

Our University

A NEWSLETTER FROM THE UNIVERSITY OF CALIFORNIA PRESIDENT FOR THE UC COMMUNITY



May 2011



SAN FRANCISCO — With the state budget still uncertain, the University of California Board of Regents on May 18 discussed short- and long-term options for how UC will cope if state financial support for public higher education continues to wane.

Since January, the university has been developing strategies to absorb a \$500 million cut in state funding for the fiscal year that begins July 1. Those cuts come on top of the exhaustive cost-saving measures the university has enacted over the last few years to cope with dwindling state support.

President Mark G. Yudof told the board that he and other senior administrative leaders are trying to develop a five-year plan to return fiscal stability to the university, and he walked through a set of values and goals that he said would inform the process.

First and foremost, the university must preserve excellence in instruction, research and public service, he said, which it cannot do without continuing to attract and retain top-flight faculty.

"We have to maintain this world-class faculty," Yudof said. "We have to keep them here and recruit others of the same quality."

UC also must work to keep its doors open to all qualified California students, including finding ways to extend financial aid to middle-income families, if fees continue to rise, he said.

"It's very hard to keep the university on an even keel when the financial stability isn't there," Yudof said. "We need to make long-term commitments to our students, our faculty, our staff. And we need to do all we can to keep our doors wide open to the students of California."

Patrick Lenz, vice president of budget and capital resources, told regents that there is still a great deal of uncertainty about the final state budget and how UC will be affected.

The university has crafted a plan for enduring the proposed \$500 million cut that does not raise fees or reduce enrollment.

If the final state budget includes a cut larger than the currently proposed \$500 million, Lenz said, the university may need to consider increasing student fees to protect academic quality.

"Campuses are doing all they can to deal with the first \$500 million. We just don't have any more options available to us," Lenz said, noting that UC's central office is planning to cut \$80 million from its budget to help minimize budget impacts on the campuses.

Nathan Brostrom, executive vice president for business operations, discussed UC's long-term fiscal outlook, recapping the measures that UC already has enacted to cope with diminishing resources.

In the last three years, the university has resorted to furloughs, layoffs, student fee increases and program reductions, and also launched an aggressive effort to find operational efficiencies. The Working Smarter initiative expects to reduce UC costs by \$500 million over the next five years.

But even with all those measures, UC's operational expenses are projected to outstrip revenues in the coming years, Brostrom said. UC has plans to ratchet up philanthropic giving and enact other revenue-enhancing measures, but still will face a \$1.5 billion deficit by 2015-16 unless a stable source of revenue is found.

A return to reliable state funding could be one solution; the other levers that could affect UC's financial outlook are tuition and fees; enrollment levels; and changes to UC's staffing, programs and services, he said.

Brostrom presented four hypothetical examples for how varying levels of future state support could affect tuition and enrollment levels if UC receives the \$2.5 billion 2011-12 funding currently proposed by Gov. Brown.

Under the most optimistic scenario, if the state increases funding by 8 percent in fiscal year 2012-13, UC would need tuition increases of 8 percent each year through 2015-16 to cover UC's rising costs and support projected enrollment growth of 1 percent per year.

At the opposite end of the spectrum, if California cut funding by 2 percent a year beginning in 2012-13, it would require capping enrollment at current levels and increasing tuition annually by 20 percent to cover all of UC's projected costs.

In short, for every additional dollar the state cuts UC, it would take the rough equivalent of a dollar in student fees to make up the loss, he said.

Judy Sakaki, vice president for student affairs, told regents that as UC contemplated the possibility of future fee increases, it was developing ways to ensure that UC remained affordable to both low- and middle-income families.

UC financial aid programs currently cover all tuition and fees for eligible students with family incomes below \$80,000. Under new proposals, that ceiling would be raised to \$90,000, while half of all tuition and fees would be covered for students whose family incomes are

between \$90,000 and \$120,000.

"We must send a clear message that tuition should not be a barrier to low- and middle-income families," Sakaki said.

Regents did not act on the financial aid proposal, but will be presented a formal plan at a later meeting, possibly in the fall. The regents also are expected to take action on the UC budget for fiscal 2011-12 at the meeting in mid-July.

Systemwide News

New UC Merced chancellor poised to raise campus profile

With a proven record of building universities, UC Merced Chancellor-Designate Dorothy Leland is prepared to lead the campus through its next phase of development by growing its academic and research profile.

"In some ways, I feel I've been preparing for this experience throughout my entire career," Leland said. "This is truly a dream come true, and I couldn't be more excited about it."

The UC Board of Regents today (May 18) approved Leland's appointment to serve as the third chancellor of UC Merced. She begins July 1. Leland, who holds a doctoral degree in philosophy from Purdue University, currently serves as president of Georgia College & State University.

Leland will lead UC Merced during a time of unprecedented budget challenges for California, though she said the campus' size allows it to be nimble and adjust to changes more easily than other institutions. She has worked through similar problems during her time leading Georgia College.

"A campus sustained by a spirit of innovation has the flexibility to approach issues with greater dexterity and speed without the burden of legacy traditions and programs," she said.

Leland, a California native, said she looks forward to returning to her home state to lead its newest research university. Rather than coming in with a preconceived notion about its priorities, her plan is to meet first with major stakeholders to learn from them and to understand the challenges they face in reaching their goals.

She said she sees current and potential partners, such as other educational institutions, businesses and the campus supporters, as being important for the campus' future.

