

your University

A REPORT FROM THE UNIVERSITY OF CALIFORNIA PRESIDENT FOR FRIENDS AND ADVOCATES OF UC

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RESEARCH IN ACTION WORKING FOR THE PEOPLE OF CALIFORNIA

California Burning: This special report highlights UC's work in wildfire research. (Inside)



did you know?

- UC Davis certifies more than 95 percent of wine grapevines, ensuring a reliable supply of high-quality, disease-free rootstock for California's multibillion-dollar wine industry.
- UC operates the 4-H program, which serves more than 140,000 California youth.

A message from UC President Mark G. Yudof



As I start my work with the University of California, I can think of no more exciting place to be in American higher education.

I chose to join the University of California because it is the premier public university in the world, with 10 vibrant and robust campuses, and it is an institution that has had and will continue to have a profound impact on the lives of the tens of millions who call California home.

As we look ahead, I see great opportunities for this university – opportunities to continue building its academic quality; to better demonstrate its effectiveness and relevance to its constituents, the people of California; to continue providing access to deserving students of all backgrounds; and to further expand the frontiers of discovery in exciting new ways. I believe in a system office that supports these activities by facilitating the work of the campuses, providing coordination when useful, and seeking always to add value.

In the months ahead, I look forward to keeping you informed about how UC is achieving new levels of academic distinction and is working to provide the best possible service to its constituents, the people of California.

I invite you stay in touch at www.universityofcalifornia.edu/president.

High school teachers study at UC research academy

This summer 15 California high school and community college teachers will have an opportunity to explore cutting-edge lab research through a program UC Davis and Lawrence Livermore National Laboratory offer to promote science education.

“The intention of the program is to provide teachers with access to the scientific community and for teachers to learn how to bring the real world of scientific research into the classroom,” said Carey Kopay, executive director of the program.

Each teacher will serve a six-week internship, working with scientists at Lawrence Livermore and Sandia national laboratories and the Joint Genome Institute. The internships are the final part of a four-level Teacher Research Academy offered each summer through the Edward Teller Education Center at the Livermore Lab. The first three levels offer workshops in biotechnology, biophotonics, energy technologies, fusion and astrophysics. Grants from the Department of Energy and the Amgen Foundation enable the program to give the teachers small stipends.

Christina Fugazi, a teacher in the Venture Academy School in Stockton, is eager to get into the lab with her mentor, Sandia Lab researcher Kim Tran, to work on

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UC TO ENROLL LARGEST FRESHMAN CLASS IN ITS HISTORY

The University of California's nine undergraduate campuses are expecting a record-breaking 38,088 California students to enroll as freshmen in the fall 2008 term.

UC had received a record number of in-state applications, 79,661. Despite a proposed state budget roughly equal to that of 2007-08, the university fulfilled a commitment to offer a place to every eligible California applicant for 2008-09. That commitment resulted in a record 60,088 admission offers to California high school seniors.

About 23.7 percent of those admitted students who have indicated their intention to enroll are African American, American Indian and Latino/Chicano students. Systemwide the number of those underrepresented students increased by 1,076 compared with the fall 2007 freshman class.

Many campuses will welcome their largest-ever freshmen classes in the fall. At UC Merced, for example, 1,065 students have declared their intent to register as freshmen compared with 731 in 2007, a 46 percent increase at the 4-year-old campus.

In addition, as of the end of June, 13,730 California transfer students had indicated their intention to register. That's an increase of 807 more than 2007's 12,923.

UC offered admission to 17,513 transfer students from California community colleges for fall, a 6.3 percent increase compared with the previous fall. In addition to the fall term admits, some campuses will offer admission to additional California transfer applicants for winter/spring 2009.

Teacher academy *continued from page 1*

nanotechnology research, an emerging field she's eager to introduce her students to.

"I'll be able to take what I learn in the lab back to my classroom," said Fugazi. "I can't wait to hear them say, 'Where do you come up with this stuff?'"

