kailen Mooney received his B.A. in Environmental Science at Wesleyan University, after which he worked as an environmental policy analyst for the Natural Resources Defense Council. He moved to the University of Colorado at Boulder where he completed his Ph.D. in Biology and conducted postdoctoral research at Cornell University. Kailen investigates how complex networks of interactions among plants, insects and birds determine the biodiversity and species composition of ecological communities. He has worked in the pine forests of the Rocky Mountains, the French Mediterranean and abandoned agricultural fields of Northeast North America.

Jose Ranz *Department of Ecology & Evolutionary Biology*

José Ranz received his Ph.D. in Biology from the Independent University of Barcelona, Spain. There, he analyzed the extent to which the eukaryotic chromosome can accommodate large-scale rearrangements. Afterwards, he moved to Harvard University, where he pioneered the use of microarray technologies in the study of genes expressed preferentially in one of the genders across different species as well as in their hybrid progeny. In his laboratory at UC Irvine, Dr. Ranz uses high-throughput technologies and computational methods to analyze how chromosomal rearrangements affect gene expression and how trans-acting factors contribute to the divergence of the expression network between species.

Craig Stark *Department of Neurobiology and Behavior*

Craig Stark received his A.B. in Psychology from Harvard University and his Ph.D. in Cognitive Psychology from Carnegie Mellon University. After postdoctoral research at UC San Diego, he joined the faculty at Johns Hopkins University in the Department of Psychological and Brain Sciences. Dr. Stark's research investigates the neural bases of human long-term memory. He uses functional neuroimaging (fMRI), experimental psychology, neuropsychological studies of amnesic patients, and studies of aging and dementia to investigate how the neural systems supporting these various types of memory operate and interact. Particular emphasis is placed on understanding the human hippocampus and other components of the medial temporal lobe.

Dr. James

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Dr. James's research primarily focuses on novel methods for the prevention of mosquito-transmitted viruses and parasites. When Dr. James began his research in the 1980s, he wanted to identify genes that permit parasite development within mosquitos; however, methods weren't yet available for getting at these genes. To circumvent this problem, he created an entirely new genetically-engineered gene designed to disrupt parasite development.

A new challenge arose when Dr. James had to determine how to transfer the genetically engineered structure back into the mosquito (transgenesis). This problem took Dr. James ten years to work through, numerous dead ends, and funding support from the MacArthur Foundation that enabled him to remain focused on a solution. Dr. James recalled his personal fortitude during this time as 'life changing,' and the technique that he developed, in conjunction with a number of collaborators, is now used to transfer genes affecting both parasites and viruses into mosquitoes.

Dr. James is now focused on how to introduce the new genetically-engineered mosquitoes into wild populations – thus preventing the spread of pathogens by making infected mosquitoes harmless. Another long-term challenge, and with life, as Dr. James notes, "If you maintain hope, with work, you can really change things."

Dr. James works with scientists across the world, and is supported by the National Institutes of Health and the Bill and Melinda Gates Foundation for his work with mosquito-borne diseases. He is a Member of the National Academy of Sciences, a Fellow of the American Association for the Advancement of Science and a past Council Member of the American Society for Tropical Medicine and Hygiene. He loves music, and plays guitar locally with members of his family and colleagues from the UCI School of Biological Sciences faculty.



STUDENT AWARDS

Students Honored at Annual Honors Convocation Ceremony

On June 2, 2008, the School of Biological Sciences held a joint ceremony for the Graduate Honors Convocation and Bio Sci Teaching and Faculty Awards. Donors, students and their faculty mentors as well as Bio Sci Faculty gathered to honor the recipients of 13 graduate student awards and 4 excellence in teaching awards. The ceremony was followed by a reception where students were able to meet the donors who generously contributed funds for the scholarships and awards. The Undergraduate Honors Convocation ceremony and reception was held on June 14, 2008, presenting 38 scholarships and awards.