"To reach our long-term goals as an institution, we must be very creative and resourceful in our efforts to partner with those who share our vision and, through their generosity or mutual interests, can help us build the foundation for a world-class institution," she said.

UC Merced, as the world's first research university of the 21st century, should foster a culture of strategic risk-taking and entrepreneurialism, she said.

"This campus can become a leader in adopting or creating new technologies, new systems, new ideas and new methodologies that could ultimately benefit the entire UC system," Leland said.

UC Merced's commitment to sustainability, through its design and its research, is an area that distinguishes it from other universities, Leland said.

"I would like to explore ways in which UC Merced might leverage and grow its sustainability emphases and gain broader national recognition and funding support as a leader in this field," she said.

Furthering the town-gown relationship is also important to Leland, who said public universities have special responsibilities for working in partnership with others for the economic, cultural and educational benefit of their regions.

"I intend to put that belief into practice in Merced and the San Joaquin Valley," she said.

New Staff Advisor to Regents named

Kevin Smith of UCLA has been selected as the 2011-13 staff advisor-designate to the University of California Regents, UC President Mark G. Yudof announced on May 18.

Smith, chief financial and compliance officer in the UCLA chancellor's office, joins Penny Herbert, 2010-12 staff advisor, after a months-long, systemwide search.

"Kevin has an impressive background and I think he brings a number of important skills to the role of staff advisor, especially his understanding of financial matters," Yudof said. "I think he will represent staff very well, and I look forward to working with him over the next two years."

Smith replaces Juliann Martinez of UC Berkeley, whose two-year appointment ends June 30.

"The next two years will be quite transformative for UC given the budget cuts being proposed," Smith said. "I want to use my background in budget and finance to serve the university. I also want to make sure decisions are made in the staff's best interest and then to be able to explain those decisions to staff."

Smith, who is a member of Bruin Caucus, UCLA's advocacy organization, says he also hopes to get more UC staff involved in advocacy efforts for the university. "We need more people out there writing letters and attending events in support of UC. There's a dedicated core of staff who actively advocate for UC, but we need to increase those numbers," he said.

Yudof, in consultation with regents chair Russell Gould, selected Smith from finalists recommended by a selection committee that included current and former staff advisors and other staff from the Office of the President.

As staff advisor-designate, Smith will represent staff and non-Senate academic employees in Board of Regents deliberations and decisions, bringing the voice and perspective of staff and non-Senate academic employees to board deliberations. He will participate as a non-voting advisor on five regents' committees: Committee on Educational Policy, Committee on Finance, Committee on Long Range Planning, Committee on Health Services and Committee on Investments.

Smith joined UCLA in 1999 as finance manager for UCLA's Communications Technology Services where he was responsible for the annual budget and other financial management duties. Since 2005 he has held the position of chief financial and compliance officer,

managing all budget, accounting, payroll and policy compliance matters for the Office of the Chancellor. He also serves as consultant to Chancellor Gene Block on campuswide exceptional travel and entertainment policy and compliance issues that require chancellor approval.

Prior to joining UCLA, Smith worked as a financial analyst, supervisor and consultant for CIGNA Healthcare and BNR, a division of Nortel.

For more information about the staff advisor program, visit www.universityofcalifornia.edu/staffadvisors/.

Pension plan advisory board election begins

Seven UC employees are in the running for two open staff seats on the UC Retirement System Advisory Board. The board meets three times each year to discuss issues pertaining to UC's retirement plans and shares ideas with President Mark G. Yudof.

Active, eligible UCRP staff members will be invited to vote for two new representatives from May 23 through June 17. See below for more detail on voting eligibility and procedures.

Following is a list of the candidates, with an excerpt from his/her candidate statement:

Grai L. Andreason, associate manager of technology transfer at UC San Diego "As I anticipate my own retirement, I have a vested interest in ensuring a viable plan for the near and far term."

Catherine A. Brennan, assistant researcher at UCLA's AIDS Institute "I come from a family of financial and accounting experts, and with my long-standing interest in financial affairs, am qualified to represent the staff of UC on the Pension Advisory Board."

Paul D. Brooks, spectroscopist at UC Berkeley "I am running for election to the UC Retirement Plan Advisory Board to preserve our pensions and achieve more transparency in the management of the plan."

Michael Erazo, public safety dispatcher, UC Berkeley "It's time for new ideas and approaches that benefit you, not simply ask you to give up more."

Raschel Greenberg, student affairs officer at UC Irvine "Now, more than ever, retirement system benefits are important in our UC careers; my goal will be speaking up for staff in UCRS Advisory Board discussions."

Monica Martinez, administrative clinical care partner, UCLA Medical Center "I am ready to hit the ground running with a solid understanding of the issues and recent changes, and to contribute a much-needed perspective on how benefits changes impact UC workers."

Deborah H. McWilliams, chief administrative officer, UCLA "I served on several UCI campuswide committees.... As a recent transfer to UCLA, I hope to continue my staff advocacy efforts and University service."

Read the candidates' full statements on the UCRS Advisory Board election website: http://atyourservice.ucop.edu/ucrs_election/candidates.html

How to cast a ballot

All active, eligible UCRP members who are not part of the Academic Senate may vote for two candidates to sit on the board for a four-year term.

VR Election Services (VRES) is conducting the online election. VRES has more than 25

years experience conducting retirement board elections, including elections for many of the largest public retirement systems in the country.