Her mentor, Tran, a former New York City high school science teacher, understands the challenge of getting young people excited about science.

"The teachers get to learn a different type of science here," Tran said. "These projects are happening now. We don't know what the results will be. The experiments in the textbooks you use in schools have been done thousands of times. Everyone knows what the results will be."

The opportunity to engage in hands-on science in a world-class lab gets the teachers plenty excited themselves.

"After teaching for a number of years, it's neat to see really advanced science and to remember what it was like when you were in college and figuring this stuff out for the first time."
—Joseph Blanchard
Science Teacher

through California State University, East Bay. The remaining units to complete the degree can all be earned through online courses. Both men teach in rural areas where it would be hard to commute to a campus where they could participate in an advanced degree program.

Most of their students will go into low-paying agriculture jobs, they said, and few will go to college. But that doesn't stop the teachers from trying to get those students interested.

"We know most of our students won't be scientists, but that doesn't mean they can't do science," said Blanchard.

For unmotivated students who aren't into science, said Erin McKay, a Tracy High teacher, hands-on instruction is an even more important learning approach for them than the students already working on an advanced level.

"This internship helps me figure out the areas I need to focus on in the classroom," McKay said. "This gives me a structured way to think about how to apply what I do here to my lesson plans."



High school science teacher Christina Fugazi (right) with her Teacher Research Academy mentor, Kim Tran, will work on nanotechnology research this summer.

"After teaching for a number of years, it's neat to see really advanced science and to remember what it was like when you were in college and figuring this stuff out for the first time," said Joseph Blanchard, science department chair at Wasco Union High School in Kern County.

Both Blanchard and Todd Chambers, a teacher at Lindhurst High School in Olivehurst, south of Yuba City, are taking advantage of the program's option to earn a master's degree. Teachers who register for all four levels of this professional development program can apply 10 units toward completing a master's of science education degree



Teacher Research Academy interns pose with lab mentors for class photo at Livermore Lab.

Activities may curb dropout rates

Extracurricular activities – which are the most likely programs to be cut when state education budgets dwindle – may help keep students in high school, according to a UC study.

“Our study shows that student engagement behaviors, including participating in extracurricular activities, contribute to the formation of friendship networks which arc toward educational attainment; the same behaviors detract from the likelihood that students will become susceptible to the social and behavioral influences of others who drop out of school,” said assistant professor Robert Ream of UC Riverside’s Graduate School of Education.

Ream conducted the study with Russell Rumberger, professor of the Gervirtz Graduate School of Education at UC Santa Barbara. The study shows that the socioeconomic disadvantages of Mexican American adolescents detracts from a student’s ability to participate in extra-curricular activities.

Low-income Mexican American students may be less able to participate because they have to hold after-school jobs or care for their siblings while their parents are at work. Low-income students may not be able to afford the fees some extra-curricular activities require.

Disengaged students are also more likely to have friends who have dropped out of school. Studies show that having dropout friends increases the chances of a student not graduating.

“Students need to have opportunities available in a broad range of school-related activities,” Ream said. “Drama and the arts, or sports, even the academic decathlon are engagement behaviors that help kids develop school-oriented peer networks and facilitate their ability to seamlessly navigate home and school environments.”

Tom Lantos archive donated to UC Berkeley

The papers of the late Democratic Congressman Tom Lantos have been donated to the Bancroft Library at UC Berkeley.

Lantos was the only Holocaust survivor to serve in the U.S. Congress. He escaped from a forced labor camp in his native Hungary during World War II and participated in the Nazi resistance movement.

Lantos immigrated to the United States in 1947 and attended the University of Washington and UC Berkeley, where he earned a Ph.D. in economics in 1953. He was an economics professor, business consultant and international affairs analyst for 30 years before making a successful bid for a seat in the U.S. House of Representatives in 1980. He was elected to 14 terms.

Lantos died of cancer on Feb. 11 at the age of 80.



UC provost to resign

Wyatt R. “Rory” Hume, UC provost and executive vice president for academic and health affairs, will be stepping down from the position by this September.