UNDERGRADUATE AWARDS

Audrey M. Schneiderman Prize

- Amanda Janesick
- Pascal Krotee
- Samantha Luk

Brian Atwood Scholarship

- Hea Jung Lee
- Adrienne Tran

Carol Becker McGaugh Award

- Shanoor Khan

Dean's Academic Achievement and Service Awards

- Kimberly Balazs
- Phuong Nguyen
- Ly Vu

Dean's Award for Excellence in Research

- Kameelah Abdullah
- Jessica Bruystens
- Ammarq Siddiqi

Edward Mittleman Memorial Scholarship

- Kimia Menhaji
- Aceela Muqri



Excellence in Bio Sci Alumni Scholarship

- Wesley Chin
- Monica Tsai

Jayne Unzelman Scholarship

- Phat Tan Dang
- Zlatko Devcic
- Sonya Seshadri

Joseph H. Stephens Memorial Prize-BMB

- Mei-Chuan Yu

Joseph H. Stephens Memorial Prize-E&E

- Souseh Zamani

Laurence J. Mehlman Memorial Scholarship

- Khushboo Kaushal
- Michael Todhunter
- Ngocdung Tran

Michael and Judy Leon Award

- Ryon Graf

GRADUATE AWARDS

Barbara K. Burgess Fellowship

- Dr. Jing Xu

Edward Steinhaus Teaching Awards

- Rebecca Aicher
- Melissa Davis
- Jessica Shultz
- Brian Tanaka

Fine Science Tools

Graduate Travel Awards

- Ruth Barrett
- Yen-Ru Pan

Graduate Fellowship Award

- Lulu Chen
- Shin Jae Chung

Grover C. Stephens Memorial Fellowship

- Andrew Clark

Howard A. Schneiderman Fellowship Award

- Bryan Bell

Paul H. Silverman Memorial Fellowship

- Kimberly Gokoffski

M. Marlene Godoy Scholarship

- David Lam

Poster Awards

- Josephine Le
- Darrick Lee
- Kimia Menhaji

Robert H. Avnet Memorial Scholarship

- Hamidreza Arjomandi
- Atousa Farmahini Farahani
- Steven Ton

Robert Ernst Prize - Biological Sciences

- Roxanna Ochoa
- Andres Sistos

Robert Ernst Prize - Plant Biology

- Michelle Chang
- Lien-Khuong Tran

William F. Holcomb Scholarship

- Shushmita Ahmed
- Jacqueline Seigle



Robert Warner Award for Outstanding Achievement in Nucleic Acid Biochemistry

- Yen-Yun Chen

William F. Holcomb Fellowship

- Felipe Barreto
- Marilou Sison-Mangus

William D. Redfield Graduate Fellowship Award

- R. Drew Etheridge
- Melanie Matheu



STUDENT SPOTLIGHT

Student Highlight: Yetunde Fatunde



Yetunde Fatunde is a junior in the School of Biological Sciences, and smiles when reflecting on her time at UCI. "I have received so much support from students and mentors starting from my freshman year. I want to give back! I want to give back the very same practical advice and encouragement to other students, and UCI has so many ways of doing so."

Yetunde Fatunde grew up in southwestern Nigeria, in the city of Ibadan. She was always interested in science, and characterizes her own mind as, 'not content with superficial explanations.' She attended boarding school in Ibadan, where she pursued a science-based education. Her experience in boarding school was rigorous, and she felt it prepared her for the discipline and maturity required to become a successful freshman at UCI - especially in the Biological Sciences.

Yetunde moved to Corona, California four years ago and received admission offers from multiple universities. Upon entering UCI, Yetunde excelled in her classes and decided to apply for a job in Professor Ken Cho's lab (Developmental and Cell Biology) - taking on minor tasks. Eventually, Yetunde became quite interested in the research, and asked Professor Cho more about his projects. Dr. Cho invited Yetunde to participate in undergraduate research within his lab, and she has since worked on projects using genome arrays from a pipid frog (*x. tropicalis*) to verify genetic transcripts first discovered at a peer institution in the Netherlands.