Eligible UCRS members with UC email addresses will receive an email announcing that they are eligible to vote. The email will include a link to the e-ballot, a unique PIN and voting instructions. The PIN ensures that eligible voters cast only one ballot.

UCRS members without UC email addresses will receive a ballot and instructions in the mail at their home address. The election information will also include instructions and a PIN for voting online. The members can either mail in the paper ballot or vote online using the PIN provided in the election packet.

VRES has email and telephone helplines. Contact VRES via email at custserv@vres.us or call them toll-free at 1-800-218-4026, Monday-Friday, 6:30 a.m. – 3:00 p.m. PDT.

Final election results will be posted at the UCRS Advisory Board election website by the end of June.

About the UCRS Advisory Board

The 11-member UCRS Advisory Board is comprised of a cross-section of the university community. In addition to the two seats held by elected staff representatives, the board includes members appointed by the president, faculty appointed by the UC Academic Senate, and the chairs of the Council of UC Emeriti Associations and the Council of UC Retiree Associations.

The advisory board meets three times a year to discuss and share its opinions with UC President Mark G. Yudof on issues relating to all members, retirees and their beneficiaries for the following plans:

- University of California Retirement Plan (UCRP)
- Tax-Deferred 403(b) Plan
- 457(b) Deferred Compensation Plan
- Defined Contribution Plan
- The 415(m) Restoration Plan

UC launches student health insurance program

Students at the University of California will have expanded health insurance benefits and more stability in premium costs this fall under a new, university-wide health insurance plan.

The university created the student health insurance plan after concluding it could negotiate lower health care rates and offer a wider array of benefits with the adoption of a centralized plan. Historically, each UC campus has managed its own student health plan.

Students at all ten UC campuses and Hastings College of Law will participate in the program beginning in August. Students will have comprehensive medical and mental health coverage, dental and vision benefits, and the ability to enroll spouses and children.

The plan incorporates strong benefits from each of the existing plans, said Heather Pineda, director of the UC Student Health Insurance Plan. The result: every campus will offer some new benefits they didn't have before.

In aggregate, UC students will receive about \$5.4 million in additional benefits, yet save \$8.4 million on premiums during 2011-12, according to university estimates.

"Under this plan, everyone is protected, and we have better pricing and stronger benefits than before," Pineda said.

Students will also experience less inflationary pressure on premiums over the next few years because UC has negotiated multi-year price guarantees on services provided by insurance companies, she said.

UC began looking at creating its own student health insurance plan in 2008 as a way to tamp down rising health care costs without sacrificing benefits. Graduate students on six of UC's campuses began using the insurance plan last year.

"There were significant savings and improved benefits, so we decided to expand the insurance plan to all students, including our undergraduates," Pineda said.

Student health services directors from each UC campus worked to develop the plan, as did staff from UC's Office of the President. The work group was led by co-chairs Joseph Castro, of UC San Francisco, and Fred Wood, of UC Davis, both vice chancellors of student affairs for their respective campuses. In addition, a mix of graduate and undergraduate students participated, with representation from every campus.

Two of those students - Jason Tien, a Ph.D. candidate in neuroscience at UCSF and Alberto Ortega Hinojosa a Ph.D. candidate in public health at UC Berkeley - received the President's Award for Outstanding Student Leadership for their work.

In acknowledging their efforts, President Mark G. Yudof told the UC Board of Regents in May that the students had contributed 'great energy and ingenuity' to the effort and spent more than two years on the project.

The student health insurance plan "has reduced cost and broadened insurance benefits for our students, including making it possible to offer long-sought dependent coverage" Yudof said. "Their success demonstrates the vital importance of student involvement and leadership in university initiatives."

Students will continue to have an important role in the plan, Pineda said. The university is creating a UC SHIP advisory board that will include students from every campus.

"Since the plan exists for the benefit of students, their input is crucial," she said.

Although students will see some increase in premiums this fall, costs are generally lower than they would have been if individual campuses had negotiated their own rates, she said. And since UC bears the risk associated with paying medical claims, it can avoid the fees insurers charge for assuming the risk.

Premiums and medical providers will continue to vary from campus to campus, but all students will have the same strong core benefits, including:

- Free preventive care;
- A \$200 annual deductible that is waived for on-campus student health services, pharmacy purchases, off-campus office visits, emergency or urgent care visits;

- 90 percent coverage for in-patient hospitalizations, outpatient surgery and many other services;
- Mental health care and substance abuse treatment covered at the same level as any other medical condition;
- An out-of-pocket maximum of \$3,200.

Under the plan, enrolled students will use on-campus Student Health Services as their primary care providers, with the cost of those services covered by the insurance plan. Students who have their own health insurance are also allowed to use the Student Health Services, but their care may or may not be covered by their insurance.

UC requires its students to have health insurance as a condition of enrollment. It began requiring insurance after studies found that medical costs were one of the main reasons students dropped out of college. For low-income students, premiums are covered under student aid. Graduate student premiums are often covered through fellowships or other grants.

With up to 130,000 students expected to enroll, UC will now have the largest student health insurance program in the nation, according to Aon Hewitt, a health benefits consulting firm.

UC launches new research website

The UC Office of the President has launched a new website that highlights the depth, breadth and value of UC research.

Content shows the range of discovery and innovation at UC and how researchers at the campuses, medical centers and national laboratories often collaborate to tackle important issues.