In addition to his responsibilities as provost, Hume had been serving as chief operating officer for the university since August when former UC President Robert Dynes announced he would resign.

Hume, a longtime administrator and faculty member both in the UC system and in his native Australia, said that after a break he intends to continue working to advance higher education and health care in the United States and internationally, though he has not announced specific plans.

Hume said he reached his decision some months ago but waited to make it public until the presidential transition was completed.

UC Davis chancellor to step down

Chancellor Larry N. Vanderhoef will step down in June 2009, at the end of the campus’s centennial year.

A nationwide search for a new chancellor will be initiated, and a committee with regent, faculty, staff, student, alumni and foundation board representatives will be named to advise UC President Mark Yudof on hiring Vanderhoef’s successor.

Vanderhoef, appointed in 1994 as UC Davis’ fifth chancellor, is one of the nation’s longest-serving university leaders.

“I can’t imagine greater good fortune than to have spent the past 24 years at UC Davis,” Vanderhoef said in a letter to the campus community. “Along the way, there have been challenges to be sure, but together we have helped this remarkable university to reach higher, to be bolder and to achieve great distinction. For those years and those opportunities, I will always be grateful.”

He joined UC Davis in 1984, first serving as executive vice chancellor and then provost/executive vice chancellor. After what will be a full quarter century of service to UC Davis, he will take a yearlong sabbatical, and then return to the faculty as a professor of plant biology.

He will also continue to support the campus as chancellor emeritus.



UC graduates shine in Capital Fellows program

When Natalie Torres' parents see Gov. Arnold Schwarzenegger on TV talking about California's raging wildfires, they can take pride in knowing their daughter contributed to his sound bites.

As part of her duties in the state Office of Emergency Services, Torres prepares a daily briefing for the governor's office on the day's fire activities.

"It's been crazy coordinating with all the state agencies," she said. "We're working 24/7. I've really learned about the level of dedication of people in state government. We always hear about state employees and how they aren't really trying. The truth is California is a huge state, and people have a lot of needs. People in government are working really hard all the time."

Torres is one of 28 University of California recent graduates participating in the Capital Fellows program. Established in 1957 and administered by Sacramento State University, the program places 64 fellows each year: 18 each in the state Senate, Assembly and executive offices and 10 in the judicial branch of state government. Fellows receive master's degree credit from the university, health benefits and a \$1,972-a-month stipend to cover living expenses during their 11-month stint in the program.



Capital fellow Natalie Torres meets Gov. Arnold Schwarzenegger.

Being at the table where high-level public policy negotiations are going on and being able to contribute her perspective of growing up in a low-income minority community was a privilege, Ocampo said.

"It was very encouraging to be around a big group of people who are dedicated to public service," she said. "We all have a vision of how things will be better, and it was great to have that support from people with like-minded goals."

You don't have to be interested in a career in public service to benefit from the fellowship, said Hoorig Santikian, a UCLA grad from Fresno, who is serving in the Office of the Secretary of Education.

"I don't know any position right out of college that would give you such in-depth experience on how to be an executive," said Santikian, who will attend a master's program at Stanford University in the fall with a goal of working in education policy or becoming a professor.

While many choose to go to graduate school or law school after completing their fellowship, Lupe Castillo, a UC San Diego graduate, will stay in the Office of the Governor's California Volunteers agency as a grants manager in the Disaster Volunteering and Preparedness Department. Her bilingual skills were advantageous in many assignments, she said. One of those was being a building captain when 320 community volunteers built a playground in the Coachella Valley in one day.

"The fellowship gave me a chance to grow into who I've become," Castillo said.

"I don't know any position right out of college that would give you such in-depth experience on how to be an executive."

—Hoorig Santikian
Capital Fellow

"You won't get wealthy from the months you're here," said Torres. "But people are getting jobs when they leave and getting more salary than an entry-level person right out of college. Once you get it and you're good at your job, you become very competitive in your job market."