Yetunde has a passion for Biology and enjoys research, but when asked what makes UCI most memorable, she quickly refers to her involvement with student clubs and organizations. As a sophomore, Yetunde was Director of Outreach for the African Student Union, and during her junior year, became Treasurer of the Nigerian Student Association. Yetunde also Co-Chairs the Minority Association for Pre-Health Students (MAPS), which provides under-represented students interested in the medical field with adequate knowledge, skills, and experiences for entry into health related professions.

Yetunde has become a leader within MAPS, and enjoys fundraising and coordinating volunteers for activities such as AIDS Walk Orange County. As part of MAPS, she develops health-related educational activities, and also helps in hosting minority high school students, who have been offered admission to UCI, for a full day of activities and mentorship. "Of the minority students who attend this day, about 75% go on to accept their offer to attend UCI, as they feel comfortable knowing they have a network of students to turn to who come from a similar perspective."

Yetunde recently won the poster presentation award in developmental biological sciences at the 2007 Annual Biomedical Research Conference for Minority Students. She is also the School of Biological Science's 2007 Brian Atwood Scholar. Yetunde's future is open, and she plans to deliberate carefully about her options after graduation. In her spare time, Yetunde enjoys being with friends, shopping and generally being 'there' for students who could use a little help. "I used to think you just go to college, finish and move on with life. But there is so much more to the college experience that is fulfilling, and I'd like to help others - like me - find it at UCI."

External Relations Update

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Through the **Leadership Scholars Fund**, incoming freshman and transfer students will receive financial assistance through their senior year. **Leadership Scholars** will be chosen from the *top* pool of academically excellent biology students applying to the School of Biological Sciences. We want to identify students who truly want to attend UCI and who possess the leadership traits reflective of future success, and assist them in achieving their goals.

The Leadership Scholars Fund is the top fundraising priority for the Dean, and initial gifts to the fund from the community and from our faculty have been very encouraging. We would like to add our alumni and community supporters to this partnership to ensure a successful outcome to this critical initiative.

How can I support a Leadership Scholar?

The Leadership Scholars Program will become the School's primary method to recruit top students, and will be vital to the School - and the region's - future growth and excellence in the life sciences.

We strongly encourage Bio Sci Alumni and Friends to help support the number of students reached by providing a gift to the fund. As these scholarships are intended for full student fees over four academic years, supporters are encouraged to make gifts through multiple-year commitments.

Through key participation by Bio Sci alumni and friends, the **Leadership Scholars Program** will create a meaningful connection between undergraduate students and a community that admires and shares their goals.

We look forward to establishing the Fund for the 2009-2010 academic year, and welcome individual conversations on how gifts can be structured. For more information, please contact Jeanette Storey, Director of Development, at 949.824.8030 or by e-mail at: jstorey@uci.edu.

ALUMNI UPDATE

Bio Sci Mentor Program End of Year Celebration

On May 13, 2008, the Bio Sci Mentor Program celebrated the end of its 7th year with a reception for students and their alumni mentors at the Steelhead Brewery. As you can see from the pictures below, a good time was had by all who attended. Mentoring has become one of the most powerful ways for college students to gain valuable awareness of the rewards and challenges related to different educational and career aspirations.



Mentor, Avery Mittman, '81



Mentor, Denis Kitayama, '76



Mentor, Linda Tran, '88



Mentor, Tina Song, '01



Mentor, Rita Jakel, '85



Mentor, Eric Quimbo, '97



Mentors Ginnie Chen, Marlene Godoy, '76, and Ed Chang, '84



Mentor, Theodore Shu, '97

If you are interested in making a difference in a student's life by becoming a mentor, please contact Alyssa Cruz at 949-824-4742 or alyssac@uci.edu.

photos courtesy of Alyssa Cruz