"UC discoveries - from medicines and food production to transportation systems and new energy sources - touch the lives of Californians and people all over the world," said Steven Beckwith, UC vice president for research and graduate studies. "And every day, UC faculty and students conduct research that expands knowledge in every discipline."

This week, the research website includes a story and video about a new research initiative that will team veterinary and medical doctors and students to study diseases that affect humans and animals, a video about engineers testing structures so that they can withstand earthquakes, and a Q & A with a scientist who is developing an artificial kidney. The site also pulls in UC's nationally syndicated radio program, Science Today, with weekly updates about research at the campuses.

Upcoming pieces will look at industry and UC partnerships that reap discoveries, sustainability in research labs, humanities and arts projects and fascinating studies by graduate students.

Visit the website at universityofcalifornia.edu/research/

Global warming topic of next research lecture

V. "Ram" Ramanathan, an award-winning professor at the Scripps Institution of Oceanography at UC San Diego, will talk about this critical issue in the June 10 lecture "From CFCs to Cook Stoves: How We Can Work to Stop Global Warming."

The noon lecture at the UC Office of the President will be broadcast live via Ustream TV at www.ustream.tv/ucevents.

Ramanathan has been a pioneer in understanding climate and global warming. He discovered the powerful global warming effects of chlorofluorocarbons (CFCs) and other human-made gases in the 1970s, and predicted 30 years ago that global warming would be detectable by 2000. He helped lead an international team in discovering atmospheric brown clouds and found that these hazy plumes of air pollutants have major impacts on monsoon rainfall and rice harvests in India and glacier melting in the Himalayas. His group has developed unmanned aircraft with equipment to measure black carbon and pollutants. He is working on replacing cookstoves, which produce a lot of pollutants, with cleaner technology in rural India.

Ramanathan has been widely recognized for his work with numerous distinguished awards, including the Tyler Prize, Rossby Medal and election to the National Academy of Sciences and the Royal Swedish Academy of Sciences.

The June 10 talk is part of a lecture series sponsored by UCOP's Office of Research and Graduate Studies aimed at highlighting research being done at UC and its contributions to solving some of the world's most pressing problems.

To view the lecture live, visit www.ustream.tv/ucevents at noon on June 10. It will also be archived on UC's uStream channel. Join the lectures mailing list for announcements and reminders of upcoming events by contacting orgs@ucop.edu.

Riverside chancellor goes undercover

If you missed Chancellor Tim White's appearance as Pete Weston earlier this month on "Undercover Boss," you can read about his experience and view the episode here. <http://chancellor.ucr.edu/ub/>

More Systemwide News

Energy efficiency programs save UC \$21 million per year

<http://www.universityofcalifornia.edu/news/article/25496>

UC Health signs patient safety pledge

<http://www.universityofcalifornia.edu/news/article/25518>

UC libraries must share more to weather cuts

<http://www.universityofcalifornia.edu/news/article/25549>

UC children's hospitals ranked among nation's best

<http://www.universityofcalifornia.edu/news/article/25571>

People who make a difference

Engineers help paraplegic walk at graduation

Editor's Note: The story below, written before the event, highlights the work of the engineers who aided Austin Whitney. To read about his successful walk, see the follow-up story: <http://newscenter.berkeley.edu/2011/05/14/paraplegic-student-stands-walks-at-graduation/>

BERKELEY — When graduating senior Austin Whitney hears his name called on Saturday May 14 at the University of California, Berkeley's Commencement 2011, he will rise out of his wheelchair, walk to Chancellor Robert Birgeneau and shake his hand.

That moment will cap a long and dramatic journey for Whitney, who was instantly paralyzed in 2007 when a car accident severed his spinal cord. In the four years that passed, life lessons were learned, Whitney's spirit rebounded, and technological advances were explored. Last year, Whitney began working with a team of UC Berkeley engineers developing exoskeletons, wearable robotics that look like souped-up leg braces, and found himself imagining the unimaginable – a graduation walk.

"Ask anybody in a wheelchair; ask what it would mean to once again stand and shake someone's hand while facing them at eye level," said Whitney, 22, a double major in history and political science. "It will be surreal, like a dream."

Making that dream happen has humanized the exoskeleton project for Homayoon Kazerooni, professor of mechanical engineering, and his team of UC Berkeley graduate students, so much so that they named it "Austin" in honor of its first human test pilot.

Core members of the team include Michael McKinley, Jason Reid, Wayne Tung and Minerva Pillai, all Ph.D. students in Kazerooni's Robotics and Human Engineering Laboratory. They have worked around the clock for the past year – and especially for the past few months – in preparation for commencement, an annual event that honors all graduating seniors.

"In the beginning, we hadn't realized how important Austin's role would be," said Reid. "The feedback he provides – from the comfort level of straps to the ease of control – has really helped us fine tune the design of this machine."

A life-changing injury

Austin Whitney grew up in San Juan Capistrano in Southern California. He was involved in student government and theater, played sports, and excelled in academics, graduating in 2007 with a 4.0 GPA. He also was not immune to the feelings of invincibility so characteristic of youth. After drinking with friends on a summer day in July 2007, Whitney got behind the wheel of a car and crashed into a tree.

His spinal cord was severed just above the hip. He was hospitalized for 41 days and embarked on a tough physical and psychological recovery, but he refused to let the accident detour his plans for college.

Wasting no time, he started attending college classes 10 days after being released from the hospital. He attended UC Santa Barbara before transferring to UC Berkeley as a sophomore.