Being around people dedicated to public service helped her make a decision about returning to UC Berkeley, where she earned a bachelor's degree, to study law.

UCLA graduate Hazel Ocampo, a fellow in the California Environmental Protection Agency, will be going to law school in the fall at Cornell University on a \$100,000 scholarship.

"I'm a first-generation college student," she said. "My parents are from Mexico. The fellowship gave me an awakening that there are several areas in which the public can have a voice to make an impact on public policy. That's the most significant thing I learned."

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Get fired up about safety. Find fire safety tips for homeowners and track wildfire news from the **UC Berkeley Center for Fire Research and Outreach**.

Is that a Shriner or a professor? Check out UCLA's video exploring the meanings of commencement caps and gowns.

California burning: UC's research on wildfires

First there was the drought. Then the fire season hit, much earlier than Californians expected this year. By the end of the month, more than 1,450 wildfires were burning in California. The flames have consumed nearly 380,000 acres.

UC faculty are at the center of the state's wildfire research – studying the effects of global warming, land management and firefighting practices – with institutions including the UC Berkeley Center for Fire Research and Outreach, UC San Diego's Scripps Institution of Oceanography, the UC Merced-based Sierra Nevada Research Institute and the UC Davis-based California Institute for Hazards Research. Here is a sample of their research and opinions.

Fighting fire with fire may be the solution

*Richard Minnich, professor of geography,
UC Riverside earth sciences department*

<http://earthsciences.ucr.edu/minnich.html>

Wildfire historian Richard Minnich blames California's fire suppression policies for the growing severity of the state's wildfires. Decades of putting out wildfires has actually increased the fire danger he says, and the state would be better off letting wilderness fires burn themselves out.

"We seem to think we can control fire," he says. "Let's play a word game. Smokey the Bear says, 'Help prevent earthquakes.' Smokey the Bear says, 'Help prevent tornadoes.' Smokey the Bear says, 'Help prevent hurricanes.' Nobody in Western culture assumes that we can prevent those things. Why do we assume we can prevent fires?"

Minnich has compared the fire ecology and historical records of fires in Southern California with conditions in Baja California, looking at an area stretching roughly 150 miles on each side of the border. The terrain, climate and vegetation are similar, and before heavy development, the California side looked much like the Mexican side with grasses, sage scrub and woody chaparral. However, in Baja, he says, there is no fire suppression.



"There are many small fires down there – 10 times as many as the United States side but 10 times smaller," Minnich says.

He can find no natural reason for those differences and attributes the contrast to firefighting policies. U.S. agencies have a practice of putting out wildfires as quickly as possible. In Mexico they burn until they burn out.

California's fire suppression has created large swaths of dense, old-growth vegetation that hasn't burned in decades. When those areas do ignite, the devastation is wider spread.

In an area that burns more often, the landscape forms patches of vegetation of varying ages. When an older, more combustible area burns, it eventually runs into a patch of less combustible younger growth that stops the fire's progress.

"In California, we're really good at putting out nine out of 10 fires," he says. "The survival of the fittest comes into play. That one 'fit' fire hammers the urban interfaces."

Minnich supports controlled burning as a way to clear out dense vegetation and in the urban interface, more stringent development policies.

"We need really vigorous zoning and land management to prevent people from building in those areas," he says. "We should treat chaparral as gasoline. No one in their right mind would build a house in a pool of gasoline."

Fire fuels emotions

Donald Turcotte, distinguished professor of geology, UC Davis

<http://www-geology.ucdavis.edu/faculty/turcotte.html>



Using the same kind of mathematical modeling as he uses for earthquake forecasting, Donald Turcotte, a professor of geology at UC Davis, studies wildfire forecasting. (Fire forecasts can predict where fires are likely to break out, but not when. Public agencies use the forecasts to plan resource deployment during fire season.) The fire models have shown that large fires are more likely to occur when fuel is allowed to build up because small fires are suppressed. Those findings have steered him to the same conclusions Minnich has reached about the way California fights fires.