Nearly four years after his accident, Whitney is about to finish his undergraduate studies.

Exoskeletons evolve

The Austin project represents the latest in a series of exoskeletons Kazerooni and his team have developed over the past decade. Kazerooni's work in this field began in earnest in 2000 with a Defense Advanced Research Projects Agency-funded project to create a device that can help users carry heavier loads for longer periods of time. That project led to the Berkeley Lower Extremity Exoskeleton (BLEEX), (http://berkeley.edu/news/media/releases/2004/03/03_exo.shtml) a machine unveiled in 2004. At that time, Kazerooni also realized the potential use for exoskeletons in the medical field, particularly for physical rehabilitation and as an alternative to wheelchairs.

Aided by increasingly powerful batteries and faster computer processors, among other advances, there has been significant progress made in recent years in exoskeleton research, not just by Kazerooni and Berkeley Bionics, the company he co-founded in 2005, but by research teams around the world.

In 2009, Kazerooni and his team jointly developed with Berkeley Bionics the Human Universal Load Carrier (HULC), a successor to BLEEX. Last year, Berkeley Bionics also successfully launched an exoskeleton for paraplegics called eLegs. Another exoskeleton by Israeli company Argo Medical Technologies was even featured in an episode of the TV show "Glee."

"What distinguishes the Austin exoskeleton from the others out there is its simplicity for unsupervised in-home use and its lower cost," said Kazerooni. "We made the conscious decision to only focus on key functions to keep the cost down. Users won't be able to walk backward or climb ladders with the Austin exoskeleton, but what we sacrifice in capability, we gain in accessibility and affordability. Just getting people to be upright and take steps forward is already a huge advance in increasing independence."

Kazerooni noted that current exoskeletons on the market run about \$100,000 and up. Developing more affordable exoskeletons will bring this technology to a larger group of people, he said.

"The streamlined Austin exoskeleton is still in the early stages of research and is not yet connected to a company for development, but I do not see any real obstacle to bringing Austin exoskeletons to market at a price comparable to some motorized wheelchairs," said Kazerooni.

Keeping it simple

The challenge, the researchers said, is to resist the temptation to over-engineer the machine. Rather than rely upon a large number of hardware components, they favored computation and elegant programming to perform key functions.

"It is much harder in engineering to keep things simple," said Tung. "It's easy to just add more parts to do what you need, but that raises the cost of production, and it means more things can go wrong."

McKinley added that this streamlined approach has more than a cost-benefit to the end user. "With fewer components, we can make the exoskeletons resulting from the Austin project easier to use, operate and maintain," he said. "Our goal was to create a workhorse device able to faithfully handle the most essential tasks of daily life."

Robotic exoskeletons generally share similar elements: mechanical braces that can be strapped onto the user's legs and body, motorized joints controlled by actuators, electronic sensors, a computer brain that orchestrates the movements, and a portable power source.

When possible, the researchers used off-the-shelf, low-power parts and adapted them to their needs. They focused their efforts on the motions considered critical for mobility: standing, walking forward, stopping and sitting down. They then developed a number of innovations, including the integration of components and having some parts perform dual functions.

"If you cut down on the number of motors, you can cut down on the number of sensors needed, which in turn simplifies the device and leads to lower cost, but this also makes the exoskeleton motion control more complicated," said Reid. "Sophisticated motion control adds little, if anything, to the cost of production, but it requires a great deal of research and creativity at the design stage. That is what we are doing."

The computer that sends movement instructions to the motors and gears is worn in a small backpack, which also contains a rechargeable battery that powers the Austin exoskeleton. A single charge can sustain the exoskeleton for 4-8 hours of use. While the machine helps with movement, the user is responsible for balancing, which means candidates for exoskeletons must have some upper body control to manage that task.

"People with permanent mobility disorders suffer from secondary injuries resulting from long-term wheelchair use," said Pillai. "This technology offers an unprecedented degree of mobility and independence while decreasing the likelihood of secondary injuries."

Giving "the gift of hope"

It may be years before the exoskeleton's namesake will own his own personal device, but Austin Whitney's impact on its development has, and will, be significant.

"This team is so much more than just a group of researchers. They are my best friends at the university," said Whitney of the experience he's had with the engineers over the past year. "The exoskeleton the world will see on Saturday will have been built with much more than just steel and circuits – it has been built with compassion and a great devotion to the idea of touching lives all around this world."

Having quit drinking after his accident, Whitney regularly shares his story with students as an anti-drunk driving and motivational speaker, and is now considering law school. He continues to maintain an active lifestyle, helping to raise money for charities such as the Wheelchair Foundation and the Swim with Mike Foundation, which provided him with a scholarship. Whitney has also been recertified to scuba dive and is working on his scuba diving instructor certification.

And after May 14, he expects to add standing on stage before 15,000 people at Edwards Track Stadium for UC Berkeley's commencement to his repertoire of achievements.

"This work will constitute one of the most important endeavors I will ever do in my life," he said. "To have this knowledge of the larger picture, of the possibility that this could affect the lives of countless people around the globe, giving them the gift that I've been given – the gift of hope – it truly puts even our most frustrating days in perspective for me."

Student researchers mix technology and humanity

By Susan Suleiman

Graduate students are at the heart of UC research. And many package their expertise, creativity and compassion to tackle and solve key problems in California and beyond.