"The controlled burn is a big thing," says Turcotte. "This is a highly emotional issue. My feeling is it's a very good thing, but ecological groups are against it." Yet the areas susceptible to burning are too vast to reduce the fuel by cutting it out, Turcotte adds.

Critics of the let-it-burn philosophy point to the other factors that contribute to wildfire: ignition and wind. The early outbreak of California's June fires have been attributed, in part, to unusual strikes of dry lightning in Northern California and high winds in the early days of the conflagrations. While those natural phenomena are factors, Turcotte says, the availability of fuel is what causes the biggest fire danger.

"Sooner or later, you'll get ignition," he says. "You don't want fires to start but in terms of having big fires, it's inevitable."

He, too, favors stronger land management policies such as forcing homeowners who build in high fire-danger areas to keep vegetation cleared from around their structures. Local agencies should enforce the setback policies, he says, and insurance companies shouldn't pay the claims if a homeowner didn't keep the setback cleared.

More research emphasis needs to be on fires, he says, and suggests putting a fee on all homeowner insurance policies in California to pay for studying issues such as fire-resistant building practices and fire suppression methods.

Climate change fanning the flames

Anthony Westerling, assistant professor of environmental engineering, and geography, UC Merced, principal investigator, California Applications Program and Climate Change Center at Scripps Institution of Oceanography

<http://ulmo.ucmerced.edu/~westerling/index.html>



Anthony Westerling's groundbreaking 2006 study was one of the first to show a link between climate change and the increase in wildfires in the western United States.

"In the last several decades there has been a tremendous increase of fires in the western United States, and it's directly related to climate changes," he says. "Warmer spring and summer and earlier snowmelt."

Westerling and researchers from the Scripps Institution of Oceanography and other institutions constructed a database of large wildfires, more than 1,000 acres, between 1970 and 2003 and compared it with climate data. They found a sudden and dramatic increase in fires in the mid-'80s that they link to climate warming.

A temperature increase of less than 1 degree Celsius, Westerling says, resulted in a 300 percent increase in the number of fires and a 600 percent increase in the areas burned. The temperature increase also lengthened the fire season by 78 days. The average large fire in the '70s typically burned for a week. In the 2000s, he says, big fires go for an average of five weeks.

Some climate change scientists have predicted that average temperatures will increase by 1.5 degrees C to 5.8 degrees C by the end of the 21st century. If that scenario materializes, more wildfires are in the future, and the impact on the state will be devastating.

"Suppose you had a location that burned every 100 years and now because of climate change it wants to burn every 20 years?" Westerling asks. "What would that do to the ecosystem? You might get a shift in species and carbon storage."

Aussie rural fire brigades defend themselves

Scott Stephens, associate professor of fire sciences, UC Berkeley; co-director, Center for Fire Research and outreach

www.cnr.berkeley.edu/stephens-lab



Scott Stephens, who directs the Fire Science Laboratory at UC Berkeley, is in Australia studying that country's fire management policies.

"The Australians are way ahead of us in managing fire in the urban interface," he says.

They've reduced their losses from wildfires by 80 percent, he says, through a different approach to battling fires in the regions where development is butting up against wilderness areas, a condition that is growing outside every major urban area in California.

In Australia, rural fire brigades are trained to stay and defend their homes rather than wait for local fire departments to rescue them or evacuate the area. Communities have fire trailers equipped with hoses and firefighting equipment they are trained to use. When fire erupts they either leave immediately, he says, or stay prepared to fight.

"They engage people much more in the firefighting process," he says. "If you're going to fight your own fires, you're going to make sure your house is pretty fire safe."

That has been the building trend in Australia's urban interface. California's urban interface continues to spread out into more wilderness areas. Stephens believes if tougher building codes were imposed and enforced by a state agency such as CalFire, those new developments would be more fire-resistant and eventually form a protective buffer around the older urban interface communities.

"Unless we really start to engage the urban interface dwellers, we're going to keep building in the same way," he says. "Why would it change? We're going in the wrong direction, and we're very vulnerable."