Katrina Gooding Petersen of UC San Diego studies how various technologies, combined with information from regular people, can be used to map disasters such as wildfires throughout the state.

To enhance green energy, UC Santa Cruz's Drew Lohn develops high-efficiency solar cells.

Adam Mendelsohn of UCSF has formed a startup company to design an implant that will deliver precise doses of lifesaving drugs directly into the bloodstream (see video).

They were among 20 UC graduate students, along with graduate division deans, in Sacramento on Wednesday (May 11) to meet with legislators to discuss the importance of graduate research and education. The Graduate Research Advocacy Day was especially timely as lawmakers are making key decisions to address state budget shortfalls. "The legislators don't often hear very much about the research done by students and how important it is, and about how central it is to the California economy," said Patricia Calarco, dean of the Graduate Division at UCSF. Historically, UC graduate students have played a key role in UC's research success. Many start or join new companies that are sparked by their research innovations. And those companies develop new technologies and create jobs.

Learning from Katrina

"Try going to New Orleans with the name Katrina," joked Katrina Gooding Petersen, a UC San Diego graduate student in communications.

After the BP oil spill hit the Louisiana coast in 2010, Petersen spent a week in New Orleans, not only being teased about sharing her name with a hurricane in the disaster-plagued region, but also studying how smartphones, GPS devices and other tech devices could be used to share information in a crisis. After volunteering with a grassroots group called the Louisiana Bucket Brigade, Petersen left New Orleans armed with a conceptual framework that led to her dissertation on crisis-mapping during the California wildfires of 2007.

But her emphasis is not just on technology. She also focuses on how all the information — coming anywhere from satellites to people with handheld radios — is used to provide the best maps and resources for dealing with disasters. Petersen, like many other UC scholars, seamlessly merges high technology with a powerful sense of humanity.

Another example is UC San Diego's Ramsin Khoshabeh, who worried about entering a career that valued function over form — and feeling. The 28-year-old Khoshabeh almost gave up on earning a Ph.D. in engineering. He feared the field might not complement his goal of wanting to help people.

Khoshabeh had watched several surgeons perform operations using robotics with a 3-D console. But laparoscopic surgery, using tiny incisions and even tinier cameras, forces surgeons to operate without depth perception. "It's like doing surgery with one eye closed," he explained.

Khoshabeh believed that laparoscopic surgeons could operate in 3-D, using video feeds from two cameras, combined with computer estimates of depth.

On his way to Peru, where he planned to "do some soul-searching," Khoshabeh emailed his idea to Stacy Liekweg, then executive director of the Institute for Engineering and Medicine at UC San Diego. Liekweg responded, suggesting he was a good candidate for the graduate program.

After returning from Peru, Khoshabeh successfully entered the program and now is developing the 3-D tool at the Video Processing Laboratory at the UC San Diego division of the California Institute for Telecommunications and Information Technology.

"Singlehandedly, she (Liekweg) altered the course of my life," he says.

Touch instead of technology

While his peers experiment in high-tech fields that didn't exist a decade ago, Christopher Lay, a neurobiology and behavior student at UC Irvine, pursues an idea with organic roots.

Using brain imaging, Lay and his colleagues found that if you stimulate a rat's whisker for the two hours immediately following an ischemic stroke — the most common type of stroke, caused by a blocked artery to the brain — the rat appears to make a full recovery. In humans, this might translate to rhythmic massaging of the hand and arm, which are used by humans in much the same way rats use their whiskers.

"It sounds folksy — and it may be — but the basic idea is that when someone is having a stroke, if they have a friend or loved one holding their hand and talking to them, explaining things to them, they may have a better outcome," said Lay.

Lay hastens to add that what works in rats doesn't necessarily work in humans. But the hope that this simple technique might someday be used by emergency medical technicians and family members, in the same way CPR is used now, has inspired Lay to join a team researching these techniques with humans.

Worms a clue to save crops

Samantha Lewis, a UC Riverside student in genetic, genomics and bioinformatics, combines a down-to-earth perspective with high-tech DNA research. Her subject? Tiny, lint-size worms, called nematodes, that are the most abundant animals on Earth.

Her research, funded by a National Science Foundation fellowship, focuses on understanding the DNA of nematodes that prey on insects. The research eventually may be used to develop a new alternative to insecticides and offer farmers new options in pest management.

Drew Lohn, a UC Santa Cruz graduate student in electrical engineering, investigates something even smaller than microscopic worms: nanoparticles. A former state-ranked competitive volleyball player, Lohn started his Ph.D. program working in a microscopic robotic lab, making robots the size of a human hair that could detect missiles. The following year, he jumped at the chance to join a brand-new nanomaterials lab run in collaboration with NASA and Hewlett-Packard. "My second year in graduate school, I put together the lab," he said. "I got the building permit approvals, and bought the wrenches and the screwdrivers."

His work is paying off. Lohn has visiting researcher status at Hewlett-Packard and has a stake in a startup company called International Solar that is developing high-efficiency solar cells that can be produced for the same price as the low-cost solar cell in a pocket calculator. He's working in another startup that is developing technology to turn heat directly into electricity using nanowire films. Some automobile manufacturers are experimenting with similar technology for exhaust systems, but Lohn's company is trying to use silicon rather than lead, which contributes to pollution.

"There are probably four dissertation topics that I could do," he said.

If Lohn's lab director had his way, Lohn might stick around to do all of them.

"I feel truly fortunate that I found Drew," says Nobuhiko Kobayashi, director of the Advanced Studies Laboratory at UC Santa Cruz. "Graduate students are crucial to any lab - not just their work, but their ideas. We're a new laboratory and we rely on outside funding for our research, so the university and state support for graduate students is crucial."

Susan Suleiman is a freelance writer with the UC Office of the President.

Act of kindness becomes civil rights lore

A simple act of compassion became a symbol of racial tolerance that is still celebrated 50 years after it was performed by a 12-year-old girl living in the segregated south during the turbulent civil rights era.

Janie Forsyth McKinney, a UCLA staff member who works as a communications specialist for External Affairs staff training, grew up on the outskirts of Anniston, Ala., where the Ku Klux Klan was a powerful force. When 12-year-old McKinney went to aid civil rights activists who came under attack by white supremacists, she became part of the civil rights movement's lore, changing her life forever.

When she was growing up, the KKK was so feared and accepted by the community that her father, a small-town grocer, felt pressured to join.

"He used to say, 'It's good for bid-ness,'" McKinney recalled of her dad. "But he was a kind-hearted soul. If he found out people were hungry, he would give them food. He didn't care what color they were."

But racism was deeply embedded in Anniston and surrounding towns in the form of brutal, midnight beatings of black men "who didn't remember their place" and white-only schools and restrooms. McKinney felt differently, largely because of Pearl Seymore, the family's black housemaid who helped raise her and whom she loved.

By age 12, McKinney was "old enough to know about the Klan ... and I was deathly afraid of them. The Klan was like a nightmare. It was something you could see out of the corner of your eye, and then it would disappear."

One day, her dad let her in on a secret: Outside agitators from up north were on their way by bus from Washington, D.C., to New Orleans and would be passing through town. But the KKK, he told her, was going to give them a little surprise party before they reached Anniston.

The "agitators" were the Freedom Riders: black as well as white civil rights volunteers — many of them idealistic college students — trained by the Congress for Racial Equality in

nonviolence and committed to exposing illegal segregation in public facilities and transit systems that involved interstate commerce. So they integrated buses that crossed state lines.

On Mother's Day, May 14, 1961, just outside of Anniston, a mob of around 200 white men, angry and chanting hate slogans, stopped the Greyhound bus carrying 13 Freedom Riders, in addition to other unsuspecting passengers. The men hammered the vehicle with sticks and pipes and slashed its tires. When the bus driver somehow managed to maneuver the bus free of the crowd, a convoy of cars followed it.

Riding on its rims with sparks flying, the bus finally could go no farther and stopped next to McKinney's home and adjacent grocery store. As the angry mob surrounded the bus, the white bus driver ran off. Watching, McKinney saw a hand with a crowbar or heavy chain emerge above the crowd and smash out the back window of the bus. In the next moment, someone threw an incendiary device through the broken window, instantly filling the bus with roiling black smoke.

"The people on the bus were gagging," she recalled. While some of the passengers lay down on the bus floor in search of air to breathe, others, including an elderly black woman, panicked. Meanwhile, the crowd yelled out epithets, McKinney recalled. "They were saying things like, 'Roast those n****s alive.'" There were reports of people outside the bus holding the bus doors shut to prevent anyone from escaping. Then, something in the bus exploded, forcing the mob back and giving the passengers a chance to break out of the burning vehicle.

"The door burst open, and there were people just spilling out of there. They were so sick by then they were crawling and puking and rasping for water. They could hardly talk."

Those desperate voices, raw with smoke, propelled McKinney to do something. The 7th grader ran into the house, washed out a bucket, filled it with water, grabbed some cups and went into the crowd. "I couldn't just stand there and do nothing," she said.

The first person she helped was the elderly black woman, who reminded her of Pearl. "Thank God Pearl wasn't there that day," McKinney said. "She didn't have to see this." After giving her water and washing her face, the girl then went on to give water to others. Chaos erupted as the crowd closed in on the Freedom Riders, some of whom were beaten as they scrambled off the burning bus.

"I don't know why they let me live. I figured, well, maybe they won't kill me because I'm not grown up yet. If I had been, they would have had my head on a pike." But she felt she had to live up to her Christian beliefs, she said, summed up in "Whatever you do to the least of my brothers, you do to me."

For 15 to 20 minutes, police did not stop the violence. "They just let it go on uninterrupted until they finally got it under control." Ambulances took the injured to the local hospital, which officials announced was closed, leaving the injured Freedom Riders in the waiting room.

"It took a black minister from Birmingham to form a convoy to come and pick them up and take them back to Birmingham," she said. Hours later, a second bus carrying seven Freedom Riders was attacked in Birmingham by a crowd wielding bats and pipes. But the momentum had begun for the civil rights movement, and the Freedom Rides continued until November as more than 400 blacks and whites from across the nation headed south to join

the rides despite the prospect of beatings and imprisonment.

For McKinney, her brush with history was over, but not the repercussions. She found out later that the local KKK met to decide whether to try her as an adult for her efforts to undermine their cause. In the end, they determined she hadn't known any better and decided to do nothing, disregarding her as weak-minded, mentally deficient child.

Still, life was never the same for McKinney, who felt "like a changeling," unable to fit in with her family or community. "This was such a black mark on my family that nobody — not even my father — would talk about it. I was the black sheep. I got ostracized in school by some hard-core Klan kids. They would call me names."

It wasn't until years later, after her father had died, that McKinney learned the truth. When Pearl lay ill and dying, McKinney visited her. "We were going down memory lane together. And I said, 'Pearl, Daddy never got over being mad at me about that bus, did he?' She said, 'No, child. That's not right. He told me he had never been prouder of you than he was on that day.'"

In 1981, 20 years after the bus burning, which had become a low point in the national consciousness about race, a TV news correspondent working for Charles Kuralt's "CBS News Sunday Morning" found McKinney. In preparing a segment on the anniversary of the Freedom Riders, now heralded as heroes of the civil rights era, a reporter had interviewed Henry Thomas, who was a 19-year-old college student when he rode that bus, the youngest of the 13 Freedom Riders. Thomas, who never forgot the white girl who had so courageously ministered to them, urged the reporter to find her. "He said, 'You cannot do this story unless you find that little girl who lived in the house next to that store,'" McKinney said. So Thomas and the reporter went to Anniston and found the house where they talked to her mother.

CBS correspondent Ed Rabel located McKinney living in California and got her account of what happened that day. McKinney later got in touch with Thomas, who had gone on to become a successful owner of seven McDonald franchises in Georgia. Through the blur of years, she could still see the young man, wearing "the ugliest suit I ever saw in my life," sitting on the ground after someone had hit him with a baseball bat. He, along with five others, had nearly burned to death that day.

"It was a great reunion," said McKinney. "We have an amazing bond," cemented by shared moments of terror and compassion that have kept them in contact for many years after that. In 1991, McKinney's story was featured on NBC Nightly News on the Freedom Riders' 30th anniversary.

This month, the 50th anniversary, McKinney took time off from her UCLA job to be on the Oprah Winfrey Show, where she had a surprise on-camera reunion with Thomas. This week, she is back in Anniston to participate in a reenactment of that Freedom Ride. More than 1,000 college students from all over the nation competed for 40 spots to participate in the commemorative journey, sponsored by the PBS history series, the "American Experience."

"They're retracing the route, and I'm going to meet them at the house, have dinner with them and talk to them," McKinney said excitedly.

On May 16, PBS will air "Freedom Riders," a documentary produced by "American Experience." On May 22-26, Freedom Riders from across the country who bravely fought

segregation will have their own celebration in Jackson, Miss., and Thomas has invited her to attend.

Today, a highway marker along Alabama Highway 202 marks the spot of the bus burning that became a nationwide rallying cry for the civil rights movement.

“All I know is that if I had made any other choice, I would have had to live with that. I’m proud of the choice I made. I think it was a moral choice, a humane choice, a spiritual choice. I wouldn’t undo it for anything.”

Do you know someone who is making a difference? You can nominate a UC staff or faculty member to be featured here. Send their name and a brief description of how they are contributing to UC or their wider community to Anne.Wolf@ucop.edu.

HR Briefs

Tip of the Month

Planning to retire in June or July? Make an appointment with your benefits office today to begin the retirement process.

UCRP contributions to increase July 1

Faculty, staff and UC will contribute more to the UC Retirement Plan (UCRP) beginning July 1.

Rates for most faculty and staff will rise to 3.5 percent of pay, up from roughly 2 percent for most employees. The university will pay 7 percent of pay, up from 4 percent. The amount will increase again in July 2012, with employees paying 5 percent and UC paying 10 percent.

Faculty and staff will see the increased contributions reflected in their regular paychecks for July earnings, which are available between July 20 and August 6, depending on whether employees are paid biweekly, monthly or another cycle. All employee contributions are pre-tax.

The new contribution levels affect only active members of the UCRP and are subject to collective bargaining for represented employees.

The Regents approved the increases last fall as part of a plan to address UCRP’s unfunded liability.

For almost 20 years, until the spring of 2010, UC and its faculty and staff did not pay into the retirement plan because the plan maintained a surplus. But a combination of factors – steep market losses, the lack of contributions and changing demographics – led to a deficit.

Until UC and its employees together begin contributing enough to cover the annual increase in cost for active members (in excess of 17% of pay), the pension program’s current \$14 billion unfunded liability will grow, adding to the pressures on UC’s operating budget.

In the past year, the Regents have taken a number of actions to address the pension shortfall. Those actions include establishing a new tier of benefits for employees hired beginning July 1, 2013, and approving internal borrowing options to better fund the pension plan.

Learn more about UCRP and Regents actions to reduce the plan’s unfunded liability at the Future of UC Retirement Plan website: <http://universityofcalifornia.edu/sites/ucrfuture/>.

UC financial education classes expanded

As part of its Retirement Savings Program, UC offers a series of free financial education classes to help faculty and staff get the fullest advantage of their UC retirement savings benefits.

The classes, available as onsite workshops and online webinars, provide tools and education to help employees design a personal strategy for savings, investing and transitioning into retirement.

UC Human Resources and Fidelity Retirement Services have worked together to expand and update the classes to make them even more useful. Here's what they've done:

- Restructured the classes to allow for beginner, intermediate and more advanced levels of learning
- Created new classes to add depth to the curriculum—particularly classes on topics such as understanding debt, college savings options and estate planning—that may lie outside of retirement but still affect the ability to plan and save for retirement
- Broken some classes into smaller, more easily digested topics and provided shorter alternative versions of some classes.

View the updated roster and schedule of classes:

http://atyourservice.ucop.edu/employees/retirement_savings/ret_ready_wkshp.html